

**Internationalisation of Public Services:  
A Social Network Analysis of Global  
Ownership**

**Popov Vladimir**

A thesis submitted in partial fulfilment of the  
requirements of the University of Greenwich  
for the Degree of Doctor of Philosophy

**June 2010**

## **ACKNOWLEDGEMENTS**

I am greatly indebted to Professor Martin Everett and David Hall, my supervisors, for their assistance on all stages of my study. Wherever it has failed in accuracy of fact or logic of judgement must, however, be my responsibility. I would like to thank Professor Peter Fairbrother and Doctor Dimitrios Christopoulos for extensive, challenging and stimulating comments that have helped me to expand and improve this dissertation.

I am very grateful to the Public Services International Research Unit (PSIRU) for providing me with essential data for this study. Also, it should be noted that there would have been no thesis at all without the essential funding of the University of Greenwich and financial support of PSIRU. Finally, this thesis would have been less than it is without the stimulating ideas that were in abundance in several conferences, which I was able to attend due to financial support of ASPE, PSI and the University of Greenwich.



## **ABSTRACT**

Globalisation is a widely used but much contested concept. This contestation has a large variety of dimensions and on-going debates. One of the debates focuses on economic globalisation and a rebalancing of the relations between the private and public sector that is taking place during the last three decades. Neo-liberalism, dominant in the policy agenda of the leading world powers during this period of time, advocates the necessity of privatisation, including privatisation of public services. However, the international outcomes of privatisation policies associated with the promotion of market relations and private investments in the public sector have not been sufficiently examined in empirical research. Although globalisation debates refer to international regulation, competition and the concentration of capital, there is a paucity of detailed empirically focused study on patterns of ownership and what they mean to a changing international order, especially with respect to privatised utilities.

The thesis opens up these themes in a focused way, analysing outcomes of water privatisation and electricity privatisation worldwide. It draws on a comprehensive database held by the Public Services International Research Unit (PSIRU) that enables an empirically based analysis of arguments about the outcomes of utilities' privatisation in the light of the globalisation debate. The main methodology used as a basis for a critical assessment of theories of globalisation is social network analysis. The thesis is mostly concerned with the international aspects of the privatisation of public utilities. It begins by arguing that the privatisation of public services worldwide should be located within debates on globalisation. The thesis then presents a reinterpretation of main globalisation trends, specifically the processes related to the internationalisation of public services, as an emerging modern form of economic colonialism.

To develop this argument the thesis comprises a variety of dimensions. First, three sets of debates are reviewed, globalisation, the internationalisation of capital and colonialism. In the course of this analysis

attention is drawn to the concentration of economic power and the international dominance of three economic blocs – the North America, Western Europe and Japan. The second dimension of the thesis is the presentation of an analytic framework to analyse the recent developments of privatisation worldwide. Drawing on the achievements of social network analysis a methodology for examining the outcomes of privatisation in relation to ownership and the patterns of concentration that have emerged is developed. This part of the thesis transforms the research questions that arise from the examination of debates about globalisation and privatisation and related developments. Here a set of hypotheses is developed to examine the process of privatisation worldwide, with reference to the electricity and water sector.

With this methodology outlined, the third dimension is present. In this section of the thesis particular explanatory dimensions of the process of globalisation are examined, specifically geography, culture, economy, and politics. Using SNA techniques that build on the first phase of the quantitative analysis which examines ownership concentration and identifies the presence of the star-like pattern of ownership in all studied sectors of public utilities, a rich vein of evidence of the key features of privatisation worldwide is presented.

The broad themes of this analysis are then drawn together in an assessment section. This assessment shows that economic globalisation reflects economic asymmetries and is related to political status, and that historical links make a considerable impact on the global ownership structures that have emerged in public services after privatisation. A key conclusion is that public services are being transformed as part of global capitalist system and that under the cover of globalisation a particular form of economic colonialism is emerging - the neo-colonialism that is centred on a few major western economies: The United States, France and the United Kingdom.

## **SYMBOLS AND ABBREVIATIONS USED**

ASEAN - Association of South East Asian Nations

BOO - Build-Operate-Own

BOOT - Build-Operate-Own-Transfer

BOT - Build-Operate-Transfer

DWI - Drinking Water Inspectorate

EA - Environment Agency

EBA - Extreme Bound Analysis

EFL - External Financial Limits

ETPM - Extended Three Polar Model

EU - European Union

FE - Fixed Effect

GDP - Gross Domestic Product

GNP - Gross National Product

IFIs - International Financial Institutions

IMF - International Monetary Fund

IPO - Initial Public Offering

LI - Low Income

LMI - Lower Middle Income

MNCs - Multinational Corporations

NAFTA - North American Free Trade Agreement

NATO - North Atlantic Treaty Organisation

NGO - Nongovernmental Organisation

OECD - Organisation for Economic Cooperation and Development

OFFER - the Office of Electricity Regulation

OFGEM - the Office of Gas and Electricity Markets

OFWAT - The Water Services Regulation Authority

PPP - Public-Private Partnership

PSBR - Public Sector Borrowing Requirement

PSI - Public Services International

PSIRU - Public Services International Research Unit

RE - Random Effect

RWAs - Regional Water Authorities

SAR - Structural Adjustment Reform

SNA - Social Network Analysis

SOE - State Owned Enterprise

TNCs - Transnational Corporations

TPM - Three Polar Model

UMI - Upper Middle Income

UNPD - United Nations Population Division

WB - World Bank

WTO - World Trade Organisation

# CONTENTS

<b>Chapter 1 Introduction</b>	<b>18</b>
<b>Chapter 2 Globalisation – Context, Main Dimensions, Processes, Theories and Debates</b>	<b>28</b>
2.1 Main Definitions and Dimensions of Globalisation	29
2.2 Economic Globalisation: Content, Main Processes, and Outcomes	38
2.3 Main Theories of Economic Globalisation	45
2.4 Internationalisation of Capital and Imperialism	50
<b>Chapter 3 Privatisation as a Driver of Globalisation</b>	<b>61</b>
3.1 Globalisation and Neoliberalism	62
3.2 Privatisation and Structural Adjustment	64
3.3 Brief History of Privatisation	69
3.4 Main Methods of Privatisation	74
3.5 Problems and Outcomes of Privatisation	79
3.6 The Question of Ownership	82
<b>Chapter 4 Privatisation and International Acquisitions of National Public Utilities as an Important Feature of Globalisation</b>	<b>85</b>
4.1 Privatisation and Internationalisation of Public Services as an Important Facet of Globalisation	86
4.2 International Acquisitions and Ownership Concentration in Public Utilities	93
4.3 Factors of Influence on International Acquisitions in Public Utilities	96
4.4 Summary of Research Questions	112
<b>Chapter 5 Methodology</b>	<b>116</b>
5.1 Research Questions	116
5.2 Review of Methods and Measurements that Have Previously Been Used to Address Main Research Questions of this Study	120
5.3 Social Network Analysis-Main Research Method	126
5.4 Hypotheses	131
5.5 Key SNA Concepts and Main Techniques Used in the Subsequent Analysis	134
5.6 SNA Software Packages	153
5.7 Data	164
5.8 Summary	166

<b>Chapter 6 Analysis of the Ownership Pattern in Public Services</b>	<b>167</b>
6.1 Water Sector	169
6.1.1 The Use of Degree Centralisation in the Analysis of Ownership Concentration in the Water Sector	170
6.1.2 Using Visualisation and the Core Routine for an Analysis of Global Ownership in the Water Sector	172
6.1.3 The Use of Centrality for Analysis of Ownership in the Water Sector	178
6.1.4 The Measure of Distance in the Analysis of Ownership Ties in the Water Sector	185
6.1.5 Analysis of the Relevance of Three Polar Models for Water	186
6.2 Electricity Sector	191
6.2.1 The Use of Degree Centralization in the Analysis of Ownership Concentration in the Electricity Sector	192
6.2.2 The Use of Visualization along with the Core Routine in the Analysis of Ownership Concentration in the Electricity Sector	193
6.2.3 The Measure of Distance in the Analysis of Ownership Ties in the Electricity Sector	199
6.2.4 Analysis of the Relevance of Three Polar Models for Electricity	201
6.3 All Sectors of Public Utilities	206
6.3.1 Degree Centralization of Global Ownership Network of Public Utilities	207
6.3.2 The Use of Visualization along with the Core Routine in the Analysis of Ownership Concentration in Public Services	208
6.3.3 Matrix of Distances for Global Ownership Network of Public Utilities	209
6.4 Summary of Main Findings for Research Question 1	211

<b>Chapter 7 Impact of Political, Cultural and Geographical Factors on the Acquisitions and Investment Choice in Public Services</b>	<b>214</b>
7.1 Analysis of the Impact of Political, Economic, Cultural and Geographical Factors on the Investment Choice in Water	215
7.1.1 Geographic Factors in Water	215
7.1.2 Cultural Factors (Civilizations) in Water	227
7.1.3 Economic Factors in Water	238
7.1.4 Political Factors in Water	244
7.1.5 Comparative Analysis of the Impact of Geographical, Cultural, Economic and Political Factors on the Structure of Ownership in the Water Sector	248
7.1.6 Summary of Section 7.1	253
7.2 Analysis of the Impact of Political, Economic, Cultural and Geographical Factors on the Investment Choice in Electricity	255
7.2.1 Geographic Factors in Electricity	255
7.2.2 Cultural Factors (Civilizations) in Electricity	268
7.2.3 Economic Factors in Electricity	277
7.2.4 Political Factors in Electricity	282
7.2.5 Comparative Analysis of the Impact of Geographical, Cultural, Economic and Political Factors on the Structure of Ownership in the Electricity Industry	286
7.2.6 Summary of Section 7.2	290
7.3 Summary of Main Findings for Research Question 2	292
<b>Chapter 8 Discussion of Findings</b>	<b>294</b>
8.1 Implications of Findings Related to the Pattern of Ownership	294
8.2 Implications of Findings Related to Factors Impacting on the Ownership Pattern	300
8.3 Implications of the Findings for Globalisation Theory	307
8.4 Summary	317
<b>Chapter 9 Conclusion</b>	<b>319</b>
<b>Glossary</b>	<b>330</b>
<b>References and Bibliography</b>	<b>332</b>
<b>Appendixes</b>	<b>367</b>

## TABLES

<b>Table 2.1</b> <i>Distribution of Inter-Firm Strategic Technology Alliances, By Field (1980-1989)</i>	43
<b>Table 2.2</b> <i>Investment Flows and GNP of the Triad and Most Advanced Developing Countries</i>	44
<b>Table 2.3</b> <i>Relative Share of the World Market for Manufactured Goods</i>	44
<b>Table 2.4</b> <i>Overseas Investment of Leading Countries 1870-1914</i>	53
<b>Table 2.5</b> <i>FDI as the Percentage of Total Foreign Investment by Leading Countries in 1914</i>	54
<b>Table 2.6</b> <i>Leading British-Owned Multi-Regional Business Groups in 1914</i>	55
<b>Table 2.7</b> <i>Stock of FDI by Leading Countries from 1914 to 1960</i>	56
<b>Table 2.8</b> <i>American Foreign Direct Investment Abroad from 1950 to 1980 by Area (Millions of Dollars)</i>	57
<b>Table 2.9</b> <i>Annual Average of FDI Inflows and Outflows in 1992-2003 (Millions of Dollars)</i>	58
<b>Table 5.1</b> <i>Research Questions and their Relevance to Globalisation Debate and Public Services Policies</i>	119
<b>Table 5.2</b> <i>Main Hypotheses and Research Techniques Used in the Study</i>	135
<b>Table 5.3</b> <i>Matrix of Friendship Ties in a School</i>	144
<b>Table 6.1</b> <i>Descriptive Statistics for Symmetrical Centralisation (the Water Sector)</i>	171
<b>Table 6.2</b> <i>Descriptive Statistics for Non Symmetrical Centralisation (the Water Sector)</i>	171
<b>Table 6.3</b> <i>Statistics for Non Symmetrical Centrality (The Water Sector)</i>	179
<b>Table 6.4</b> <i>Frequencies for In-Degree Centrality (The Water Sector)</i>	180
<b>Table 6.5</b> <i>Countries with the Highest In Degree Centrality in the Water Sector</i>	181
<b>Table 6.6</b> <i>Degree Centrality (Non Symmetrical) for the Water Sector</i>	182
<b>Table 6.7</b> <i>Betweenness Centrality of Some Water Companies</i>	183
<b>Table 6.8</b> <i>Descriptive Statistics for Symmetrical Centralisation of the Ownership Network of the Electricity Sector</i>	192
<b>Table 6.9</b> <i>Descriptive Statistics for Non Symmetrical Centralisation of the Ownership Network of the Electricity Sector</i>	193
<b>Table 6.10</b> <i>Descriptive Statistics for Symmetrical Centralisation of the Ownership Network of all Sectors of Public Services</i>	207
<b>Table 6.11</b> <i>Summary of Degree Centralization in Different Sectors of Public Services and in all Sectors</i>	207
<b>Table 6.12</b> <i>Part of the Matrix of Distance for All Sectors</i>	209



<b>Table 7.1</b> <i>Density for Continents (Average Value within Blocks)</i>	219
<b>Table 7.2</b> <i>Group Level E-I Index for Continents in Water</i>	220
<b>Table 7.3</b> <i>Regional Distribution of Countries Involved in International Acquisitions in the Water Sector</i>	222
<b>Table 7.4</b> <i>Civilisations and Countries</i>	228
<b>Table 7.5</b> <i>Average Density of Ownership Ties between Civilisations</i>	237
<b>Table 7.6</b> <i>Groups of Countries on the Basis of Income Per Person</i>	238
<b>Table 7.7</b> <i>Average Density of Ties between Countries with Different Income per Person (Water)</i>	243
<b>Table 7.8</b> <i>Countries-Members of the OECD</i>	244
<b>Table 7.9</b> <i>Average Density of Ownership Ties of OECD and Non OECD Countries (Water)</i>	247
<b>Table 7.10</b> <i>Figures of QAP Correlation for All Factors in Water</i>	254
<b>Table 7.11</b> <i>Density for Continents in Electricity (Average Value within Blocks)</i>	262
<b>Table 7.12</b> <i>Group Level E-I Index for Continents in Electricity</i>	263
<b>Table 7.13</b> <i>Average Density of Ownership Ties Between Civilisations in Electricity</i>	276
<b>Table 7.14</b> <i>Average Density of Ties between Countries with Different Income per Person (Electricity)</i>	281
<b>Table 7.15</b> <i>Average Density of Ownership Ties of OECD and Non OECD Countries</i>	285
<b>Table 7.16</b> <i>Figures of QAP Correlation for All Factors (Electricity)</i>	290
<b>Table 7.17</b> <i>Figures of QAP Correlation for All Factors In Water and Electricity</i>	291
<b>Table 8.1</b> <i>Figures of QAP Correlation for All Factors In Water and Electricity</i>	304

## FIGURES

Figure 2.1 The path of globalisation through time	37
Figure 4.1 Main actors involved in international acquisitions	92
Figure 4.2 Oligopoly in electricity: 5 companies = 46% of EU	95
Figure 5.1 Research questions and research dimensions of the study	118
Figure 5.2 Three Polar Model of internationalisation	123
Figure 5.3 Extended Three Polar Model	124
Figure 5.4 Pattern of fragmented network	131
Figure 5.5 Pattern of integrated network	131
Figure 5.6 Star-like network	131
Figure 5.7 Matrix with non digital symbols	145
Figure 5.8 Multinational corporations of the energy sector	146
Figure 5.9 Field of economic relations	147
Figure 5.10 Webster's Australian friendship data	148
Figure 5.11 Bonacich's variety of exchange networks	149
Figure 5.12 Dynamics of relations of drug users in Colorado Springs	151
Figure 5.13 Social science journals co-citation ties (2D)	152
Figure 5.14 Journals co-citation ties (3D)	152
Figure 5.15 Evolution of Europe's energy sector	153
Figure 5.16 A network created by Negopy	154
Figure 5.17 Data displayed as a Galois Lattice	155
Figure 5.18 A three dimensional view of the Brajkovich data	156
Figure 5.19 An advice network at the University of Greenwich	157
Figure 5.20 Davis, Gardner and Gardner's data on women's attendance at social events	158
Figure 5.21 Mitchell's Krackplot image of the social support network of a homeless woman	159
Figure 5.22 Modified image of the social support network of a homeless woman	160
Figure 5.23 Friendship ties among teenagers in a Dublin suburb	161
Figure 5.24 Sibling ties (blue) and the friendship (gold) among teenagers in a Dublin suburb	162
Figure 5.25 Part of a three dimensional VRML image of Webster's data on friendship ties among students at a residential college at an Australian university	163
Figure 5.26 Cliques in Webster's data on friendship ties among students at a residential college at an Australian university	163

Figure 6.1 Global ownership network of public services	168
Figure 6.2 Global ownership network of the water sector	170
Figure 6.3 4-core of the ownership network of the water sector	173
Figure 6.4 Ownership ties between and within the second and the third groups of the water sector	174
Figure 6.5 Ownership ties between the core and the second group (the water sector)	175
Figure 6.6 Ownership ties between the core and the third group in the water sector	176
Figure 6.7 Ties between the core and the periphery (the water sector)	177
Figure 6.8 Concentration of out degree centrality (countries)	179
Figure 6.9 Concentration of in degree centrality in the water sector	181
Figure 6.10 Global ownership of water companies	182
Figure 6.11 Concentration of out degree centrality (companies)	183
Figure 6.12 Ownership ties between water companies	184
Figure 6.13 Map of ownership acquisitions in the water sector in terms of the Three Polar Model	187
Figure 6.14 Map of ownership acquisitions in the water sector in terms of the Three Polar Model (between poles ties)	188
Figure 6.15 Ownership network of the water sector in terms of the Extended Three Polar Model	189
Figure 6.16 Ownership network of the water sector without ties between Europe and other poles	190
Figure 6.17 Internationalisation of ownership in the electricity sector	191
Figure 6.18 Core of the ownership network of the electricity sector	194
Figure 6.19 Three groups of the electricity sector	195
Figure 6.20 Ownership ties between the core and the second group of the electricity sector	196
Figure 6.21 The core and the third group of the electricity sector	197
Figure 6.22 Core and periphery of the electricity sector	198
Figure 6.23 Structure of the core of the electricity sector	199
Figure 6.24 Map of ownership in electricity in terms of the Three Polar Model	201
Figure 6.25 Ownership network of the electricity industry in terms of the Extended Three Polar Model	202
Figure 6.26 Ownership network of the electricity industry in terms of the Extended Three Polar Model (without North America, the European Union and Japan)	203
Figure 6.27 Ownership ties of American electricity companies in terms of the Extended Three Polar Model	204

Figure 6.28 Ownership network of the electricity sector without the USA in terms of the Extended Three Polar Model	204
Figure 6.29 Ownership network of the electricity sector in terms of the Extended Three Polar Model without the USA	205
Figure 6.30 Ownership network of the electricity industry (Spring embedder, Distance=5)	206
Figure 6.31 Ties between the core and the periphery of the ownership network of global public utilities	208
Figure 6.32 Pattern of ownership concentration in public services	211
Figure 6.33 Scheme of ownership concentration in public services	212
Figure 7.1 Continents of Earth	216
Figure 7.2 International ownership acquisitions between continents (excluding Europe)	217
Figure 7.3 International acquisitions in the water sector within continents (excluding Europe)	217
Figure 7.4 International acquisitions within continents in the water sector	218
Figure 7.5 Internationalisation of ownership in the water sector	219
Figure 7.6 International acquisitions in the water sector between regions (excluding Northern Europe, Western Europe and South Europe)	223
Figure 7.7 International acquisitions in the water sector within regions	224
Figure 7.8 Between and within ties of all European regions	225
Figure 7.9 International water acquisitions within and between all regions	226
Figure 7.10 Civilisations of Earth in the 1990s	227
Figure 7.11 Within and between ownership ties between civilisations (apart from the Western civilisation)	229
Figure 7.12 Map of ownership ties between all civilisations in the water sector	230
Figure 7.13 International ownership acquisitions within the Western civilization	231
Figure 7.14 Ownership ties in the water sector: the Western civilisation versus the Latin American civilization	232
Figure 7.15 Ownership ties in the water sector: the Western civilisation versus the African civilization	233
Figure 7.16 Ownership ties in the water sector: the Western civilisation versus the Islamic civilization	234
Figure 7.17 Ownership ties in the water sector: the Western civilisation versus the Orthodox civilization	235
Figure 7.18 Ownership ties between the Western civilisation and the Sinic, Hindi, Buddhist, and Japanese civilisations	236

Figure 7.19 Ownership ties in the water sector within and between countries with different incomes per person	239
Figure 7.20 Ownership ties of water companies in countries with UMI, LMI and LI	240
Figure 7.21 Ownership ties of water companies between countries with high income per person	240
Figure 7.22 Ownership ties between countries with high income per person and upper middle income per person	241
Figure 7.23 Ownership ties between countries with high income per person and lower middle income per person in the water sector	242
Figure 7.24 Ownership ties between countries with high income and low income in the water sector	242
Figure 7.25 International ownership ties between OECD countries	245
Figure 7.26 Ownership ties between continents (excluding North America and Europe)	257
Figure 7.27 Ownership ties within continents (excluding North America and Europe)	258
Figure 7.28 International acquisitions in electricity within continents	259
Figure 7.29 International acquisitions in electricity (excluding North America)	260
Figure 7.30 International acquisitions in electricity (excluding Europe)	260
Figure 7.31 Ownership ties between Europe and North America in electricity	261
Figure 7.32 Ownership ties within and between continents in the electricity industry	264
Figure 7.33 Ties between regions in the electricity industry (excluding three European regions)	265
Figure 7.34 Ties between regions in the electricity industry (excluding Northern America)	265
Figure 7.35 Ties between and within three European regions and Northern America (electricity)	266
Figure 7.36 Ties within regions in the electricity industry	267
Figure 7.37 Ownership network in electricity in terms of civilisations	268
Figure 7.38 Ties within and between all civilisations except for the Western civilisation in electricity	269
Figure 7.39 Ownership ties within the Western civilisation in the electricity industry	269
Figure 7.40 Ownership ties in the electricity industry: the Western civilisation versus the Latin American civilization	270
Figure 7.41 Ownership ties in the electricity industry: the Western civilisation versus the African civilization	271

Figure 7.42 Ownership ties in the electricity industry: the Western civilisation versus the Islamic civilization	272
Figure 7.43 Ownership ties in the electricity industry: the Western civilisation versus the Orthodox civilization	273
Figure 7.44 Ownership ties in the electricity industry: the Western civilisation versus the Sinic civilization	274
Figure 7.45 Ownership ties between the Western civilisation and Hindi, Buddhist, and Japanese civilisations	275
Figure 7.46 Ownership ties in the water sector within and between countries with different income per person (MDS layout)	277
Figure 7.47 Ties within all groups apart from the group with high income per person (electricity)	278
Figure 7.48 Ties within the group with high income per person in the electricity industry	279
Figure 7.49 Ties between the group with high income and upper middle income per person	279
Figure 7.50 Ties between the group with high income and lower middle income per person	280
Figure 7.51 Ties between the groups with high and low income per person	281
Figure 7.52 International ownership ties between OECD countries (electricity)	282
Figure 7.53 International ownership ties between OECD and non OECD countries (electricity)	283
Figure 7.54 International ownership ties between non OECD countries (electricity)	283
Figure 8.1 Pattern of ownership concentration of global public services	295
Figure 8.2 Scheme of ownership concentration of global public utilities	296
Figure 8.3 Joint ventures between main European multinationals	297

# Chapter 1

## Introduction

This thesis focuses on globalisation. Globalisation has become a recognised force across the planet in the three last decades, and is regarded as the key process of the contemporary world, affecting almost everybody on the planet, including businessmen, politicians and scholars. Never before did international business activities affect so many aspects of national economies and societies with the culture, economics and politics to be most frequently mentioned as the main spaces of global change (Held, 1999).

While globalisation progresses, national markets of commodities, labour and capital are increasingly integrated in the global system. International bodies are increasingly involved in the regulation of global processes, and national governments need to take into account their requirements more than ever. Multinational corporations (MNCs) become key players in the new global economy, and their global strategies substantially influence developments in local economies, societies, and policies. Certain western values have spread over the world to such extent that they have initiated disputes about the emergence of global culture and global society.

Unfortunately, even though globalisation has been analysed in many dimensions (Wolf, 2004; Bordo et al., 2003; Ervin & Smith, 2008; Freeman & Hagedorn, 1992; Gilpin, 2000; Held, 2007; Kaplinsky, 2008; Lechner & Boli, 2004; Scholte, 2005; Wade, 1996 and 2004; Waters, 1995), not all of them have been adequately explored and many important phenomena and facets of globalisation remain unclear and under-researched.

Globalisation is a popular and, yet, much contested concept. There is no universally accepted definition, it has a large variety of dimensions and is surrounded by a variety of on-going debates. As far as the dimensions of globalisation are concerned, theories of globalisation mostly address three dimensions of global changes. These dimensions are political, cultural and economic. The political dimension encompasses issues related to practices of concentration and exercising the political power both on domestic policies and

in the international arena. The cultural dimension embodies social arrangements for production and exchange of symbols reflecting major beliefs and values in a society. The last dimension, the economic one, deals with the processes of production and exchange of goods, products and materials.

The importance of these dimensions in globalisation studies is so evident that it is possible to classify theories of globalisation on the basis of these unifying dimensions. For example, some theorists of globalisation speak about global policy and society, and their vision is driven by the concept of global consciousness. They discuss the process of emerging global consciousness and assess the implications of this process for global governance and security (Sklair, 2002: 42).

The second major division of globalisation theories suggests that the world is being unified by the emerging global mass culture, the process driven by the unification of the mass media across the world. This approach singles out culture as the most important force of globalisation and deals with a variety of forms and problems associated with the emerging global culture. It is inspired by the rapid growth of the mass media exposing different parts of the world to substantially unified agenda of the news and images. The aspects and processes related to the development of the global culture can be referred to as cultural globalisation.

By contrast, the theories of economic globalisation are based on the assumption that economic processes constitute the most important layer of globalisation. Some proponents of economic globalisation point out, for example, that current economic activities are increasingly embedded in global enterprise. This study is based on this approach. It implies that the economic dimension is the most significant element and force of globalisation, even though economic transactions can be greatly influenced by cultural and political factors.

There are many reasons for this approach. It could be argued that the process leading to the emergence of the global culture has substantial underlying economic drivers because they are related to the development of communication technologies and unifying economic strategies, such as concentration of ownership in the global media industry, for example. Global vision and global policy have also become possible because of certain



economic and technological developments. For instance, electronic telecommunications have had a substantial impact on the development of global vision, and there are speculations that developments in global policy are driven by interests of certain economic institutions, like International Monetary Fund (IMF) and MNCs.

This study mostly focuses on economic aspects of globalisation, and for the purpose of this study, globalisation is defined as a process of the formation of interdependent economies on the global scene, facilitated by the establishment of common values and political institutions. Economic globalisation has many achievements and controversies, causing a need of detailed academic reflection on its major processes and outcomes.

Most theories that aim to explain the process of economic globalisation can be divided into four approaches. The first approach is mostly concerned with the pattern of developments. The second approach is based on descriptive theories that describe the activities of multinational corporations, their management and organisation. The third approach comprises the theories that highlight the importance of distinguishing between centre and periphery, such as dependency theory, for example. The last approach consists of a variety of Marxist theories, such as the theory of state monopoly capitalism or the theory of the internationalisation of capital. This dissertation attempts to examine the potential compatibilities between these approaches in globalisation research.<sup>1</sup>

As far as debates on globalisation are concerned, it is noteworthy that one of the most important debates related to the economic dimension of globalisation focuses on a rebalancing of the relations between the private and public sector. This process has been taking place during the last three decades and it is ideologically driven by neo-liberalism, the dominant ideology in the policy agenda of the leading world powers during this period of time. A predecessor of neoliberalism, liberalism, emerged several centuries ago, and main principles of liberalism are equality of opportunity and individual rights, including right to private property and freedom of speech. Liberalism relies on the rule of law and advocates for limitations on the power of governments. In

---

<sup>1</sup> The subsequent chapters present a more detailed and referenced account of globalisation arguments, dimensions and approaches that are just schematically outlined in this chapter.

one way or another, the ideas and concepts of liberalism were used by many capitalist governments. Most practical usages of liberalism in the middle of the twentieth century were associated with so called “embedded liberalism”.

The new approach to liberalism emerged at the end of the twentieth century, and it is called neoliberalism. It has made the major impact on the development of economic globalisation. Like liberalists, neoliberals advocate the principles of deregulation and market liberalisation, especially for developing countries. They argue that freedom of economic activities on the global stage would benefit the entire humanity. Neoliberal ideas are actively promoted by the International Monetary Fund and the World Bank and, because of this the principles of neoliberal globalisation are sometimes called the “Washington consensus” reflecting the fact that both organisations are based in Washington, DC.

Importantly, neoliberals are particularly assiduous in seeking privatisation of public assets. They argue that privatisation and deregulation, accompanied by the development of competition could eliminate bureaucracy, increase efficiency and productivity, reduce costs and improve the quality of services (Harvey, 2005). They even advocate the necessity of privatisation of public services, including private utilities, although public services are a special industry. This industry is regarded to be so essential for life in modern societies that the consumption of public services is frequently associated with fundamental human rights. Because of their essential nature, even where public services are provided by private operators, they are usually more subjected to regulation than any other economic sector.

It should be noted that although there are numerous detailed studies on privatisation, research on the role of privatisation policies in globalisation are limited and this research enquires are outside the mainstream of globalisation studies. This ought to be regarded as a considerable drawback because privatisation is the central element of neoliberal policies, which in turn constitute a platform for economic processes of globalisation (Harvey, 2005). Moreover, privatisation studies in the context of globalisation have a substantial limitation – they do not use much empirical data describing ownership acquisitions.

As a result of this, there is no clear understanding of ownership processes related to globalisation. For example, we do not know about the pattern of global ownership after privatisation policies, and what factors impact on the configuration of global ownership networks. Is this important? Yes, this empirically based knowledge is vitally important, because there is no empirically tested comprehension to which extent other identified features of globalisation, such as concentration of capital and production (Hirst & Thompson, 1996; Scholte, 2005; Kaplinsky, 2008), are similar to trends in global ownership. This is very important because the unequal concentration of wealth constitutes a substantial issue in globalisation debates.

And, yet, there is no adequate understanding of these important processes, because the international outcomes of privatisation policies associated with the promotion of market relations and private investments in the public sector have not been sufficiently examined in empirical research. Although a reference is made in globalisation debates to international regulation, competition and the concentration of capital (Hirst & Thompson, 1996), there has been no detailed empirically focused study on patterns of ownership and what they mean to a changing international order, especially with respect to privatised utilities.

This dissertation aims to fill this gap by researching international ownership networks associated with globalisation and by doing this to contribute to a deeper understanding of globalisation. This research contributes to privatisation and globalisation studies by exploring international ownership networks, formed during the process of entering the national markets of public services by multinational corporations (after privatisation of public services in these countries). As it has been already noted, research on privatisation outcomes in public services is under-represented in the mainstream of globalisation studies. By contrast, this thesis emphasises that the privatisation and internationalisation of providers of public services is an important feature of globalisation and that a study of the pattern of the global ownership network of private providers of public services could bring a considerable insight into globalisation theory.

More specifically, this thesis addresses the issue of internationalisation of ownership in public services, related the globalisation debate on the

balance between public and private sectors in a focused way, by analysing outcomes of water privatisation and electricity privatisation worldwide. These two sectors of public services have been selected for two reasons, first, because they are relatively self-contained and second, because there is a comprehensive database available that enables an empirically based analysis of arguments about the outcomes of utilities' privatisation in the light of the globalisation debate. Empirical data for this research are taken from a comprehensive database held by the Public Services International Research Unit (PSIRU).

PSIRU – Public Services International Research Unit is currently based in the Business School of the University of Greenwich.<sup>2</sup> This research unit was set up in 1989 with funding from Public Services International (PSI), the global confederation of public service trade unions. Its core funding is provided by PSI and the University of Greenwich. PSIRU carries out empirical research into privatisation, public services, and globalisation.

PSIRU publishes numerous reports on developments in companies, countries and regions. Its reports assess electricity regulation in the UK, monitor developments of energy privatisation in central and Eastern Europe, and analyse specific aspects of World Bank policies and EU policy initiatives on public services. These reports are based on the empirical data that is contained in the PSIRU data base. The data used in this thesis is drawn from this database as at 1 March 2003, when the database contained data on 6229 companies in 142 countries.

The main purpose of this thesis is threefold. The first objective is to identify the general pattern of global ownership network of public and private providers of public services. The second objective is to identify factors that might make an impact on the configuration of this network, thus providing an empirical testing of the regionalisation theory, arguably one of most disputed theories of internationalisation. The final objective is to assess implications of the findings related to the first and second objectives on globalisation debates.

---

<sup>2</sup> PSIRU's website is <http://www.psiru.org> (December, 2006).

As it has been noted, this thesis is mostly concerned with international outcomes of the privatisation of public utilities. It begins with the claim that the privatisation of public services worldwide should be located within debates on globalisation. However, rather than leave the debates here, the thesis presents the reinterpretation of main globalisation trends, including processes related to the internationalisation of public services, as the emerging modern form of economic colonialism.

To develop this argument the thesis comprises a variety of dimensions. First, three sets of debates are reviewed, including debate on globalisation, the internationalisation of capital and colonialism. In the course of this analysis attention is drawn to the concentration of economic power and the international dominance of three economic blocs – the North America, Western Europe and Japan.

The second dimension of the thesis is the presentation of analytic framework to analyse some outcomes of the recent developments of privatisation worldwide. Drawing on the achievements of social network analysis, a methodology for examining the outcomes of privatisation in relation to ownership and the patterns of concentration that have emerged is developed. This part of the thesis delineates the research questions that arise from the examination of debates about globalisation and privatisation and related developments. Here a set of hypotheses is developed to examine the structural outcomes of the process of privatisation worldwide, with reference to the electricity and water sector.

With this methodology outlined, the third dimension is present. In this section of the thesis, particular explanatory dimensions of the process of globalisation are examined, specifically geography (regionalism), culture, economy, and politics. Using techniques of social network analysis (SNA) that build on the first phase of the quantitative analysis which examines ownership concentration and identifies the presence of the star-like pattern of ownership in all studied sectors of public utilities, this dimension outlines a rich vein of evidence of the key features of privatisation worldwide. Once all these aspects are presented, the broad themes of the analysis are drawn together in an assessment section.

The main approach used in this study to address the research objectives is social network analysis, the method that has been fruitfully used in numerous anthropological, social, business, political and managerial studies. Social network analysis (SNA) is a perspective for the analysis of social *structures*, which is specifically geared towards an investigation of the *relational* aspects of these structures (Scott, 1991: 38). Social network analysis emerged about half a century ago. Its mainstream was developed by different groups working in three traditional sciences, psychology, anthropology, and mathematics (graph theory). Harvard University and Manchester University were the main centres involved in the development of social network analysis.

The difference between social network analysis and conventional methods, which also can be used to describe social structures, is that rather than examining attributes of the actors involved, social network analysis focuses on the connections between the actors. In other words, the actors are not merely described by their attributes but by their relations, which are seen by social network analysis as fundamental as the actors themselves (Hanneman, 2001).

SNA has already been applied to internationalisation research by Breiger (1981); Smith & White (1992); Snyder & Kick (1979); Steiber (1979); Ghoshal & Bartlett (1990); Louch et al. (1999); Sangmoon Kim & Shin Eui-Hang (2002); and Krempel (2003). For example, Snyder & Kick (1979) described the structure of the world system and examined its impact on economic prosperity of selected nations. Steiber (1979) developed the concept of strata and estimated the number of strata that existed in the world. Breiger (1981) analysed economic interdependence among nations and discovered the existence of a single core of the world system.

Although it builds on this foundation, this thesis differs from these earlier pieces in two important ways. First, to date, SNA has not been used for the study of global ownership network. Second, until now, SNA researchers have explored the properties of globalisation by the use of longitudinal approach. For example, Louch, Hargittai and Centteno (1999) have explored the process of the internationalisation of communications and identified how the pattern of international communications changed from 1983 to 1995.

Sangmoon Kim & Shin Eui-Hang (2002) analysed the change in international trade between 1959 and 1996. This thesis shows that it is possible to apply social network analysis to identify some important aspects of global ownership and to examine some important aspects of globalisation by the use of a non-longitudinal approach.

Social network analysis has a substantial arsenal of tools and techniques for the measurement of structural properties of networks. Several of them have been selected for this study. In particular, for the achievement of the first research objective, the concept of K-core, a number of centrality measures, and the concept of distance have been used. Goals of the second research objective are approached with the use of the EI index (which assesses the comparative densities of external (E) and internal (I) ties), the concept of density, and Quadratic Assignment Procedure (QAP). In addition, for both research objectives, several visualisation techniques have been applied.

Although social network analysis is the main method of this research, it mostly provides a set of “quantitative” techniques, the results of which are used in the subsequent “qualitative” assessment. This combined analysis is of particular value because it allows us to address the main globalisation issues and debates by providing the empirical evidence to develop and support analysis. In particular, this analytical assessment leads us to conclude that economic processes of globalisation are considerably embedded in certain historical context and relationships, which make a substantial impact on them. The main conclusion of this thesis is that public services are being transformed under neoliberal doctrines in part of global capitalistic system and that under the cover of globalisation a particular form of economic colonialism is emerging, that is centred on a few major western economies: the United States, the United Kingdom and France.

This thesis consists of nine chapters. The three chapters after the introduction lay out the analytical framework of this study. Thus, Chapter 2 discusses main features and dimensions of globalisation. It also overviews key processes of economic globalisation and internationalisation. The next chapter, Chapter 3 outlines the main principles of neoliberalism and shows that neoliberal ideas constitute the ideological basis of economic globalisation.

This chapter also reveals that privatisation is the key policy of neoliberal structural adjustment reforms and examines the main methods and outcomes of this policy. Importantly, the question of ownership with regard to privatisation and globalisation studies is examined here.

Chapter 4 places the privatisation policies in public utilities in the context of globalisation research. It argues that the processes related to outcomes of privatisation in public services should be assessed among most important issues of globalisation. The Chapter also identifies main factors that could impact on the process of internationalisation of public services. Most importantly, the Chapter summarises the discussion of the three chapters and outlines the main research questions.

Chapter 5 describes the methodology of this research, social network analysis. The Chapter defines main research hypotheses in terms of social network analysis and explain related concepts and techniques. Since visualisation is one of the major instruments in this analysis, the chapter contains a wide overview of SNA visualisation formats and software packages.

Chapter 6 and Chapter 7 comprise another section of the dissertation. These chapters present the main findings obtained while applying a variety of techniques of social network analysis for two sectors of public utilities, water and electricity. In particular, Chapter 6 examines the pattern of global ownership networks in these sectors. Chapter 7 explores a wider range of structural properties of these global networks. It assesses the impact of geographical, cultural, economic, and political factors on the configuration of the global network of international providers of public services.

Chapter 8 provides the analytical synthesis of the quantitative and qualitative parts. It summarises the findings of Chapter 6 and Chapter 7 and discusses them in a broader context of globalisation theories. The final chapter, the conclusion, contains a broad overview of the entire thesis. It summarises arguments and findings of this dissertation, assesses them in the light of globalisation debates and historical developments, and provides a prologue to further research.



## **Chapter 2**

### **Globalisation – Context, Main Dimensions, Processes, Theories, and Debates**

In three last decades globalisation has become a recognised force across the world. Globalisation processes affect almost everybody on the planet. Developments in communications and transport have enormously stimulated the interconnectedness between people, businesses, organisations and governments. National markets of commodities, labour and capital are increasingly integrated in the global system. Multinational companies (MNCs) are identified as the driving force behind the new global economy, and their global strategies considerably impact on local societies, economies and policies.

The globalisation of production and markets inevitably results in the rapid integration of states, economies and societies. National governmental, financial, business and social networks are progressively embedded in international networks, which are increasingly linking humans and organisations into a global integrated web (Mittelman & Pasha, 1997; Hirst & Thompson, 1996). The global spread of certain values has initiated disputes about the emergence of global culture and global society.

As business and social activities transcends national borders, there is a need for global institutions which may assist in controlling and regulating the global marketplace. General Agreement on Tariffs and Trade (the GATT), its successor The World Trade Organisation (WTO), The International Monetary Fund (IMF), The World Bank, and the United Nations have been established in order to remove restrictions to free flow of capital and to secure smoothness of global processes (Hill, 2007: 9, 10). National governments need to take into account requirements of these international bodies more than ever (Morrison, 2006: 138).

Although a variety of aspects of globalisation have been examined in numerous studies, there is no consensus on its content and consequences.

Globalisation is much contested concept. This research aims to contribute to the globalisation debate by arguing that privatisation and internationalisation of public services is an important feature of globalisation. It intends to show that a study of the pattern of international acquisitions of public utilities can provide an essential insight into the globalisation processes and expose key features of globalisation. This chapter together with Chapter 3 and 4 lays the analytical framework of the thesis.

This Chapter aims to review the major concepts and dimensions of globalisation and locates the current stage of globalisation on the historical scale. This Chapter therefore starts with key definitions and concepts of globalisation. Having examined in Section 2.1 the main dimensions of globalisation and identified the economic dimension as most important, the chapter outlines the main globalisation features associated with the economic dimension of globalisation. Section 2.2 outlines the main features of economic globalisation, introduces its drivers and examines discontents. Specific theories and approaches related to economic features of globalisation are reviewed in Section 2.3.

Globalisation is a phenomenon with historical roots and this study views globalisation as the contemporary stage of the internationalisation of capital. The final section (Section 2.4) therefore reviews main developments associated with the internationalisation of capital. It mostly concerns developments in the internationalisation of capital before the 1980s, because the subsequent period associated with neo-liberal privatisation practices that triggered international expansion and concentration of capital is examined in detail in the next Chapter.

## ***2.1. History and Main Dimensions of Globalisation***

To start with it should be noted that the concept “Globalisation” is very multi-dimensional. For some economists it could be associated with the unprecedented freedom of movement factors of production across the world. For many businessmen globalisation might mean an opportunity to use international resources and to target diverse markets. Certain sociologists and

anthropologists may be more concerned with cultural and social factors that facilitate or impede these developments (Gould, 2005). The assessment of globalisation trends also varies. Some proponents of globalisation argue that it is a desirable force that overturns national governments and enriches the world. Certain opponents of globalisation might emphasise that it destroys cultures and impoverishes the masses (Wolf, 2004: 13).

As a result of this multi-dimensionality and controversy, globalisation is a word of obscure meaning, and the task of defining globalisation is not easy. As a starting point, it is possible to use the definition given by Anthony Giddens. Giddens (1999) defines globalisation as “an irresistible force, transforming all aspects of contemporary society, politics and economics.” (Cited in Wolf, 2004: 14). This definition is very broad, but it indicates the existence of several dimensions of globalisation. More specifically, Bordo et al. (2003: 1) explain globalisation in economic terms of the integration of three markets, including commodity markets, labour markets and capital markets. It is also possible to view globalisation in non-economic terms of the flows of knowledge, culture, crime and even diseases. The global financial crisis of 2008 and the worldwide swine flu epidemic of 2009 are most illustrative in this respect. A variety of dimensions of globalisation is reviewed in the subsequent analysis.

It has been argued that the main principles of globalisation are internationalisation, liberalisation, universalisation, and westernisation (Scholte, 2005). Yet, it has also been shown that even these principles are to some extent redundant and do not reflect the essence of globalisation. In an attempt to outline the most distinguishing feature of globalisation, Scholte (2005: 59) has proposed defining globalisation as “the spread of transplanetary connections between people”. This definition, however, is only one out of many approaches and concepts of globalisation, and the key theories and pre-concepts of globalisation need to be reviewed in detail.

It should be noted that the word “globalisation” is rather new. Reportedly, this word became relatively widespread only after 1960 (Waters, 1995: 2), and globalisation had not been in the mainstream of academic studies up to the mid 1980s. Only then, the concept of globalisation received

academic popularity, largely by continuous effort of Roland Robertson of the University of Pittsburgh (Robertson, 1983; Roberson, 1985; Robertson, 1992).

Although the word and concept of globalisation is relatively new, some globalisation processes have been known for a long time. It is possible to outline a number of predecessors of globalisation theories. Arguably, the first scholar who contributed to the study of globalisation processes was Saint-Simon. It was him who noticed that the process of industrialisation in XVIII century brought the communality of practices among European states. He also envisaged the development of international institutions by advocating the establishment of pan-European government, a sort of global political force.

Other academic insights into the theory of globalisation were developed by Durkheim (1984) (cited in Waters, 1995: 5). In particular, Durkheim pointed at the process of the differentiation of societies. This process can be seen as leading to the weakening of collective consciousness and dismantling national boundaries. The concept of differentiation was used in many other influential theories of globalisation.

For example, Durkheim's notion of differentiation was developed by Parsons (1966). Parsons, one of the most influential researchers of modernisation, argued that living systems normally change so as to adapt or cope with their environment. Differentiation and integration, which are closely tied, are among most important developments of social systems. According to Parsons, every social system inevitably follows the path of evolution involving a number of universals. Even the least differentiated societies have four universals, including kinship, language, religion, and technology. Thus, Parsons's contribution to globalisation theory can be seen in his argument that societies follow similar path of development, which means that they are likely to become integrated.

Another important sociological concept that could be referred to the globalisation processes is the concept of rationalisation. Max Weber is the most prominent thinker in pioneering and advocating this concept. According to Weber (1978), the spirit of rationalization became a unified basis for the spread of protestant ethics across Europe, leading to the development of capitalist economies in many countries.

Capitalism was further scrutinised by Karl Marx, whose views will be explained in more detail in Section 2.4. Marx's ideas were especially close to the concept of multi-dimensional globalisation as he predicted that the global expansion of capital would trigger the growth of international exchanges in other fields, such as science, politics and culture. For example, Marx argued that:

*"In place of the old local and national seclusion and self-sufficiency, we have intercourse in every direction, universal interdependence of nations. And as in material, so also in intellectual production. The intellectual creations of individual nations become common property. National one-sidedness and narrow-mindedness become more and more impossible, and from the numerous national and local literatures, there arises a world literature"* (Marx, 1977: 224-225).

The importance of other fields for the development of global capitalism was highlighted by Marx's supporters. For example, Gramsci (1990) pointed out the significance of culture for maintaining the existing order. He argued that culture in which bourgeoisie values became the common sense values are fundamental for the existence of capitalism. According to Gramsci, these values are considerably tied to religious values, especially Roman Catholicism. Giving culture an important role, the Italian Marxist went considerably further than Lenin, who claimed that culture is considerably ancillary to politics.

The point of view that globalisation and capitalism are interdependent was further developed by Amin (1980). Amin argues that the process of globalisation transform colonised/ developing countries in an extension of capitalism. This process encourages the international division of labour, which is carefully controlled by major capitalist institutions. For example, MFI and the World Bank use two strategies for this purpose. The first strategy is the formation of considerable reserves of workforce in the periphery. The second strategy is the encouragement of division of the working class in the centre. As a result, the working class is divided in segments, some of which are considerably better off, than the others, and more integrated in division of power within "social-democratic alliance" (Amin, 1980: 27; Waters, 1995).

Gramsci's approach was developed and modified by Michel Foucault. His views on power and knowledge are of particular interest. For example, Foucault analysed disciplinary practices and noticed an important relationship between power and knowledge. According to Foucault, power is everywhere in a society – it is “omnipotent”. Agents of power include doctors, scientists, and teachers among the others. The ordinary citizen is also regarded as an agent of power because he internalises the concepts and values of the power regime. It is noteworthy that Foucault claims that power can be not only repressive – it can be productive as well. Power is productive because “it induces pleasure, forms of knowledge...” (Foucault, 1981: 119, cited in Haber 1994: 82). Thus, disciplinary forms of power make themselves as forms of truth and knowledge.

Another important approach to be mentioned with regard to globalisation studies is associated with concepts of time and space developed by geographer Davis Harvey. Notions of time and space are not new in modernisation studies (Giddens, 1990). However, Harvey (1978) points to the process of universalisation of time and space and argues that an outcome of this process is the annihilation of space by time. This process, which to some extent is triggered by changes in transportation speed, Harvey called the time-space compression.

The process of the time - space compression is very irregular. Considerable changes in the configuration of time and space normally take place when uncertainty increases and the world changes rapidly. For example, it occurred in the mid 1850s and at the beginning of the nineteenth century. According to Harvey, the most recent period of considerable time-space compression was in the 1970s. It coincided with the crisis in mass production and resulted in the formation of a global stock market (Harvey, 1989).

It is noteworthy that Harvey ranked financial flows among the most important forces of the modern world and the time compression process. The financial markets have certain globalising features - they encourage the establishment of international ties and are both dispersed and decentralised. Financial capital is becoming very powerful and makes a considerable impact on actions of governments and MNCs. According to Harvey, nowadays spatial

borders are reduced and the world can be regarded as a single field in which capital flows can move without constraints, motivated only by preferences of certain locations (Harvey, 1989).

The important role of economic transactions for the development of the globalised world was noted by Wallerstein (1974). In fact, the world as a single unit, so called the world system, became Wallerstein's main concept. According to Wallerstein, the world system is a complex differentiated multi-cultural establishment that is self-contained and self-sufficient. Although there are three types of the world systems, Wallerstein focused on world-economies in his writings. The world system consisted of a multiplicity of nation states united in a common capitalist economy.

As the states have different economic power and governments, there is a division of labour among the states and they play different roles in the world system. Thus, Wallerstein distinguish between countries of the core, periphery and semi-periphery. Core states are rich and well economically developed nations with a strong governmental structure. The periphery consists of weak and poor countries that are totally dependent on the core states. Finally, countries with moderately strong economy and governmental structure are seen as semi-periphery. These countries are somewhat dependent on the core countries, but are more independent in their policies than peripheral countries. They play a very important role as they reduce the conflict between the core and periphery (Wallerstein, 1974; Waters, 1995).

Although Wallerstein's approach is regarded as one of the most influential breakthroughs in globalisation studies, his view that the basis for the global system is economic has been disputed by many thinkers. For example, an alternative set of globalisation theories is associated with the subdiscipline of International Relations. One of the most classical theories of international relations is based on Burton's model of "snooker balls". According to this model, every state can be regarded as a ball of different colour and weight. As the country-balls move in the field-table of international politics, they interact one with another. Although each ball has a certain degree of autonomy or independency, his moves are greatly dependent on the positions and action of the other balls. Burton has also made an important step towards the theory of globalisation by describing a world society

consisting of inter-state relations and networks of relationships that transcend state borders (Burton, 1972: 28-32).

It should be noted that early theories of international relations did not particularly dispute the authority of nation states in the world politics. For example, Rosenau (1980) and Gilpin (1987) also highlighted the importance of transnational networks in the world politics, and yet they maintained that states are the most important political actors. Perhaps, the most developed and radical approach claiming that the status and role of the states are greatly affected by globalisation is expressed by David Held.

Held (1991) has outlined the stages of the process of dismantling the power of nation states in the global politics. According to Held, in the beginning the increasing volume of economic and cultural transactions undermines the ability of states to effectively cope with them. Then, transnational bodies, for example MNCs, became more rich and influential than the governments of some countries. This causes a need for occasional joint inter-governmental actions, which should be coordinated by larger international political units or organisations, such as Association of South East Asian Nations (ASEAN), North Atlantic Treaty Organisation (NATO), World Trade Organisation (WTO), and so on.

In other words, the states should surrender part of their sovereignty to these larger international political bodies. This process is likely to result in the formation of the system of “global governance” and trigger the emergence of the supranational state with universal legislative and coercive powers. Held believes that the power of nation states is already in decline and “the world government” is a matter of a not too distant future.

Even such a brief introduction shows that theories of globalisation address three main dimensions of global changes. These dimensions are political, cultural and economic. The political dimension encompasses issues related to practices of concentration and exercising the political power both on domestic policies and in the international arena. The cultural dimension embodies social arrangements for production and exchange of symbols reflecting major beliefs and values in a society. The last dimension, the



economic one, deals with the processes of production and exchange of goods, products and materials.<sup>3</sup>

The importance of these dimensions in globalisation studies is so evident that it is possible to classify theories of globalisation on the basis of these unifying dimensions. For example, while most of the contemporary international relations theories are based on the independence and authority of national states in the world politics, globalisation theorists talk about global policy and society, and their vision is driven by the concept of global consciousness. They assess the process of emerging global consciousness and assess the implications of this process for global governance and security (Sklair, 2002: 42).

The second major division of globalisation theories suggests that the world is being unified by the emerging global mass culture, the process driven by the unification of the mass media across the world. This approach singles out culture as the most important driver of globalisation and discusses a variety of forms and problems of the emerging global culture. It is inspired by the rapid growth of scale and scope of the mass media that expose the world to substantially unified agenda of the news and images. Among the most distinguished proponents of the culturist approach can be named Robertson and Appadurai. For example, Appadurai have developed a comprehensive framework for analysing cultural flows, including flows of images, flows of people, flows of money, flows of machinery, and flows of ideas (Cited in Sklair, 2002: 43). We will refer to the aspects and processes associated with the development of the global culture as cultural globalisation.

By contrast, the proponents of economic globalisation argue that the most important driver of globalisation has in fact the economic nature and that economic activities are increasingly embedded in global enterprise. There are a variety of schools associated with this dimension. For example, Marxist theories of globalisation are based on a belief that the dominant force of globalisation is the capitalist mode of production. They suggest that

---

<sup>3</sup> More information about political, economic, and cultural globalisation can be found in Lechner & Boli (2004).

developed capitalist economies would attempt to expand and involve other countries in sharing their production mode and ideology.

Almost every globalisation theory has different values for the importance of one or another of the above mentioned dimensions. There is even a model of globalisation as moving along the path from the dominance of the economic dimension to the dominance of culture. This model is shown in Figure 2.1.

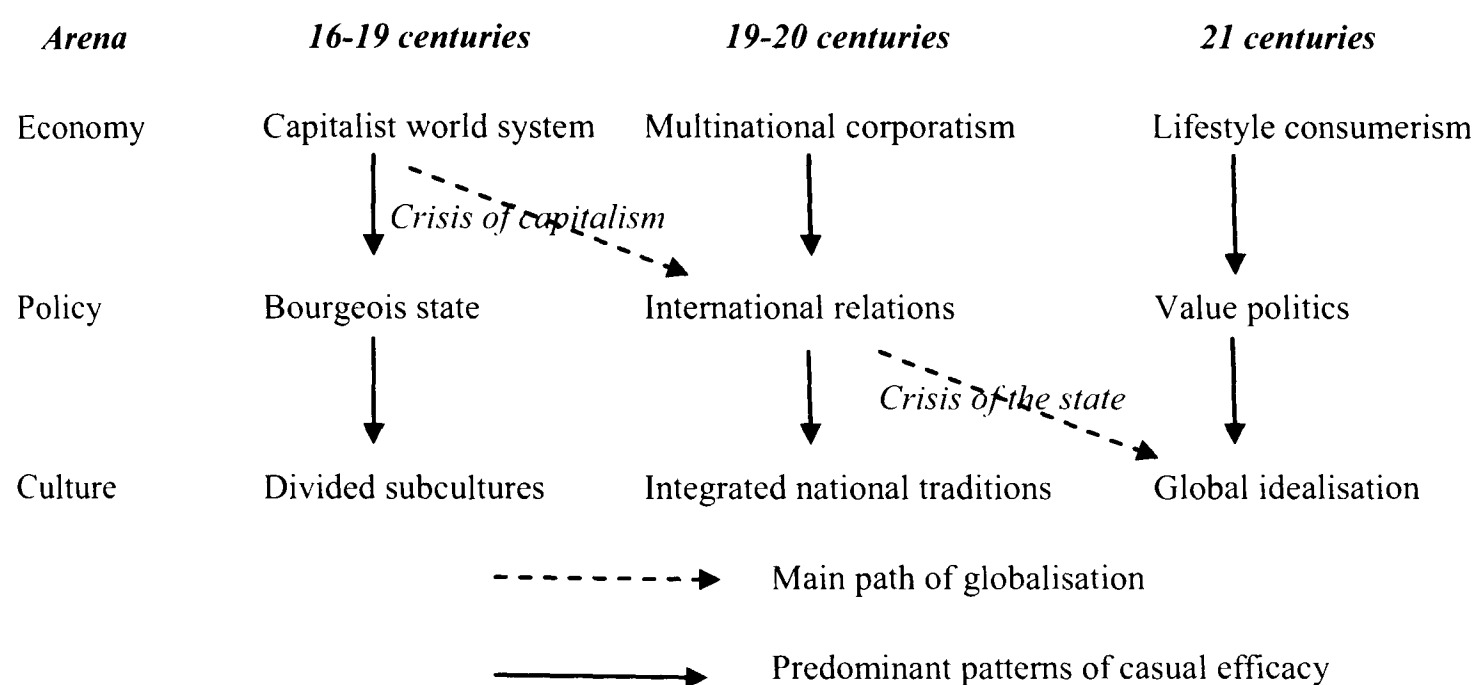


Figure 2.1. The path of globalisation through time (Source: Waters, 1995: 159)

Definitions of globalisation also greatly dependent on the importance given one or another of the above mentioned dimensions. For example, there is a definition of globalisation as

*“a social process in which constraints of geography on social and cultural arrangements recede and in which people became increasingly aware that they are receding”* (Waters, 1995: 3).

Sometimes, all these dimensions are implicitly regarded as equally important and unified under the concept of “social”. Thus, Scholte (2005) defines globalisation as the process that shifts the nature of social space by encouraging the development of transplanetary or global social connections between people. These supraterritorial connections can be based on economic, political and cultural realities and even transcend them. A more extended definition of globalisation based on the term “social” describes it as

*“a process (or set of processes) which embodies a transformation of social relations and transactions – assessed in terms of their extensity, intensity, velocity, and impact-generating transcontinental or interregional flows and networks of activity, interaction, and the exercise of power”* (Held, 1999: 16).

By contrast, the author of this dissertation argues that the economic dimension is the most significant element and force of globalisation, even though economic transactions can be greatly influenced by cultural and political factors. For example, it could be argued that the process leading to the emergence of the global culture has substantial underlying economic drivers. They are related to the development of communication technologies and unifying economic strategies (concentration of ownership in the world media industry). Global vision and global policy also has become possible because of certain economic and technological developments that have made these changes possible. For example, there is speculation that developments in global policy are driven by interests of certain economic institutions, entities and bodies, like IMF and MNCs. Hence, for the purpose of this study globalisation is defined as *a process of the formation of interdependent economies on the global scene, facilitated by the establishment of common values and political institutions.*

The economic dimension of globalisation has many notable features and controversies. Inequality of development of different parts of the world is most noteworthy out of them. The key features and controversies of economic globalisation are reviewed in detail in the next section.

## **2.2. Economic Globalisation: Content, Main Processes, and Outcomes**

Analysts of economic globalisation have highlighted such its features as the appearance of international capitalist class (Sklair, 2001), the internationalisation of production, the formation of international governance, the rise of international labour migration, and the decline of the power of nation-states (Therborn, 2000). However the key facets of this dimension of globalisation are the globalisation of production and markets.

The globalisation of markets means that national markets are being increasingly integrated into one global marketplace. Most global markets are currently markets for industrial products and materials since these products are less susceptible for national and cultural differences (Hill, 2007: 6). Nonetheless, the development of markets for consumer products also takes place, including, for example, global markets for drinks like Coca-Cola or chocolate products like Mars or Snickers.

The globalisation of production refers to the fact that materials and resources for the production of goods are dispersed across the world. This helps multinational companies take advantage of national differences on the cost of labour, capital, land, and other factors of production (Ravenhill, 2008). For example, Boeing has recently outsourced nearly 65 per cent of its manufacturing and this is believed to have contributed to its competitiveness on the global market (Hill, 2007: 7).

Analysts have identified several drivers of economic globalisation. First of them is the removal of investment and trade barriers. For example, General Agreement on Tariffs and Trade lower international trade barriers between the countries involved, after a series of negotiations among them. The last round of the negotiations in 1993 resulted in the establishment of The World Trade Organisation aimed to monitor and control the international trade system. In turn, WTO initiated further liberalising international trade and investments. Under the patronage of the global institutions, governments of many countries have also created a more favourable environment for FDI (Hill, 2007: 9, 10).

Technological developments are viewed as the second driver of economic globalisation. To start with, advances in transportation, especially the widespread use of commercial jets, have dramatically reduced travel times and encouraged the expansion of international tourism that is reported to involve nearly 600 million travellers per year (Louch et al., 1999). Similarly, the introduction and growth of containerisation for goods transportation in the 80s and 90s considerably downgraded transportation costs. They decreased by almost 300 per cent between 1920 and 1990 (Frankel, 2001).

Remarkable achievements in computer technology, especially the development of micro-processor, triggered the improvement of telecommunications. This resulted in the advent of the Internet, the global

information network, which swiftly embraced the entire planet. By 2005 the number of PC stations embedded in the Internet reached 317 millions. The Internet provides a solid base for further development of international trade since it considerably alleviates information exchange and financial transactions across the globe. It is reported that the value of business transactions via the Web reached \$ 657 billion in 2000 (Hill, 2007: 14).

Multinationals play a special role among major drivers of economic globalisation. They greatly contribute to the development of global products and markets. Nevertheless, the nature of multinational enterprise has to some extent changed. Although most MNCs still originate from developed countries, there is a visible rise of international companies from developing economies. Also, there is a growth of small and medium-size companies that are involved in international business. For example, G. W. Barth, a German producer of cocoa-bean roasting machinery that employs only 65 people managed to take over 70% of the global market of this sort of manufacturing (Hill, 2007: 22).

Economic globalisation is associated not only with positive features, but also with certain controversies. For example, it makes a great impact on the spatial structure of societies. Finance, consultancy, public relations, security, insurance, property, advertising, information provision among others have been named among the dominant sectors of the new global economy (Daniels, 1993). Dominant sectors of activity have the fastest economic growth and the biggest proportion of jobs and investments.

A number of studies have shown that spatial locations of the vital industries are both concentrated and dispersed (Borja & Castells, 1997). While the above mentioned dominant activities are well presented in almost all countries, it has been pointed out by researchers that the higher levels of advanced services networks are concentrated in just a few cities and countries (Daniels, 1993; Harasim, 1993). For example, Sassen (1991) has shown that New York, London, and Tokyo play the dominant role in consultancy and the international finance. He has also pointed out that in addition to the world centres there have appeared a number of regional centres such as Moscow, Madrid and Mexico. The management of global information economy is also mostly based in managerial centres that coordinate activities of companies all over the planet (Hall, 1995).

This controversy is one of the many that show that globalisation is not a smooth economic process (Hirst & Thompson, 1996). It is true that globalisation has many positive effects. International trade has influenced the economic development of some underdeveloped countries. The standard of life in many countries has improved. Globalisation has increased knowledge flows and promoted education in some developing countries. Foreign aid has created additional jobs and reduced unemployment. It has also improved water supply in some regions and benefited their farmers (Stiglitz, 2002: 4).

However, globalisation has many negative consequences, too. It has been argued that western countries have forced transitional countries to open their markets for western goods, while keeping the trade barriers for the goods exported from these countries. Stiglitz (2002) argues that globalisation agenda has been used by the West at the expense of developing countries. He points out that the effect of the trade agreement in 1995 made some of the poorest countries worse off. As a result of globalisation, the misbalance of supply and demand is thought to increase enormously. National governments and political groups are affected by fluctuations of international market (Louch et al., 1999). Political processes have been corrupted because social changes have taken place too quickly, without enough time for cultural adaptation (Stiglitz, 2002: 8).

The rising inequality between countries is agreed to be one of the major outcomes and problems of globalisation. It was reported that the rise of foreign direct investments which took place during last decades, was generally within the developed countries (Hirst & Thomson, 1996). Although the share of developed countries in the import of capital decreased in the last decade, it still remains to be more than half of the total investment flow. It has been noticed that the global economy is deeply asymmetric. A number of analytical categories have been used to show this, including models *centre – periphery - semi-periphery* and the *North-South*.

Although these models have been considered of little use because of the existence of several peripheries and huge diversification within the regions (Coutrot & Husson, 1993; Harris, 1986), the figures clearly show that the inequality between rich and poor regions has increased during the period of accelerated globalisation. For example, regardless of the method of

calculation, it has been shown that the wealth gap between countries of the North and the South grew from 1980 to 2000 (Wade, 2004). Also, it was acknowledged that countries of these two regions have different opportunities to access global spaces both in terms of technological advances and communication technologies (Scholte, 2005).

Southern countries are less privileged in global trade as well. For example, it has been shown that citizens of Northern countries consumed nearly eighty per cent of the world music recordings in 1996 (Scholte, 2005: 328). Similarly, Northern countries accounted for 75% of world FDI in 1995. Interestingly, FDI into Southern countries in the 1990s was concentrated only in ten countries, leaving the majority of the countries of the South without investment flows. It is noteworthy also that the least developed countries got only one per cent of world FDI (UNCTAD, 2000).

To illustrate the point of inequality, Castells (1996: 108) points out that the major proportion of the world capital and industrial production is concentrated in several countries which are grouped around the Organisation for Economic Cooperation and Development (OECD) and four newly industrialised countries of Asia, which produced more than 70 % of world's manufacturing production in the end of the 1990s. He notices that the core of this group, G-7 countries, has concentrated even bigger proportion resources and power. G-7 countries represent nearly 80% of global computing power and 90 % of world high-technology manufacturing. These figures show that globalisation have not reduced historical domination of some countries over the others, but rather reinforced it.

In this respect it is of interest to refer to the concept of the Triad. Boyer & Drache (1996) argue that "triadization" could be a more appropriate word for the present situation in the world economic development (even more appropriate than globalisation). Triadization means that technological, economic and socio-cultural integration mostly involves only three most developed regions, including Japan, Western Europe and North America. Relations between these blocks are reported to be more intense and significant than ties of these regions with less-developed countries or ties between these less-developed countries themselves.

In order to prove this argument, Boyer & Drache (1996) show that most industrial alliances have been formed with the involvement of companies associated with countries of the Triad. For example, statistics in Table 2.1 show that alliances in major industries involving countries of the Triad comprise more than seventy five percent of the total number of alliances in the industries under study.

*Table 2.1 Distribution of Inter-Firm Strategic Technology Alliances, By Field (1980-1989)*

<b>Industry</b>	<b>Number of Alliances</b>	<b>% for Developed Economies</b>	<b>% for the Countries of the Triad</b>
<i>Biotechnology</i>	846	99.1	94.1
<i>Computer</i>	199	98	96
<i>Telecommunications</i>	368	97.5	92.1
<i>Chemical industry</i>	410	87.6	80
<i>Food and Beverages</i>	42	90.5	76.2

Source: Adopted from Freeman, C., Hagedorn, J. (1992) Globalisation of Technology, Commission of the European Communities, p. 41; Boyer & Drache, 1996: 78

Moreover, during the 1980s, the countries of the Triad block accounted for nearly four-fifth of global international financial transactions (Ibid.: 77). This is especially evident with regard to FDI. For example, Boyer & Drache (1996) point out that between 1985 and 1996, the largest proportion of FDI was associated with these three blocks, which heavily invest in each other. These figures are consistent with data provided by Hirst & Thomson (1996). As can be seen in Table 2.2, at the first half of the 1990s, the blocks of the Triad accounted for sixty per cent of world FDI. The data of this table also substantiate the thesis about the economic power of the Triad in terms of GNP. It can be seen there that the total GNP of the countries of the Triad in 1996 was nearly three quarter of the world GNP, while GNP of the most economically advanced developing countries was only about ten per cent.



*Table 2.2 Investment Flows and GNP of the Triad and Most Advanced Developing Countries*

	<b>Investment Flows</b>		<b>GNP (1996)</b>	
	<b>1991-1996</b>			
	Million \$USA	%	Million \$USA	%
<i>World Total</i>	1,455,280	100	29,509,614	100
<i>USA, Canada</i>	317,618	...	8,003,414	...
<i>Western Europe</i>	526,299	...	8,941,093	...
<i>Japan</i>	29,106	...	5,149,185	...
<i>Total (Triad)</i>	873,023	60	22,093,692	74.9
<i>Ten most important developing countries (in terms of FDI flows)</i>	349,267	24	2,995,122	10.1

Source: Adopted from Hirst & Thomson (2000), Table 3.2, Table 3.4 and Table 3.5.

Interestingly, as globalisation proceeds, the economic dominance of the blocks of the Triad seems to rise. For example, statistics provided in Table 2.3 show that in the period between 1980 and 1990, the percentage of export transactions associated with triad countries increased, while the percentage of their import transactions decreased.

*Table 2.3 Relative Share of the World Market for Manufactured Goods*

	<b>Exports (%)</b>		<b>Imports (%)</b>	
	<b>1980</b>	<b>1990</b>	<b>1980</b>	<b>1990</b>
<i>Industrialised world (24 countries)</i>	62.9	72.4	67.9	72.1
<i>The Triad</i>	54.8	64	59.5	63.8
<i>Developing world (148 countries)</i>	37.1	27.6	32.1	27.9
<i>The poorest countries (102 countries)</i>	7.9	1.4	9.0	4.9

Source: Adopted from Muldur (1993), FAST; Boyer & Drache, 1996: 79, modified by the author

Globalisation also increased social inequality within countries. Global financial bodies encouraged national governments to reduce policies that contributed to social justice and equality, without the formation of efficient institutions that would soften wealth inequality on the global stage. As a result of this, the income difference between richest and poorest segments of populations grew fast, deepening the gap between the richest 5-10 percent and the rest of societies (Scholte, 2005). For example, Kaplinsky (2008) reports that in a study of 73 countries (with nearly 80 % of the world's population) in forty eight countries inequality fell from 1950 to 1975 and rose sharply from 1980 to 2000. It is not surprising that in the mid 1990s, the collective wealth of 358 billionaires became equal to the total wealth of 45 % of the world's population (Speth, 1996: 332).

These examples show that outcomes of globalisation are controversial and that globalisation is a considerably more complex social phenomenon than is normally thought. Some scholars believe that discontents of globalisation are so big that it needs to be reassessed in practical policies and academic terms. For example, in contrast to popular beliefs, Gabor Steingart (2008) claims that globalisation is not a force that unifies nations, but rather a divisive one, the one that leads to a global shift in prosperity and power. This is only one out of many academic accounts emphasising the importance of economic processes of globalisation. The main approaches to economic globalisation are summarised in the next section.

### ***2.3. Main Theories of Economic Globalisation***

Most theories of economic globalisation can be summarised into four broad approaches. The first of them I shall call the structural approach because it is mostly concerned with the pattern of developments. The second approach comprises mostly descriptive theories that examine the activities of multinational corporations, their management and organisation (Ghoshal & Nohria, 1997). The third approach consists of the theories which use the centre–periphery approach, such as dependency theory (Palma, 1978) and a

number of others. The last approach is based on the large variety of Marxist theories, such as the theory of state monopoly capitalism (for example, Wirth, 1977) and the theory of the internationalisation of capital (Hymer, 1987).

The structural approach is the most recent and least developed dimension of globalisation theories. Krempel & Plümper (2003) have identified three main theories of this approach as the globalisation theory, the regionalization theory, and the macroeconomic imbalances theory.

Globalisation theory suggests that globalisation increases communication and economic transactions between almost all countries and regions. It is based upon the assumption that globalisation creates more convenient environment for international transactions than for similar interaction within nations (Frieden & Rogowski, 1996). According to this theory, transaction costs of international exchange is decreasing because of the influence of political liberalization and technological innovations. In other words, this theory argues that the impact of geographical remoteness is becoming less significant.

The second important theory is called the regionalization theory. This theory implies that globalisation makes a greater impact on the increase of transactions within regions (for example - trade areas NAFTA, ASEAN, and the European Union) than on the rise of global interaction (Coleman et al., 1998). In other words, this theory expects to find a continuous increase of acquisitions within regions because of abolishing economic and political barriers. For example, as far as the Three-Polar Model<sup>4</sup> is concerned, the regionalisation theory implies the existence of more dense networks within each of the poles (North America, Southeast Asia, and Europe) than between them.

The last theory, the theory of economic imbalances tries to explain internationalisation process (especially investment flows) in terms of growing difference in budget deficits and national saving among countries. For example, Paul Krugman, one of the major proponents of this theory, argues that the bilateral economic interactions are likely to be established between countries that have large imbalances between national savings and national

---

<sup>4</sup> This model is explained in detail in Section 1.4 and Section 5.1.5.

investment. In this case, none of the geographical, cultural or political factors is important. Countries with a savings surplus export capital to the countries with a trade deficit. For example, rapidly developing countries of South-East Asia export capital to the USA, which is the country with a huge deficit (Krugman, 1991).

These three theories differ in their explanation and forecast of global processes. For example, as far as longitudinal aspect is concerned, the globalisation theory expects a general decline in importance of geographical factors due to overall decrease of transportation costs. On the other hand, the regionalisation theory assumes the rise of intra-regional transactions, and a relative fall of transactions between regions.

The theories of the second approach focus on activities of multinational corporations, their management and organisation.<sup>5</sup> For example, Ghoshal & Nohria (1997) developed organizational theory for how MNCs can flourish in the global economy. Building upon the product cycle theory of Vernon (1966) they suggested that MNCs need to differentiate their international subsidiaries and integrate values in order to succeed in realization of their value creation potential and to encourage innovation.<sup>6</sup> This research was accomplished by Anthony Coerzen (2005) who examined validity and limitations of this theory.

Furthermore, Peter Dicken (2003) develops an interesting and prospective view on transnational corporations and their role in the global economy in his analysis of *production networks*. This new concept describes the mix of interconnected operations and functions through which goods and services are manufactured and delivered. Dicken (2003: 17) argues that transnational corporations start to dominate the process of reshaping the global economy by becoming key coordinators of the production networks.

The centre-periphery theories, which comprise the third approach, argue that the societies and civilizations have different areas of importance and influence, namely the centre and the periphery. Rokkam and Urwin (1982: 5) define the centre as

---

<sup>5</sup> For example, *Transnational Corporations and World Development* (1996) International Thomson Business Press.

<sup>6</sup> Reported in Ghoshal, S., Nohria, N. (1997) *The Differentiated Network: Organizing Multinational Corporations for Value Creation*, San-Francisco: Jossey-Bass Business & Management.

*“privileged locations within a territory where key military, administrative, economic and cultural resourceholders most frequently meet.”*

They point out that the centres normally have

*“the largest proportion of the economically active population engaged in the processing information and instructions over long distances.”*

Whilst the centre exercises power, the periphery is dependent. It may be able to control only its own territory. It has few links to other territories and is frequently connected with the centre alone. Its business, politics and culture are severely dominated by the centre and often impossible without it. In addition, according to Eisenstadt (1981), the centres are distinct from the periphery not only structurally but also symbolically. He points out that the centres developed their own unique symbols and built temples and palaces to substantiate their political and cultural supremacy.

The fourth approach encompasses a range of Marxist theories. Marxism is a very multidimensional school of thought that mostly concerns a variety of issues associated with the concept “social class”. Marxism argues that society and history of humanity are fundamentally determined by *material conditions* at any given time. Material conditions is the concept that describes the relationships which people enter into with one another in order to fulfil their basic needs, such as needs to clothe and feed themselves (Marx & Engels, 1932).

Marx & Engels (1932) identified several stages of the development of material conditions as follows. The first stage was called Primitive Capitalism and it was the time when ancient hunters and gatherers did not have private property. Private property emerged on the second stage, which was called Slave Society. It was the time when a ruling class emerged, the class that “owned” the means of producing wealth, which were the land and slaves. The third stage was Feudalism and it was associated with the emergence of many classes such as kings, lords, and, most importantly, merchants. Merchants were predecessors of a new class – capitalists. This class became dominant during Capitalism, the profit driven fourth stage of human history.

*Capital* is arguably the most important Marxist concept for the theory of fourth stage, and it is not surprising that Marx devoted a few volumes of his major works to this concept (Marx, 1954, 1966, 1967, 1976). According to

some Marxists, the growth of capital eventually results in its international expansion and imperialism. The internationalisation of capital can be seen as a very notable process of human history, which resulted in imperialism and globalisation.

It should be noted that because of a variety of obstacles the theories of globalisation are not conclusive and have a number of deficiencies. For example, in spite of the importance of political, economic and cultural dimensions discussed above, the relationship between politics, economics and culture has not been adequately examined in globalisation studies. Second, little of the theories of globalisation are based on empirical data. This drawback is caused by the fact that the task of collecting and maintaining quality data on global processes is very difficult. Third, there are few studies of globalisation based on the empirical analysis of the internationalisation of ownership. It is a large drawback considered that FDI and multinational corporations are regarded as driving forces of globalisation.

Another limitation of globalisation theories is that they do not explain or even address developments in particular industries. Although it could be argued that these theories refer to global processes and, consequently, should not be too concerned with selected industries, such an approach can result in misunderstanding current developments in some of important industries. For example, little of the globalisation debate has focussed on the internationalisation of public services. In fact, the theories mentioned above have not been applied to developments in public services and there is no globalisation theory that adequately addresses the recent processes in this vitally important industry.

This thesis aims to fill these gaps in the theory of globalisation. It addresses the question about the relationship between economics, politics and culture in globalisation through research on the internationalisation of ownership of public services. This is explained in detail in the subsequent two chapters. In particular, Chapter 3 assesses the significance of privatisation policies in recent global developments, highlighting a special status of ownership. Chapter 4 reveals key features of public services and discusses details of their involvement in key processes of globalisation.

In the meantime, it should be noted that although globalisation is a modern phenomenon, many its processes have substantial historical roots. In order to understand the features of globalisation better, it is important to correctly locate it on the scene and timescale of history. The author of this dissertation views the internationalisation of capital as the most important underlying historical process of economic globalisation, which also impacts on present developments in public services. A variety of stages and aspects of this historical process are examined in the next Section.

## **2.4. Internationalisation of Capital and Imperialism**

The numerous controversies of globalisation partly mentioned in Section 2.2 cause substantial obstacles for analysts to define the meaning of globalisation. It is possible to identify two main views: optimistic and pessimistic. The proponents of the first view highlight the positive impact of globalisation on the integration of global markets and states. On the other hand, their opponents point out the increase in global inequality.<sup>7</sup> Who is right in this debate?<sup>8</sup> It is not easy to answer this question because of paucity of solid empirical data. It is equally difficult to find a right answer to this question without an understanding of the historical roots and underlying forces of globalisation. It is claimed in this thesis that the internationalisation of capital is the most important underlying historical process of economic globalisation that impacts on many of its aspects.

The Internationalisation of capital is one of the main economic processes of the last centuries and it has been greatly influenced by the human history and development. The concept of *Capital* was introduced by Karl Marx and is arguably the most important and well known Marxist concept (Marx, 1976). While analysing this concept Marx and his supporters noted the potential of capital for international expansion. They argue that industrial

---

<sup>7</sup> I have slightly simplified the differences in these approaches. Certainly, the globalisation debate is significantly more multi-dimensional. See, for example, Morrison, J. (2006) *The Internationalisation of Business Environment*, New York: Palgrave Macmillan, p. 163.

<sup>8</sup> It should be mentioned that this debate is only one out of many surrounding globalisation. For a larger list of globalisation debates, see Scholte (2005: 47).

capital appeared in Western Europe in the eighteenth century and from here it started to extend over the world.

Marxists distinguish several phases of the internationalisation of capital. For example, Palloix (1975) points out three stages of the process of the internationalisation of capital. The first phase of internationalisation of capital can be best described as the internationalisation of commodity-capital. The general formula of this stage was  $C^{\prime}-M^{\prime}-C^{\prime} \dots P \dots C^{\prime}$ .<sup>9</sup> It was the stage of the development of international trade.

It should be noted that international trade has been in existence for a long time. It especially intensified in the period of time between XV and XVIII centuries, which can be called mercantile phase. It was the time when European merchants in their search for slaves, spices and gold reached the coasts of Asia, Africa and South America. There is controversy about the practices of this period of international trade. For example, Hoogvelt (2001:17) claims that at that time European countries transferred their economic surpluses “through looting and plundering disguised as trade”.

The export of money-capital became prevalent in the second stage (formula  $M^{\prime}-C^{\prime} \dots P \dots C^{\prime}-M^{\prime}$ ). “Under the old capitalism the export of goods was a most typical feature. Under modern capitalism, when monopolies prevail, the export of capital has become a typical feature” (Varge & Mendelsohn, 1940). Lenin called the second stage of the internationalisation of capital as the epoch of *imperialism*.

Hobson (1995: 94) argues that imperialism

*“implies the use of machinery of government by private interests, mainly capitalist, to secure for them economic gains outside their country.”*

According to Hobson (1995: 94),

*“the economic roots of imperialism is the desire of strong organized industrial and financial interests to secure and develop at the public expense and by the public force private markets for their surplus goods and their surplus capital.”*

---

<sup>9</sup> C- for Commodity, M- for Money, P- for Production.



Hobson was very critical about this phase and argued that imperialism is an irrational, unwise and detrimental policy. He did not consider imperialism to be a necessary phase of economic development which led him to argue that capitalists could prevail without the concentration and international expansion of capital. Hobson claimed that taxpayers should force the government to reform monopolies and stop the further concentration of ownership and capital.

In contrast to Hobson, other Marxists argued that imperialism is an inevitable stage of capitalistic development. For example, Rosa Luxemburg (1951: 427-28) pointed out the lack of demand for surplus product within capitalistic developed countries and argued that capitalistic enterprises cannot avoid searching for such a demand for surplus product in the countries where capitalistic production had not been developed yet. She argued that the capitalistic system would inevitably expand to all corners of the world and defined imperialism as “political expression of the accumulation of capital in its competitive struggle for what remains still open of the non–capitalist environment” (Luxemburg, 1951: 446).

The theory of imperialism was developed in detail by Lenin. He argued that imperialism is the highest stage of capitalistic development and identified several most fundamental its features, including:

1. The growing concentration of capital and production had made the existence of monopolies inevitable. These monopolies started playing a vital role in the economy;
2. Bank capital had merged with industrial capital and the “finance” capital had been created;
3. Export of commodities had been largely replaced by the export of capital;
4. International monopolies had shared the world among themselves (Lenin, 1917).<sup>10</sup>

The beginning of this stage of capitalism could be tracked to the eighteenth century, when many European countries undertook mass industrialisation, and industrial capital needed secure supply of foodstuff, raw

---

<sup>10</sup> Also reported in Berberoglu, B. (1987) *The Internationalization of Capital, Imperialism and Capitalist Development on a World Scale*, Praeger.

materials and new market outlets. The wealthy European states continued transferring their economic surpluses through unequal terms of trade “by virtue of colonially-imposed international division of labour” (Hoogvelt, 2001: 17).

This form of the internationalisation of capital reached its peak in the nineteenth century. It was the time when the world trade rose eleven times faster than the world production, and by 1913 nearly 3 per cent of the world product was internationally traded (Kuznets, 1967). It is reported that the Third World was much more fully involved in international trade at that period of time, and statistics shows that before the World War I, developing countries captured about fifty per cent of the world trade - a remarkable figure, given that the countries of the Third World accounted only for 29% of the world trade in 1996.

Importantly, it was the time of the growth of international lending, mostly associated with major European powers. As Hoogvelt (2001: 18) reports, several countries of Europe and United States were responsible for 85 per cent of all international lending, which involve almost \$44 billion by 1913. Cairncross (1975: 3) notes that Europe invested abroad almost entire national wealth of Great Britain, then the leading industrial country.<sup>11</sup> The export of capital from major economies in the second stage of the internationalisation of capital can be illustrated by many data, for example by those presented in Table 2.4 which overviews overseas investment of leading countries from 1870 to 1914.

*Table 2.4 Overseas Investment of Leading Countries 1870-1914*

	<b>1870 \$ million</b>	<b>1900 \$ million</b>	<b>1914 \$ million</b>
<i>United Kingdom</i>	4,900	12,000	20,000
<i>France</i>	2,500	5,800	9,050
<i>Germany</i>	*	4,800	5,800
<i>USA</i>	100	500	3,500

Source: Pollard, S. (1985) Capital Exports 1870 -1913 Economic History Review, Vol. 38 № 4

<sup>11</sup> It is noteworthy that foreign investments were a profitable business. For example, one tenth of the home income of Great Britain came as interest on foreign investment (Cairncross, 1975).

It should be noted that earlier investments were portfolio investment, in which investors could not control their investment (and arguably they did not particularly need this in many cases, where colonies were under political control of metropolitan states). This form had been increasingly replaced by foreign direct investment (FDI), the form which allowed the investors to have managerial control. Table 2.5 demonstrates the rate of FDI in total foreign investment in 1914.

*Table 2.5 FDI as the Percentage of Total Foreign Investment by Leading Countries in 1914*

	<b>FDI \$ million</b>	<b>Total Foreign Investment \$ million</b>	<b>FDI as %</b>
<i>UK</i>	8,172	20,000	40,9
<i>France</i>	2,000	9,050	22,1
<i>Germany</i>	2,600	5,800	44,8
<i>USA</i>	2,652	3,500	75,8

Source: Jones, G. (1996) *The Evolution of International Business: An Introduction*, New York Figure 2.1.

This form of investments is more typical for the third stage of the internationalisation of capital - the international expansion of *productive* capital. The formula of this phase is  $P \dots C' - M' - C' \dots P'$ . Multinational corporations emerged in this stage.

First multinational corporations were based in leading home economies such as Britain, United States and Germany (Hertner & Jons, 1986). For example, over 40 American companies, including Ford, and Coca-Cola, had more than one factory abroad by World War I. More than half of 30 British largest corporations also had factories in other countries at that time and they even monopolised cotton thread industry in Russia and the US (Jones, 1986: 4). Data of Table 2.6 illustrate the extent of operations of the British companies in 1914.

*Table 2.6 Leading British-Owned Multi-Regional Business Groups in 1914*

<b>Trading Company</b>	<b>Operating Regions</b>
Inchacape/Mackinnon	India, Gulf, East Africa, Australia
Harrisons and Crosfield	Malaya, Dutch East Indies, India
Jardine Matheson	China, Japan, USA, South Africa, Peru
Anthony Gibas	Chile, Australia, Peru, Canada
Grahams	India, Portugal
J&P. Coats and Lever Brothers	France, Germany, Russia, South Africa, Australia, the United States, Switzerland, Canada

Source: Jones, G. (2000) *Merchants to Multinationals*, and Jones, G. (1984) *The Expansion of British Multinational Manufacturing, 1890-1939*, in Okochi A., Inoue T. (Eds.) *Overseas Business Activities*, Tokyo

World War I revealed dangers of international investment. For example, British companies which invested in German firms lost much of their vital assets (Jones, 1985: 89-93). This and some other reasons slowed down the expansion of multinational corporations during the war. However, investment into many other countries was prosperous and it encouraged a new rise of foreign investment after the end of the First World War (Coleman, 1980; Roberts, 1982). Dunning (1983: 87) has noted that the stock of accumulated foreign investment had increased \$ 26, 350 million by 1938. Most of it belonged to Britain (27.7%) and the United States (27.7%). Many other countries, including Dutch, Switzerland, and Sweden, also became increasingly involved in foreign operations.

The Great Depression and unstable political situation of the 1930s led to a deterioration of the investment climate and slowed down the process of international investments. The years of World War II also did not encourage foreign investment. However, everything remarkably changed after the end of the war. Expansion of multinational corporations became a key feature of the

post-war world. The explosive growth of foreign direct investments (FDI) was a significant part of this process.

In short, foreign direct investment is control and ownership of assets abroad. FDI is normally associated with various forms of whole or partial acquisition of foreign companies. However, it can also involve the establishment of joint ventures or totally owned foreign firms. It should be noted that FDI is different from portfolio investment. Portfolio investments generally involve the purchase of financial securities in a number of companies with aim of gaining additional profit when their value increase, whereas foreign direct investments give more controlling and managerial rights to investors (Rugman & Hodgetts, 2003).

Many factors contributed to the rise of FDI, including: the steady growth of living standards and world trade, the significant progress in communication technologies, the adoption of the General Agreement on Trade and Tariffs. The exponential growth of foreign investment can be illustrated by figures in Table 2.7. This Table summarises the stock of FDI by leading countries for 1914, 1938, and 1960.

*Table 2.7 Stock of FDI by Leading Countries from 1914 to 1960*

	<b>1914</b>	<b>1938</b>	<b>1960</b>	
	\$ bn	\$ bn	\$ bn	%
<i>USA</i>	2,652	7,3	32,8	49,2
<i>UK</i>	8,172	10,5	10,8	16,2
<i>Holland</i>	*	*	7,0	10,5
<i>France</i>	2,0	2,5	4,1	6,1
<i>Germany</i>	0,65	0,35	0,8	1,2
<i>Japan</i>	0,2	0,75	0,5	0,7

Source: Jones, 1996: Figures 2.1., 2.4., Dunning, 1983: Table 5.1

It should be noted that the process of international investments was dominated by American companies because European industries were weakened by the war. For example, total U.S. FDI increased from \$4 billion in

the 1920 to \$11.8 billion in the 1950 and reached \$213.5 in 1980. Table 2.8 summarises the detail of U.S. foreign direct investment.

*Table.2.8 American Foreign Direct Investment Abroad from 1950 to 1980 by Area (Millions of Dollars)*

<b>FDI</b>	<b>1950</b>	<b>1960</b>	<b>1970</b>	<b>1980</b>
<i>All areas</i>	<i>11,788</i>	<i>32,774</i>	<i>75,480</i>	<i>213,468</i>
<i>Developed</i>	<i>6,083</i>	<i>19,456</i>	<i>51,819</i>	<i>157,084</i>
Western Europe	1,720	6,645	25,255	95,686
Canada	3,579	11,198	21,015	44,640
Australia	201	856	3,148	7,584
Japan	19	n.a.	1,482	6,274
South Africa	140	286	778	2,321
<i>Less Developed</i>	<i>5,705</i>	<i>11,319</i>	<i>19,192</i>	<i>52,684</i>
Latin America	4,375	8,365	11,103	25,964
Asia	982	1,152	2,260	8,397
Middle East	n.a.	1,163	1,545	3,310
Africa*	147	639	2,427	2,701
<i>International</i>	<i>n.a.</i>	<i>1,418</i>	<i>4,469</i>	<i>3,701</i>

Sources: U.S. Department of Commerce, Bureaus of the Census, Statistical Abstract of the United States (various issues); U.S. Department of Commerce, Survey of Current Business (various issues); U.S. Department of Commerce, Bureau of Economic Analysis, Selected Data on U.S. Direct Investment Abroad, 1966-78 (published in Berberoglu, B. (1987) The Internationalisation of Capital, p.32)

\*excluding Egypt and the Republic of South Africa

The stable rise of FDI continued up into the twenty first century. Developed European economies have gradually ended the domination of the United States in this field. However, the amount of FDI inflows and outflows of developed countries still far overpowers that of developing economies. In addition, it has been noted that developing countries are normally recipients of FDI, while developed economies are rather in the list of outward investors (for example, Morrison, 2005:149). This trend is well illustrated by data summarised in Table 2.9.

*Table 2.9 Annual Average of FDI Inflows and Outflows in 1992-2003 (Millions of Dollars)*

	<b>Inflows</b>	<b>Outflows</b>	<b>Rate Inflows/Outflows %</b>
<i>World</i>	310879	328248	94.7
<i>Developed countries</i>	180750	275716	65.6
<i>Developing Economies</i>	118596	51351	231.0
<i>Other</i>	11533	1181	976.5

Source: World Investment Report 2004: Shift towards Services, Geneva: United Nations, Annex B, Table B.1., Table B.2, pp. 367, 374 (URL <http://www.unctad.org> (December, 2005))<sup>12</sup>

It has been argued that firms undertake FDI in order to achieve 3 major objectives: market, efficiency and resources. “Market Seeking” strategies are used for countries with large or growing market. “Efficiency Seeking” investment strategies are used for countries in which operating costs are relatively low, and, consequently, costs can be reduced. “Resource Seeking” investment policies aim to gain access to raw materials (Pervez & Buckley, 2002).

This list must be complimented by Anthony Coerzen’s (2005) approach. He argues that multinationals may seek to establish foreign subsidiaries in order to diminish their risks by diversifying their businesses into different locations. This policy can cover possible failures of the multinationals in some countries by benefits earned in profitable regions and thus insure their sustainable development. In any case, Coerzen has found that performance of the multinationals in his study have high positive correlation with the geographical diversification of their subsidiaries (Coerzen, 2005: 50).

The strategy that is advantageous for multinationals may however be not so positive for the regions themselves. Researchers point out the different impact of foreign direct investment on different regions. For example, Berberoglu (1987) argued that FDI on the countries of the Third World accelerated capitalist transformation. The share of industry increased in the countries with the biggest amount of FDI, their economies grew, the number of workers in industries increased and the number of employees in agriculture

---

<sup>12</sup> Modified by the author.

declined. At the same time Berberoglu (1987: 43) highlighted the super-exploitation of workers of the countries of the Third World through below-substance wages.

This is not a surprising result, given that many researchers have pointed out an unequal character of the internationalisation of capital. As can be seen from the previous review, all stages of the internationalisation of capital could be associated with the existence of the *core*, the states that are associated with the highest percentage of international transactions, either in terms of commodities, money lending or FDI; and the *periphery*, less developed countries that are considerably dependent on the core. Many researchers have associated this structural inequality with economic dominance the states of the core over the countries of the periphery and with colonial practices that constitute the basis of economic imperialism.

In fact, this structural inequality is regarded as a typical result of capital expansion. Even Marx showed that formal equality of the market could result in socially structured inequality. Wallerstein has developed this thesis by noting that commodity production mostly takes place in a specific arena. This arena of international division of labour is structured by power relations that have historically developed between states. The first capitalist states composed the core, and gained the advantage of the historical moment in order to protect and assist with a variety of forms of political coercion of their own capitalists in imposing world market relations, thus shaping the world as they want it to be.

Wallerstein argues that the international system is in fact the political system of the world capitalist economy. He claims that the core-periphery hierarchy and the exploitation of the periphery by the core are in fact necessary to the survival and reproduction of capitalism as system (Wallerstein, 1979: 15). Have this hierarchy and controversies of the internationalisation of capital remained in its latest stage, globalisation, associated with the promotion of neo-liberal ideas and privatisation policies across the world? The details of this process are examined in the next Chapter, while the entire thesis seeks to address this intriguing question.

The presence of the core and the periphery is not the only feature of the internationalisation of capital that is extensively discussed in globalisation



debates. Another important globalisation debate related to the structural inequality of the world economy is concerned with the development of regional economies. Certain trends of regionalisation have been identified by many economic geographers, from Alfred Marshall, who pioneered the concept of production districts to Paul Krugman, who looks at self-organising processes of regional economies. These influential thinkers of economic geography view the development of regional production as an inevitable consequence and a basic condition for understanding the dynamics of capital accumulation. Similarly, Harvey (2003: 103) argues that regionality “necessarily and unavoidably arises out of the molecular processes of capital accumulation in space and time”.

Economic regions are frequently formed within nations. For example, in the United States, the production was largely concentrated in a rather small area, the so-called the Manufacturing Belt, including the eastern part of the Midwest and a small part of the Northeast (Krugman, 1991). Birmingham and Manchester in the UK eventually became so influential that they impacted on governmental policies and developments of the entire country (Harvey, 2003: 104). The regions also can transcend the national borders and involve several countries. Regionalism on the supra-national level is a result of features of the process of the accumulation and internationalisation of capital. An example of supra-national region can be found in South Asian economies.

Studies on economic geography (for example, Garrison, 1960; Lee & Wills, 1997; Clark et al., 2003) have revealed many examples and reasons for the development of national and supra-national regions. However, do these *regionalisation* trends still remain persistent, despite the influence of *global* centres of capital accumulation, and after massive privatisation programmes were implemented across the world? This question constitutes the basis of another globalisation debate and the regionalisation theory outlined in Section 2.3. This question is to be addressed in this thesis in Chapter 4, Chapter 7, and Chapter 8, while the next Chapter sheds the light on the context and content of the privatisation policies that became widespread across the world at the end of the twentieth century.

## **Chapter 3**

### **Privatisation**

This chapter concerns the importance of ownership research for globalisation studies. The particular importance of processes of ownership acquisitions in globalisation studies is provided by the spread of policies of privatisation and liberalisation, main elements of the structural institutional reforms, across the globe in the end of the 1980s - the beginning of the 1990s. These policies have made a considerable impact on the reconfiguration of global ownership and largely expanded the arena for economic globalisation.

It should be noted that as far as the economic dimension of globalisation is concerned, it is hardly possible to avoid addressing the issue of privatisation. This view is shared by many of the researchers on globalisation, who believes that globalization can be seen as a global process towards a more rapid accumulation of surplus value by corporate capitalism. They claim that privatization has been designed and promoted deliberately in order to facilitate the globalisation of capital and is therefore a strategic instrument of globalization of capital (Farazmand, 2002).

This chapter examines in detail trends of privatisation in the last few decades and points out the centrality of privatisation in structural institutional reforms. Section 1 discusses the place of neo-liberal policies in globalisation. Section 2 reviews the principles of the actively promoted institutional reforms. Section 3 briefly summarises the history of privatisation. Section 4 outlines the main methods of privatisation. Some outcomes and problems of privatisation are discussed in Section 3.5. The final section discusses the importance of research on ownership ties for globalisation studies.

### **3.1. Globalisation and Neo-liberalism**

As mentioned in Chapter 2, this study focuses on economic globalisation. The reason for this is simple enough: economic processes considerably impact on other dimensions of globalisation. It can be seen that almost all definitions of globalisation cannot avoid addressing (in explicit or implicit form) the economic dimension of globalisation. For example, the CATO Institute highlights the importance of this dimension of globalisation in its definition, stating that “globalisation describes the ongoing global trend towards the freer flow of trade and investment across borders and the resulting integration of the international economy” (Cato Institute, 2006).

It is noteworthy that economic globalisation is based on the capitalist mode of production which is driven by private profit-making. Globalisation has initiated the emergence of a global capitalist economy, which is characterised by unrestricted trade, international investment flows, and the international activities of multinational firms (Gilpin, 2000). Multinational companies have considerably expanded and comprise the largest part of the world economy by controlling nearly seventy per cent of global trade (Held, 1999: 282).

Economic globalisation has resulted in the formation of the global financial system, which is mainly regulated from world financial centres such as London, New York, Tokyo among few others. The strength of international financial capital has grown to such an extent that it overpowers governments of even richest countries (Greider, 1997). The development of the global financial system has been facilitated by technological advances, and technology is regarded as one of the driving forces of economic globalisation (Ervin & Smith, 2008).

It has been argued that economic globalisation initiated the formation of hypercapitalism. Globalisation has considerably changed the organisation of capitalism by the formation of offshore centres as well as by encouraging international corporate mergers and acquisitions. Transplanetary transactions have expanded, which helped to increase surplus accumulation and resulted in the emergence of oligopolies via concentration of industrial, consumer, finance, information and communication capital (Scholte, 2005).

Importantly, the current mode of economic globalisation is based on principles of neoliberalism. A predecessor of neoliberalism, liberalism, emerged several centuries ago and Adam Smith is most frequently mentioned among its founders. Main principles of liberalism are equality of opportunity and individual rights, including right to private property and freedom of speech. Liberalism relies on the rule of law and advocates for limitations on the power of governments. For example, liberals claim that little or no government regulation of the market would be the most sensible policy because markets are most efficient economic mechanisms and they are able to self-regulation.

It is noteworthy that the concept of liberalism has an almost unavoidable international facet because the most efficient capitalist companies are able to produce more than can be consumed in a single country. Hence there is a need in foreign markets and international expansion. To some extent, the ideas and concepts of liberalism were used by many capitalist governments. Most practical usages of liberalism in the middle of the twentieth century were associated with so called “embedded liberalism”.

At the beginning of 1980s, when the level of internationalisation has considerably increased and a number of leading capitalist economies faced domestic economic problems, there was a call for changes. A response to new challenges was found in the modification and promotion of liberal principles on the global scene. The new approach is called neoliberalism and it has made the major impact on the development of economic globalisation.

Like liberalists, neoliberalists advocate the principles of deregulation and market liberalisation, especially for developing countries. They believe that freedom of economic activities on the global stage would benefit the entire humanity. Neoliberal ideas became academically respectable after the Nobel prizes in economics were awarded to Hayek (in 1974) and to Friedman (in 1976). Neoliberal ideas are actively promoted by the International Monetary Fund and the World Bank and, because of this, the principles of neoliberal globalisation are sometimes called the “Washington consensus” reflecting the fact that both organisations are based in Washington, DC. Principles of neoliberalism were used by governments of the US and the UK

in the 1980s, but the first state which adopted the doctrine of neoliberalism was Chile under the rule of General Pinochet (Harvey, 2005).

It should be noted that neoliberals are particularly assiduous in seeking privatisation of assets. They believe that “privatisation and deregulation combined with competition... eliminate bureaucratic red tape, increase efficiency and productivity, improve quality, and reduce costs, both directly to the consumer through cheaper commodities and services and indirectly through reduction of the tax burden” (Harvey, 2005: 65).

Although neoliberal ideas provide the basis for present economic globalisation, they are regarded as controversial by many researchers. For example, some opponents of the current concept of economic globalisation define it as a “global imperialism” (Ervin & Smith, 2008: 47). Similarly, Harvey (2005) claim, that “somewhat chaotic evolution and uneven geographical development of state institutions, powers, and functions over the last thirty years suggests ... that the neoliberal state may be an unstable and contradictory political form” (Harvey, 2005: 64).

Despite considerable criticism in basic principles and their implications, the ideas of neoliberalism are consistently promoted by the government of the USA. For example, the Bush administration has always claimed that it would make all possible effort in order to “help the spread of freedom”. The program of neoliberalism is particularly expressed in structural institutional policies, recommended by main global financial bodies (IMF and WB) for governments of developing countries. The main elements of the institutional policies and the centrality of privatisation in them are explained in the next section.

### ***3.2. Privatisation and Structural Adjustment***

A mix of historical, political, and economic factors in the middle of the twentieth century caused considerable changes in the world. After World War II a large number of countries in Eastern and Central European countries established state economies, while many former colonies became independent. Several western industrialised economies also were

characterised by growth of government intervention and state ownership of services such as water.

At the beginning of the 1970s, many countries faced considerable economic problems (OECD, 1994). Canada experienced deterioration in provincial and federal finances leading to a high inflation rate. The economy of the United States was ridden by stagnation, with low levels of productivity and economic growth. France had high structural unemployment, Italy was burdened by high level of public debt, and so on. State economies of the Eastern bloc also failed to establish efficient industries, partly because public authorities were unable to effectively forecast and control myriads of economic transactions.

Economic failures in socialist states, capitalist economies and countries of the third world encouraged the search for more efficient economic strategies. Structural adjustment reforms (SAR) were proposed as a way of creating environment that would encourage competition, efficiency and prosperity. In particular, the IMF and the World Bank saw these reforms as the panacea from all problems and persuasively encouraged emerging and developing countries to adopt them. For example, these international financial organisations provided a considerable financial support for those governments who expressed their intention to follow the principles of SAR (Rondinelli & Iacono, 1996).

Among main elements of structural institutional reforms are macroeconomic policy reforms, liberalisation of foreign trade and investment policies, reforms of the political system and the government, the formation of business support institutions, the development of the private sector and institutions of civil society, the reform of human resource management, and the formation of a safety net for protecting vulnerable segments of the population. Let us describe details of these components of structural reforms.

First component of SAR is macroeconomic policy reforms. Although the design of macroeconomic reforms differs from country to country, it is possible to identify two main elements of macroeconomic policy reform: macroeconomic adjustment policies and economic stabilisation policies. The main principles of macroeconomic adjustment policies involve economic decentralisation, the development of competitive markets, and the promotion

of financial viability of industrial companies and service providers. For these purposes a set of specific policies was proposed, including policies aiming to improve tax administration and the transparency of budget, strengthening the banking system, and reducing control of the government over prices (Sokil & King, 1993).

Because countries with weak economies are likely to experience considerable difficulties while promoting SAR, the set of economic stabilisation policies was proposed. For example, the countries were encouraged to control inflation and to increase investment and savings. Also they were asked to introduce western procedures for tax collection, and diminish state deficits by transferring the burden from central bank systems to private investors.

The second component of SAR is liberalising foreign trade and investment policies. New trade laws and regulations have been adopted in order to open national markets for international companies with a hope to encourage competition. For the same purpose, changes in investment policies are proposed. The main elements of liberal trade and investment policies include trade reforms, exchange rate reforms, liberalisation of capital accounts, and policies for promotion of trade and FDI (Rondinelli & Iacono, 1996).

Trade policies of SAR are designed to reduce export and import barriers by reducing customs delays, tariffs, quotas and restrictions. Exchange rate reforms aim to create a unified exchange rate set that could induce a growth in non-traditional exports (Williamson, 1994). For this purpose, international currencies should be made convertible and placed in the international system so that the market could determine their real values. Another policy, liberalisation of capital accounts, aims to encourage opening domestic financial markets for international investments. These policies are designed in such a way so as to reduce difference in capital regulations for domestic and foreign investors and to allow investors to keep international portfolio.

Because any adequate reform of economic institutions is impossible without considerable changes in political and social institutions, a number of components of structural institutional policies initiate changes in these

important institutions. For example, a specific section of SAR deals with political and governmental reforms. The main policies of this section include reconsidering the structure of the political system and especially the role of the State by the encouragement of decentralisation and via the democratisation of government and politics. The formation of political commitment to SAR is also an important policy of this SAR component.

In addition to political reform, SAR proposes a modification of economic and business support institutions in order to facilitate market transactions. For example, it pays considerable attention to ownership and recommends strengthening property rights institutions in order to allure foreign and private investors to participate in privatisation. The components of the property right system include an effective system of recording ownership along with a system of ownership rules, laws and contracts that can efficiently regulate selling-buying procedures and resolve property disputes (Orr & Ulen, 1993).

A variety of financial institutions such as banks, stock exchanges, insurance companies, and investment funds are also seen as essentials for the success of privatisation and structural institutional reforms. Well developed financial markets are regarded essential for effective transferring ownership rights and for attracting foreign investors.

However, the financial market alone is not sufficient for the effective operation of economies. Consequently, SAR encourages the establishment of effective and flexible labour markets. SAR seeks to restrict any geographical and national barriers for inflows of workforce. In addition, it advocates the formation of an efficient system of regulating management-employees relations, which is impossible without a strong legal framework regulating labour markets.

Strong legal rules and institutions are equally important for business. They are expected to clearly identify boundaries of illegal business activities and describe the principles of business-government relations. For example, there is a need in business laws regulating conditions of licensing, business exit and entry, clear visa regulations, and antitrust laws. The formation of an effective system of taxes, an important element of SAR, is also hardly



possible without satisfactory legal framework and institutions (Rondinelli & Iacono, 1996).

According to SAR principles, the development of legal framework should be accomplished by the development of institutions of civil society. These institutions include a variety of social groups, such as local communities, philanthropic organisations, and consumer groups. Multiplicity and diversity of professional organisations, such as organisations of employers, trade unions, and professional associations are also regarded as important elements of civil society. In addition, structural institutional policies initiate the development of policy groups and independent media organisations in order to keep business and government accountable.

Institutions of education are also an object for changes. For example, the system of business education is expected to be promoted across the globe so that it could educate and train adequate numbers of managers and administrators for private companies. General national education systems are also to be transformed so that they could explain advantages of market principles. Ideally, "entrepreneurial" values should be promoted across societies and become part of the system of social values.

Needless to say, structural reforms aim to strengthen institutions of the private sector, in particular, private enterprise. Most attention is given to the development of small and medium-sized enterprises. It is believed that private small and medium firms could secure economic stability, improve social mobility and encourage economic growth. Therefore, governments are motivated by SAR to expand the public sector and to make regulatory changes providing an attractive business environment for these types of private companies.

The role of large private corporations is also considered by SAR. Institutional reforms aim to encourage multinational corporations expand and form numerous joint ventures and alliances worldwide. For this purposes, it is expected that national governments change domestic rules and simplify procedures regulating a variety of business transactions with MNCs. In particular, SAR encourages MNCs to form a variety of networks with small national firms (Wright, 1990). Finally, since institutional reforms cause the substantial deprivation of many social groups, the last component of SAR

outlines social safety policies specifically designed for protecting these vulnerable segments of the population.

As can be seen in the review, privatisation plays a very important role in the structural institutional reforms. In its simplest definition, privatisation is "the sale of public assets to private investors" (Rondineli & Iacono, 1996: 19). However, privatisation can be seen as a much broader concept that includes all "policies that encourage private sector participation in public service and infrastructure provision" (Ibid.). A variety of methods and forms of privatisation are reviewed in Section 3.4, while the next section outlines its brief history.

### **3.3. Brief History of Privatisation**

In developed countries privatisation started at the end of the 1970s and this process has not been completed yet. Privatisation policies in developed countries, especially OECD countries, focused on public utilities,<sup>13</sup> although many state companies in other industries have also been transferred to private owners (Vickers & Wright, 1989). The list of the countries that are most heavily involved in privatisation policies includes the UK, New Zealand, France, Italy, West Germany and Japan. Of note, it took only two years (1986-1988) for Japan to complete its privatisation programme.

Let us start this brief review of the history of privatisation with the United States and the United Kingdom, the countries that are regarded to be the leaders of privatisation programmes since the 1970s.<sup>14</sup> The process of privatisation in the US started in the late 1970s by deregulation of the most heavily regulated industries, including financial services, airlines, and telecommunications. Deregulation is associated with privatisation policies.

State and local governments were extensively involved in contracting out a variety of services, such as parking ticket collection, prisons, education, health, social services and transportation. Another popular mode of privatisation in the US involved a variety of vouchers. For example, this mode was used in the Federal provision of Medicare: the Federal government paid

---

<sup>13</sup> Privatisation of public utilities is examined in more detail in the next chapter (Chapter 3).

<sup>14</sup> It should be noted though that the ideas leading to diminishing the role of the state in the economy and to some extent referring to privatisation policies have been expressed and got respectability after Friedman's (1962) study.

for cost of the health service, but beneficiaries were free to select their health providers. Educational vouchers were used in order pay education costs while parents could choose particular schools for their children. It is noteworthy that States were more involved in vouchers and grants than Federal authorities, especially with regard to welfare (Logue, 1995).

Privatisation activities and initiatives were especially abundant in the period between the late 1970s and the beginning of the 1990s and slowed down afterwards despite the presence of many objects that could have been privatised. Also surprisingly, the pace of privatisation in the US in many aspects was actually slower than in other countries, in particularly with regard to the area of asset sales. Thus, Logue (1995: 101) reports that only some Federal loans, Conrails, and some radio frequencies were sold, although the list of candidates for sales could have been much longer. The American Federal government and US based international financial organisations seemed to have been more interested in the promotion of ownership related methods of privatisation in other countries, rather than in their own.

Another of the pioneering states to use privatisation policies was the UK, and its privatisation experience has been especially extensively researched (Ramanadham, 1988; Arnold & Cooper, 1999; Foreman-Peck & Millward, 1994). As the British privatisation experience was subsequently used in many countries across the globe, it makes sense to devote a considerable space for the description of the UK privatisation policies.

It has been argued that privatisation in this country was caused by economic and political factors. When public borrowing in the UK reached 10.75 % of Gross Domestic Product (GDP) in 1975, the Conservative government decided to use privatisation policies in order to improve economic fundamentals. The key objectives of the UK privatization were outlined by Hatch (1988: 60) as follows:

1. To increase competition and spread consumer choice;
2. To reduce the Public Sector Borrowing Requirement (PSBR)/ increase government revenues;
3. To give the public and the work-force a stake in industry; and
4. To allow nationalized industry management to escape from “the dead hand of Whitehall.”

At the same time, many experts argued that the main rationale for the development of privatization policies was in fact political (Dobek, 1993). It has been reported that the Conservative government obtained a number of political dividends, because such a strategy allowed it to eliminate the unions power (Marsh, 1991) and to yield considerable voters' support (McAllister & Studlar, 1989).

Three phases of the privatization programme in the UK can be outlined. In the first phase, the Government sought to improve management of the public sector and to make public corporations more politically independent in decision making regarding commercial matters. For this purpose, a special financial infrastructure, involving specific financial targets and External Financial Limits (EFL), was established. It soon became evident for the government that this policy was very difficult to implement. This resulted in altering the programme in favor of selling out main national monopolies to the private sector, including BAA, British Gas, National Bus Company among many others. Attention was also given to the policy of liberalization and the formation of competitive markets in some industries. These developments are regarded as the second phase of privatisation in the UK.

The final stage mostly coincided with John Major's premiership and it focused on privatization of some other state enterprises and utilities that required considerable investment. For example, almost all profitable public corporations, including ten water utilities in England and Welsh were transferred to private investors. Only loss making and relatively unattractive public corporations remained in public ownership, including British Coal, the nuclear and rail industries (Boyfield, 1995: 25).

It should be noted that in this respect the privatization in the United Kingdom is different from the privatization in the United States, where, as it has been mentioned at the beginning of this section, selling assets has not been particularly widespread. Another important difference is the model of utility regulation. The British model has been intentionally designed in a different fashion so that it could avoid deficiencies of the American model, which is based on rate-of-return regulation. Instead, the British model has two main aspects: economic regulation is conducted by independent regulatory

agencies and the Regulators set caps on prices of regulated enterprises. The formula for calculating the cap on prices is  $RPI - X$ . In this formula, RPI is the percentage rate of change in the retail price index, and X is an adjustment factor formulated with respect to the presumed movement of productivity in the industry (Burton, 1995: 151).

The main intention of regulators in the British model is seen to be the promotion of competition. This element has been regarded as more important than price caps, and it was hoped that such a strategy would in theory help the UK to overcome the US in de-regulation of utilities. In practice, though, it has become evident that the introduction of competition went much more slowly than initially planned and the result was the development of “ordered” rather than real competition (Burton, 1995: 152).

There is considerable controversy regarding outcomes of privatization policy for the United Kingdom. On the one hand, it has been argued that privatization in the UK has resulted in many positive changes. For example, Boyfield (1995: 7) claims that privatization has had “a dramatic impact on the profitability of businesses” and resulted in remarkable productivity improvements. He also refers to some other benefits of privatization, mostly associated with the spread of ownership of former state corporations among private shareholders. In order to illustrate this point, Boyfield (1995: 101) points out that some shareholders benefited after privatization of British Gas (in December 1986), as earnings per share were up 32,9% in 1991.

On the other hand, critics of privatization have shown that many objectives of the privatisation programme in the UK have not been achieved. For example, Hutch (1988: 63) reports that performance of privatized utilities has been mixed. Also, it has been pointed out that the spread of shareholders was an illusion, because many initial buyers subsequently sold their shares (The Welfare Impact of British Privatisation, 2002: 7). Moreover, it has been even argued that all outlined objectives of this privatization programme could not have been achieved in principle, because of their incompatibility (Hutch, 1988: 62). This list of drawbacks should be accomplished by the statement that privatization in the UK has led to a considerable rise of prices and resulted in large redundancy programmes and unemployment.

Despite numerous debates and considerable criticism of the actual benefits of privatization policies for the British economy and society, it has been admitted that privatization policies became one of the most profitable British exports (Boyfield, 1995: 10). British experts have become advisors on privatization programmes in other countries worldwide. Privatisation policies have been promoted to developing countries, mostly via structural adjustment policies and reforms. A number of privatisation policies have been used in Latin America (Baer & Birch, 1994), Middle East, Central and Eastern Europe and Russia.

It should be noted that every region and every country have their own modifications and history of privatisation. Arguably the most extensive programmes of privatisation took place in Central and Eastern Europe and the Russian Federation (Blasi et al., 1997). For example, in Poland, privatisation was mostly politically motivated (Dobek, 1993). It followed the change of the government as the result of election in 1991. However, the leadership of Poland rejected the policy of rapid privatisation, the so called model of “shock therapy”. One of the reasons for this decision was probably the fear that political resistance and campaigns, initiated by economic problems that are normally assist the launch of this policy, would have been too strong for the very existence of the Polish government. Instead, the two stage privatisation programme was implemented.

In the first (promotional) stage of the privatisation programme in Poland in 1991, eleven carefully selected best public companies were transformed in joint stock companies and subsequently floated and sold to about 130,000 investors. In the second (massive) stage, in 1992, 1,554 public companies (nearly 20%) were privatised. Most of them (72%) were privatised by liquidation – they were either sold on auctions or leased to managers and workers, reportedly because of poor condition of these companies or their small sizes (Dobek, 1993: 88).

There are a variety of methods of privatisation. For example, the sphere and methods of privatisation in post-communist countries of Central and Eastern Europe were different from that in the developed countries. Privatisation policies in this region were caused by economic and political factors, and it should be noted that privatisation there was largely seen as the

main road to democracy and a free market economy (Dobek, 1993: 68). Privatisation methods in some non-democratic political systems of Latin America and Asia have also been different from privatisation policies used in countries with a competitive political system, like Poland. The next section thus provides a brief summary of methods available and used in privatisation programmes across the world.

### **3.4. Main Methods of Privatisation**

There are many processes of privatisation. They include such diverse methods as auctioning state property, restitution of property, public-private partnership, contracting with private companies, delegating some powers and responsibilities to the private sector, etc. There is no best method because each method has its strengths and weaknesses. Normally, the methods are not used separately. Instead, governments use a combination of methods depending on economic, political and cultural situation in any particular country and industry (see for example, Rammamurti & Vernon, 1991). This section provides an outline of main principles associated with the methods of privatisation.

The first method of privatisation is selling the whole or proportion of public enterprise by public share issue. In the former case, 100 per cent of enterprise shares are sold in a public stock offering. This method has been used in the privatisation of Enterprise Oil, British Airways and Amersham International, a small radionics firm, in the United Kingdom. An especially remarkable example of this method can be seen in the privatisation of British Gas in 1986, not least because a special part of share issue in that case was reserved for the workers of British Gas, and a small number of shares were even given away (Pirie, 1988: 71).

The method of selling out a proportion of public enterprise is also popular. It is associated with the offering for public flotation less 100 per cent of a public enterprise. Usually, governments offer 51 or 49 per cent of shares and keep the rest. Among advantages of this method, Pirie (1988) names an additional income for the state budget, reduction of the public sector and a

rise of borrowing opportunities for privatised firms (in the UK private companies have less strict requirements for borrowing than public). This method was used in the privatisation of British Petroleum in 1979, British Aerospace in 1981, Cable and Wireless, Britoil, Jaguar and British Telecom among many other companies in the United Kingdom and abroad. It is worth mentioning that as a result of this and other public flotations, there was a four-fold increase in the number of British share owners (Pirie, 1988: 71).

When public flotation is not possible or difficult, another method has been used – selling parts of public enterprises to private buyers. Under this method, distinct sections of public companies were sold off independently, frequently to a single private buyer, after preliminary consultations and negotiations with interested parties that are frequently involve private corporations, active in acquisitions in similar businesses. For example, this method was used for the privatisation of British Rail Hotels, English Channel Ferry Services, and British Sugar, among others.

The next privatisation method is selling off public enterprises to their workforce or management. This method has been used for the privatisation of The National Freight Corporation, Redhead, and National Bus Company in the UK. Compared to the previous reviewed method, it has a special advantage associated with the fact that it can secure the support or cooperation from labour and management of these enterprises.

It should be noted that there is another modification of this method, where workforce and management get all the shares of their privatised enterprise for free, or almost for free. Although this method has not been used particularly frequently, it did take place in the case of Hover Craft Services in the UK, when British Rail sold its 50 per cent of state interest to the staff for nominal sum £1. The new owners however got £4.3 million when they re-sold their stakes a few years later (Pirie, 1988).

Arguably, the most common method of privatisation used in former socialist countries is the transfer of ownership. The first form of the transfer of ownership is restitution, the return of ownership rights to former owners of the property. For example, in Central Europe, before shops and stores were to be offered for sell to private investors, much effort was made to identify previous owners (Fischer, 1991). Similar laws were implemented in Eastern Europe.



This form is very convenient when there is a need for a quick privatisation. However, it has some drawbacks. For example, the legal basis for restitution is not always clear. In addition, several European governments had problems with dealing with an extremely large number of restitution claims (Rondinelli & Iacono, 1996: 34).

The second form of the transfer of ownership is the auctioning of state property. This form is convenient for a quick privatisation of state large and middle size companies. It was most frequently used in Russia and some Latin American countries (Blasi et al., 1997; Baer & Birch, 1994). However, this method can be also used for small businesses. In fact it has been used in Central and Eastern Europe for the privatisation of small businesses that could not be reclaimed via restitution (Estrin, 1994).

Several types of auctioning can be identified. First price auctions may be based on sealed bids. In this type of auction, the assets are transferred to the bidder who offered the highest price. Second uniform price auctions have similar bidding conditions. The only difference is that the assets are sold to the highest bidder for the price of the second (unsuccessful) offer. The next type of auctions is so-called English auctions. These auctions are open and the process of auctioning starts with a low initial price that gradually rises by interested bidders. The process ends with the highest offer. By contrast, Dutch auctions starts with a deliberately high price and the price is gradually reduce until somebody finds it acceptable for purchasing the assets auctioned.

Double auctions and pro rata auctions are two other types of auctioning. Double auctions are based on simultaneous bids by sellers and buyers. If a selling bid matches an offer by a buyer, a deal is completed. Pro rata auctions allow the bidders to make several offers on shares of different companies at the same time. The shares are transferred to the bidders with the highest price (Rondinelli & Iacono, 1996).

Although restitution and auctions have been relatively frequently used, the form which has been used most frequently is the divestiture of state owned enterprises. The methods of the divestiture include sale of assets directly to investors (both foreign and domestic), liquidation and bankruptcy,

IPOs, employee buy-outs, and distribution of vouchers to the population. Most government used a combination of these methods.

Another dimension of privatisation is associated with commercialising or restructuring state owned enterprises (SOE). It is normally used for companies that cannot be sold because of political reasons. The idea of commercialisation is to reduce costs and to force the enterprises to make profit. The first of the methods of this dimension includes breaking up SOE in units, some of which are retained in public ownership, whereas the others are sold to private investors. The second method is the elimination of the monopoly of state enterprises in some industries. The aim of this method is to open these sectors for competition between private and public firms. The third method is associated with the formation of joint-stock companies in which both public and private investors share ownership. This approach is sometimes called corporatisation of SOE.

The third dimension of privatisation is concerned with the transfer of management. This dimension is normally associated with contracting, public-private partnership, and state guarantees. Contracting with private companies is most frequently used in providing public services. These contracts can be regarding services or infrastructure, and they aim to involve private companies in providing services under an obligation of meeting particular targets and specifications (Savas, 1982; Rondinelli & Iacono, 1996).

It is possible to distinguish among service contracts, management contracts and lease contracts. Service contracts are signed for a specified period of time regarding a provision of a specified service. For example, in the US service contracts are used for street repairs, healthcare, hospital management, public transport. In Nepal, local authorities use private contractors for tax collection (McCullough & Steubner, 1985). Under management contracts, contractors maintain and operate a service facility for a certain period of time. Among such facilities are hospitals, water supply systems, and wastewater treatment plants. The last form of contracts, lease contracts are normally used for long-term involvement of private investors in particular state owned industries or air space, land, or water. Benefits of all types of contracting are seen in a hope for efficient and effective management and additional income for local government (Ferris & Grady, 1989).

It should be noted that contracting cannot be used everywhere. A variety of public-private partnership may be used instead. PPPs are also seen as bringing financial, managerial and technical capabilities of private companies in the public sector. However, compared to contracting, they are normally more complex and more difficult to manage and control. There are a number of forms of private-public partnerships, including joint investment, joint ventures, and build-operate-transfer (BOT).

The first form of PPPs is joint investment. In this case, both public authorities and private businesses invest in public projects, including public services, transport, low-cost housing and so on. More ownership control is imposed in public-private joint ventures, another form of PPPs. This form is used when a government wants to involve private capital but simultaneously retain control over some strategic companies. This form is especially common in China, and it is used in order to attract FDI and to learn foreign management techniques (Grub & Lin, 1991).

The next method of PPPs is build-operate-transfer. It can be used if a government intends to use private capital for construction of particular facilities. Under BOT, a government buys or leases facilities constructed by private investors after they have made sufficient return of their investment by operating the facilities for a specified period of time. There are a number of modifications of BOT, such as BOO (Build-Operate-Own), and BOOT (Build-Operate-Own-Transfer). A variety of BOTs is used in Turkey, Malaysia, China and Pakistan, among others (Rondinelli & Iacono, 1996).

State guarantees or incentives can be also regarded as a method of the transfer of management. This approach allows local authorities to involve private companies in providing services or to use private infrastructure by offering fiscal incentives or giving certain guarantees to these companies. Such an approach is estimated to be beneficial for both the private sector and the public sector, because private companies have more potential for profit, while public authorities get an opportunity to provide services at a lower cost. On the other hand, the disadvantage of this method can be seen in possible corruption of state officials, which means that sufficient schemes of control and monitoring should be induced in this case.

The final dimension of privatisation methods is the delegation of responsibility. This dimension includes cases when public authorities delegating responsibility for providing certain services to NGOs or to private companies. There are a number of methods of this dimension, including the development of regulatory requirements and a use of merchant facilities. For example, in the United States the federal government and public authorities have certain requirements for private sector organizations if their activities involve public health and safety issues. In addition, the private companies are requested to invest in equipment that reduces environmental pollution (Rondinelli & Iacono, 1996).

### ***3.5. Problems and Outcomes of Privatisation***

It should be noted that structural adjustment reforms and especially their central element, privatisation, encounter considerable difficulties and resistance across the world. National economic uncertainty, opposition from the personnel and interest groups, the presence of weak financial markets, inadequate market institutions, and public suspicion towards private entrepreneurs could be mentioned among these difficulties. Outcomes of privatisation are also numerous, and yet controversial. Some researchers provide figures showing the rise of profitability and efficiency in certain privatised industries. The others dispute these figures or their significance. Among the most evident outcomes of privatisation policies, however, there are the rise of prices, large redundancy programmes and the expansion of corruption practices. This section reviews some of the problems and outcomes of privatisation in detail.

First, the success of privatisation policies hugely depends on national economic stability. However, most countries that undertook institutional reforms at the end of the twentieth century did not have it. As a result, after implementing structural reforms and privatisation, GDP in these countries decline considerably. This phenomenon was called "adjustment shock". The decline of GDP had caused extensive health problems among the population of the countries and brought negative demographic changes.

It has been reported that privatisation in Central and Eastern Europe in the 1990s resulted in an average 12.8 % increase of short-term adult male mortality rates. This increase is associated with a substantial rise (56.3 %) of unemployment in these countries following the implementation of privatisation policies. Some countries involved in privatisation had much higher than average mortality rates associated with unemployment. For example, in Russia and Kazakhstan, there was a 42 % rise of adult male mortality rate, while unemployment rose 305% (Stuckler et al., 2009). This outcome triggered hostility towards privatisation among certain social groups and political parties in many countries.

Political ambivalence towards privatisation was especially evident in Russia, Central and Eastern Europe. For example, according to a survey conducted in Poland, Czech Republic, and Slovakia, in 1991, few respondents replied that their personal income increased after the reforms and more than two-thirds of the respondents doubted that their well-being would improve in the future (Penn, 1991). In Hungary and Poland, people were so dissatisfied with the reforms that they elected new governments that promised to reconsider privatisation policies (Rondinelli & Iacono, 1996: 71).

Political ambivalence is reinforced by interest groups that include political leaders, trade unions, and powerful entrepreneurs. The military and military controlled ministries of many countries also are frequently against privatisation. Yet, the most negative attitude towards privatisation comes from a variety of social and religious groups. For example, religious groups in Malaysia and Indonesia are against privatisation because the control over key industries could be transferred to MNCs and Chinese powerful businesspeople. Major concern of social groups with regard to privatisation is the fear that it would result in the intention of private owners to maximise profit by reducing quality of services provided.

It should be noted that public suspicion of private businesses, or hostility towards private entrepreneurs in some countries, cause considerable problems for the implementation of privatisation policies. This problem is especially persistent in post-Soviet countries, the system of social values in which was largely opposed to private property and capitalist economic activities. Strong opposition to privatisation also comes from the personnel of

SOE. Many managers fear that new policies would require new skills and it could be detrimental for their work positions and careers. Employees are frequently resistant to privatisation because of fear that their work responsibilities would be increased without an adequate increase in salaries (or even would cause a considerable decrease in their income).

Among the problems of privatisation policies are also an inadequate quality of institutions to support market transactions, bureaucratic complexity, and bureaucracy caused delays. Uncertainty regarding property rights along with incomplete property rights also makes a negative impact on success of privatisation. Finally, it has been claimed that illegal or unregulated activities, frequently associated with corruption, cause considerable problems for the legitimisation of outcomes of privatisation among citizens (Rondinelli & Iacono, 1996).

For this study, the most important outcome of a variety of local privatisation policies is seen in the point that after the implementation of liberalisation programmes, domestic enterprises became eligible for foreign acquisitions, and multinationals have become extensively involved in this process. This process has been taking place in many forms and many countries. Even on the stage of privatisation, many companies are privatised via selling the proportion of the stock to foreign corporations. The transfer the whole or proportion of ownership to foreign companies take place and on other stages of the life of post-privatised companies. The process of the internationalisation of ownership thus is an outcome of domestic privatisation programmes. It is important and, yet, under-researched phenomenon, as discussed in detail in the next Section.

### ***3.6. The Question of Ownership***

It has been shown in the previous sections that privatisation is the core of the structural institutional policies that deeply impact on economics, politics and the culture of societies involved. Indeed, privatisation is the process in which economics and politics are especially close connected. The culture also makes an impact on features of privatisation policies. In turn, privatisation to

some extent affects the value system of societies. Since a considerable number of countries are undertaking structural reforms, privatisation can be regarded as an important component of globalisation processes. Consequently, globalisation can be studied on the basis of issues related to privatisation policies and their outcomes.

It has been shown that ownership acquisitions constitute a considerable part of privatisation methods. Hence, the study of ownership can bring an insight into the meaning and content of globalisation processes. In fact, processes related to significant ownership acquisitions in vital industries should be especially valid for globalisation studies, because they frequently involved multinationals, major players of globalisation, and are considerably affected by governmental policies and regulations. It is evident that MNCs seek new markets and use a variety of modes for entering these markets. The purchase of domestic firms for the establishment of joint ventures with local companies are among the most popular ways of entering foreign markets by multinational corporations.

Ownership of local equity assets is also regarded as one of the most effective means of control.<sup>15</sup> For example, although the study by European Institute for the Media has discovered several main ways of wielding influence, including: influence through financial links (for example, debts), through contractual links with suppliers and distributors, influence through formal and informal links with the personnel, and - influence through ownership (capital), it argues that ownership links are the most effective way of gaining influence over a company (Josifides, 1997).

In addition to the control over their companies, the owners of the key national enterprises do often play a very important role in the domestic and foreign policies. For example, Russian oligarchs, a group of twenty people, who used to own the biggest part of Russian leading industries, were able to influence Russian domestic and foreign policies (Blasi et al., 1997). The group of Russian oligarchs that consisted of Khodorovsky, the former President of Menatep; Gusinsky, the former President of Media Most; Abramovich, the former head of Sibneft; Berezovsky, the former owner several Russian largest

---

<sup>15</sup> Some researchers argue that business franchising can be also effective for control over externalised operations (Monye, 1997), but to our knowledge, franchising has not been used in public services, yet.

mass media organisations, car and oil companies; Potanin, the head of Oneksimbank and others.<sup>16</sup> The group had emerged during Yeltsin's presidency and they helped Yeltsin to be re-elected in 1996 owing to the intensive presidential campaign sponsored by them. In turn, the group strengthened its positions and dominated Russian politics from 1996 to 1999 until Putin was elected the Russian President. Similar impact on national policies can be imposed and by foreign owners of key domestic enterprises.

These examples and analysis show that ownership is important and global ownership related processes deserve substantial attention of theorists of globalisation. Surprisingly, this promising dimension has not been sufficiently examined in globalisation studies.

For instance, in line with addressing the first important globalisation debate and inquiry identified in the previous chapter, it would be of interest to examine the structure of global ownership networks and to test if ownership is concentrated like FDI in a small group of countries, and whether these ownership networks have clearly defined cores and peripheries. Also, there is a challenging puzzle regarding the second identified dimension of inquiry that is concerned with regionalism: are there underlying regional factors that impact on international ownership acquisitions?<sup>17</sup> Finally and most importantly - what can international ownership networks tell us about globalisation? This dissertation aims to address these questions and by doing so to fill a certain gap in globalisation theory and privatisation studies.

These questions are not easy to address. First, the structure of ownership is not always transparent and easily detectable. Some owners in certain countries or industries may not be interested in revealing this information for a number of reasons, some of which may be a concern about safety (especially in countries with strong organised crime) or the strategic importance of this information. Furthermore, it is frequently unclear who owns what in particular sectors of the global and national economies. In addition, ownership structures and stocks tend to change and it is not easy to track

---

<sup>16</sup> Some members of this group are involved in acquisitions of stakes in leading British football clubs. For example, Abramovich is the present owner of Football Club Chelsea, the champion of Premiership in 2005 and 2006.

<sup>17</sup> It should be noted that there are a variety of types that can be used for classifications of regions (not only associated with natural geography and economic geography).



these changes. As a result of this, there are few databases that are capable of maintaining an accurate account of global ownership data.

Another problem is associated with the fact that global ownership structures are complex and difficult to analyse. There are a variety of statistical techniques, but they are mostly too complex and are overdependent of the quality of data used in the study. These problems might explain a certain paucity of empirical studies on ownership related processes of globalisation. With aim of overcoming the above mentioned problems, this research employs techniques of social network analysis, the method which has demonstrated its applicability for researching certain global processes. In addition, this study focuses on only one industry, public services, with ownership data provided by the Public Service International Research Unit.

The industry of public services has been selected for this analysis for a particular reason. It is evident that the effect of privatisation and ownership acquisitions varies from industry to industry. Links among politics, economics, society and culture are especially apparent when we consider ownership acquisitions and privatisation issues related to public services. Hence, although this industry is underrepresented in globalisation research, it shows a considerable potential for globalisation theory. A brief review of public services and an outline of privatisation processes in this industry are presented in the next Chapter, while the methodology is described in detail in Chapter 5.

## Chapter 4

### Public Services

The term *Public Services* is normally associated with sectors that provide goods and services that are most important for life, including telecommunication, education, health, gas, electricity and water supply among others. These services are normally provided by government to citizens, but forms of provision may vary. The government or local authorities can deliver them directly via the public sector, or by hiring and financing private providers.

Public services are considered to be so essential for life in modern societies that their provision is frequently associated with fundamental human rights. In fact, the word “public” in “public services” refers more to the fact that these services should be available to all members of the public than it reflects the ownership statuses of their providers. Because of their essential nature, even where public services are provided by private operators, they are usually more subjected to regulation than any other economic sector.<sup>18</sup>

The privatisation and internationalisation of ownership in public services is one of the important facets of globalisation because this process greatly affects politics, the economy and culture of many countries across the world. Consequently, research on privatisation and foreign acquisitions of national utilities by multinational corporations may be very relevant for the study of globalisation. This Chapter therefore outlines key trends of national and international trends in public services and examines the place and role of the internationalisation of public services in the globalisation process.

---

<sup>18</sup> More information about public services, their essential nature, and regulation can be found in Chavez, D. (Ed.) (2006) *Beyond the Market: The Future of Public Services*, TNI Public Services Yearbook 2005/6, Trans National Institute (TNI)/ Public Services International Research Unit (PSIRU).

#### **4.1. Privatisation and Internationalisation**

In most countries by the 1980s public services were provided by national or local government. For example, water was provided by municipal water companies, electricity - by national or regional state companies with monopolies. Although there were some big private water companies in France and many private electricity companies in the USA, the rest of world – the EU, communist states, developing countries, all used state or municipal companies.

The situation dramatically changed in the middle of the 1980s, when the governments of some countries pursued the privatisation of public industries (Clifton et al., 2003). Many states decided to sell off large stakes in these public companies attempting to lower prices, to increase efficiency, to attract investment, and to make money to reduce public borrowing and debt. It was thought that privatisation could provide greater dynamism for the development of the industry than public ownership (Hall, 2006b: 2).

For example, in the United Kingdom, many public services, including water and electricity, have been privatised. The privatisation policies used for public services and public utilities in the UK have been followed in many countries across the globe. Consequently, it is of interest to describe the history of privatisation of public utilities in the UK in more detail.

Water services in England and Wales were under control of local authorities, and by 1974 there was a mix of water providers, including some authorities running water companies, some large inter-municipal operators, and a couple of water-supply only companies, which were strictly regulated by a cap on profit limited to return of 5% (Lobina & Hall, 2001: 4). In 1974 the service was reorganised and 10 unitary regional water authorities (RWAs) were created. They were responsible for water quality, water supply and sanitation throughout a particular river basin area. RWAs were appointed by the government and were not accountable to local authorities any more.

The Thatcher government started talks about privatising water services in 1983, with a hope to make this industry more efficient, to attract additional investment and to introduce competition. Because of public campaigns against privatisation, this plan was postponed until the Conservative Party

victory in the 1987 election. After that the privatisation of water in the UK was implemented quite quickly, although in Scotland and Northern Ireland water remained under the control and operation of public authorities.

According to the Water Act 1988, the newly floated companies became owners of the water system, taking it from the RWAs. The RWAs were sold by issuing shares on the stock market, with the public to be offered special discounts. It is believed that the companies were sold out too cheaply, about 22% of their market value, if measured as the difference between the issue price of the water companies' shares and the share price after the first week of trading (Lobina & Hall, 2001).

It is noteworthy that before privatisation, the Conservative government made a number of steps in order to boost the profitability of the privatised water companies. For example, the government wrote off all the debts of the water companies before privatisation, worth over £5 billion. In addition, the companies were given special exemption from paying profits taxes. The initial price regime before regulators were established had been also very generous. As a result of these reforms, the pre-tax profits of the ten sewerage and water companies rose by 147% between 1990/91 to 1997/98, with sewerage and water prices rising respectively by 42% and 36%.

Following privatisation, three regulators were created. They include the Drinking Water Inspectorate (DWI) monitoring water quality; the National Rivers Authority (later renamed in the Environment Agency (EA)) for monitoring river and environmental pollution; and OFWAT, which was responsible for setting the price regime for the companies.

There has been some doubt that this reform has actually encouraged competition in the UK water sector. The privatised companies received 25-year concessions for sanitation and water supply, with just 25% of the sector covered by the existing small private companies. As a result of this, the privatised water companies got a bad reputation for excessive pricing, excessive profits, and poor performance (Lobina & Hall, 2001). Even the *Daily Mail*, a supporter of the Conservative party, published in 1994 the paper entitled 'The Great Water Robbery', which stated that: "In reality, as a string of reports have confirmed - including the latest today from the National Consumer Council - the water industry has become the biggest rip-off in

Britain. Water bills, both to households and industry, have soared. And the directors and shareholders of Britain's top ten water companies have been able to use their position as monopoly suppliers to pull off the greatest act of licensed robbery in our history" (The Daily Mail, 11/07/1994).

Another important sector, electricity, was also privatized by the Conservative government. National Power was the largest generating company. It was privatised in March 1991 and operated 40 power stations with total capacity of 30 GW. A few years after privatisation, the number of power plants operated by this company decreased to 15 with capacity slightly above 15 MW. The market share of National Power also fell - from 46 per cent in 1991 to 27 per cent in 1996 (Boyfield, 1997: 141).

Electricity supply in England and Wales was substantially restructured. As a result of this restructurization, generation was separated from transmission and local supply. In order to regulate the privatised electricity industry, a regulator, the Office of Electricity Regulation (Offer) was established in 1990. In 2001 regulators for energy industries – gas and electricity – were merged into the Office of Gas and Electricity Markets (Ofgem). The single person regulator was replaced by a board, the Gas and Electricity Market Board (Thomas, 2008).

Although privatisation of public utilities encountered substantial resistance, many countries in Europe and across the world adopted this strategy (see Hall, 1997; Hall, 1998). It is important to note, though, that privatisation of utilities is normally followed by liberalisation policies. Liberalisation is seen as a way of opening domestic markets and encouraging competition. The issue of competition seems to remain problematic in many privatised industries of public utilities. For example, new entrants to the electricity and gas markets for residential consumers in the UK have had only limited success in gaining market share and, with exception of a few small companies comprising less than 1% of the market, the market is now divided between the five largest electricity companies and Centrica/British Gas (Thomas, 2008). However, as a result of the combination of privatisation and liberalisation policies, multinationals have really gained an access to utilities' markets of many countries across the planet. For example, National Power diminished its market rate in the UK but considerably expanded overseas,

substantially investing in Pakistan, the USA, Portugal, Turkey and Australia (Boyfield, 1997: 141).

It should be noted that privatisation policies have been seen by international institutions including the IMF, the World Bank and the OECD, as a central element in transforming former communist states into market economies. These institutions attempt to make privatisation especially attractive by the promotion of policies that reduce the borrowing of governments at national and municipal level<sup>19</sup> whereas the private sector can be sponsored via investments from these global institutions. In other words, privatisation or PPPs could be seen as an important source for attracting additional investment for the development of vital national industries (Hall, 2006b: 2).

The global institutions have also promoted liberalisation for similar reasons. There is a strong belief that open markets would encourage competition and improve efficiency.<sup>20</sup> For example, according to the central policy of the EU, member states have to open their markets to companies from any EU country. In the 1990s this policy was extended into electricity and gas sectors. Countries were supposed to separate their generation, transmission and distribution functions, and open their markets to competition.

Although the directive does not require privatisation, most EU countries have privatised their electricity companies, except for a number of public sector companies, such as the French company EDF and the Swedish company Vattenfall. In the USA, the great majority of companies are private, although several states declined the idea of liberalisation after cartels forced up prices in California in 2000 and some utilities still remain in the public sector (for example, the city of Los Angeles is run by an integrated public sector utility) (Hall, 2006b: 2). It is noteworthy that privatisation of public services has been taking place despite evidence of extremely successful experiences with public enterprise management and government-owned enterprises worldwide (Farazmand, 2002).

---

<sup>19</sup> For example, the EU's rules on economic convergence limit government borrowing to 3% of GDP.

<sup>20</sup> The real impact of this policy on public services is described in Roskam, E. (2006) *Winners or Losers? Liberalising Public Services*, International Labour Office, Geneva, and Hall, D., Lobina, M. (2005) *Efficiency and Public Sector Water*, PSIRU Report.

These developments have opened public services for foreign acquisitions, and multinational corporations have been involved in the provision of public services for a number of years. For example, when the UK gas and electricity markets opened, there was a rapid process of consolidation of suppliers and by 2003, the 14 electricity retailers were owned by only five companies. Interestingly, three of these were foreign-owned by the French company, EDF and by two German companies, RWE and E.ON, which took over the two largest generation companies, Npower and Powergen respectively. The other two companies were based on the integrated Scottish companies, which had expanded into England and Wales. Subsequently, Scottish Power was taken over by a Spanish company, Iberdrola (Thomas, 2008: 219).

There are several reasons for the interest of multinational corporations in the acquisition of foreign utilities. First, multinationals can expect a stable and secure demand because the goods and services provided by utilities are essential for the population. Second, during the acquisition of providers of public services the multinational corporations get an opportunity to negotiate a relatively high return. Third, stakes in national utilities are frequently bought for less than their real value. Finally, investment in public services looks attractive for many multinational corporations because at first glance it seems to be a very secure investment. The reason for such a view is the constant demand and visible governmental support. In reality it is not always the case, but during the preliminary assessment of future advantages and disadvantages, many multinational corporations are not able to accurately predict and evaluate the scale of possible risks.<sup>21</sup>

This very brief outline of recent developments in public services shows that public services are becoming an industry with a considerable involvement of multinational corporations. Because activities of MNCs are greatly embedded in a variety of international networks and have been acknowledged among drivers of globalisation (Hill, 2007), this gives us a reason to consider the internationalisation of public services as a feature of globalisation.

---

<sup>21</sup> In recent years there have been a number of examples that MNCs started withdrawn their foreign assets in public services, see, for example, Hall, D. (2006) Trade Unions and Reform of Public Utilities: Russian and International Perspective, Presentation/Report on ALSWU Conference, Moscow, October 2006, p. 3.

Furthermore, public services can be regarded as an industry essential for the study of globalisation because of its closeness to societies and governments. These services are vital for everyday life of ordinary citizens and for the wellbeing of the entire society. National governments, important participators in globalisation, are intrinsically involved in the issues of public services not only because it is a matter of the public concern but also because most utilities belong to the states. Therefore, multinational corporations inevitably have to establish links and contacts with state officials and governments.

This point can be strengthened by mentioning that MNCs have been named among co-ordinators of production networks (Dicken, 2003: 17). *Production networks* are inter-firm relationships that embed and assist *production chains* – “transactionally linked sequence of functions in which each stage adds values to the process of production of goods or services” (Dicken, 2003: 14). Production networks are a vital part of the production process and they can be seen as connections of production activities in production chains through material and non-material flows.

Information flows comprise an essential part of production chains because they provide expertise that is necessary for the production process and they move in the opposite direction to the flows of raw materials, fabricates and final products (Dicken, 2003: 15). At the same time, information flows comprise a key component of the economy in the age of globalisation. For example, Castells (1996: 102) argued the crucial aspect of the contemporary information economy is “the complex interaction between historically rooted political institutions and increasingly globalised economic agents.”

Production networks that are created in the process of internationalisation of public services are associated with a large amount of information flows and a variety of relationships among an even greater number of international and local actors, including locals, multinationals, international finance bodies, and political institutions, than production networks in other industries. Figure 4.1 shows how a great number of actors of globalisation interact in the process of provision of public services. It is



evident that multinationals involved there become key players in domestic economies and national and international policies.

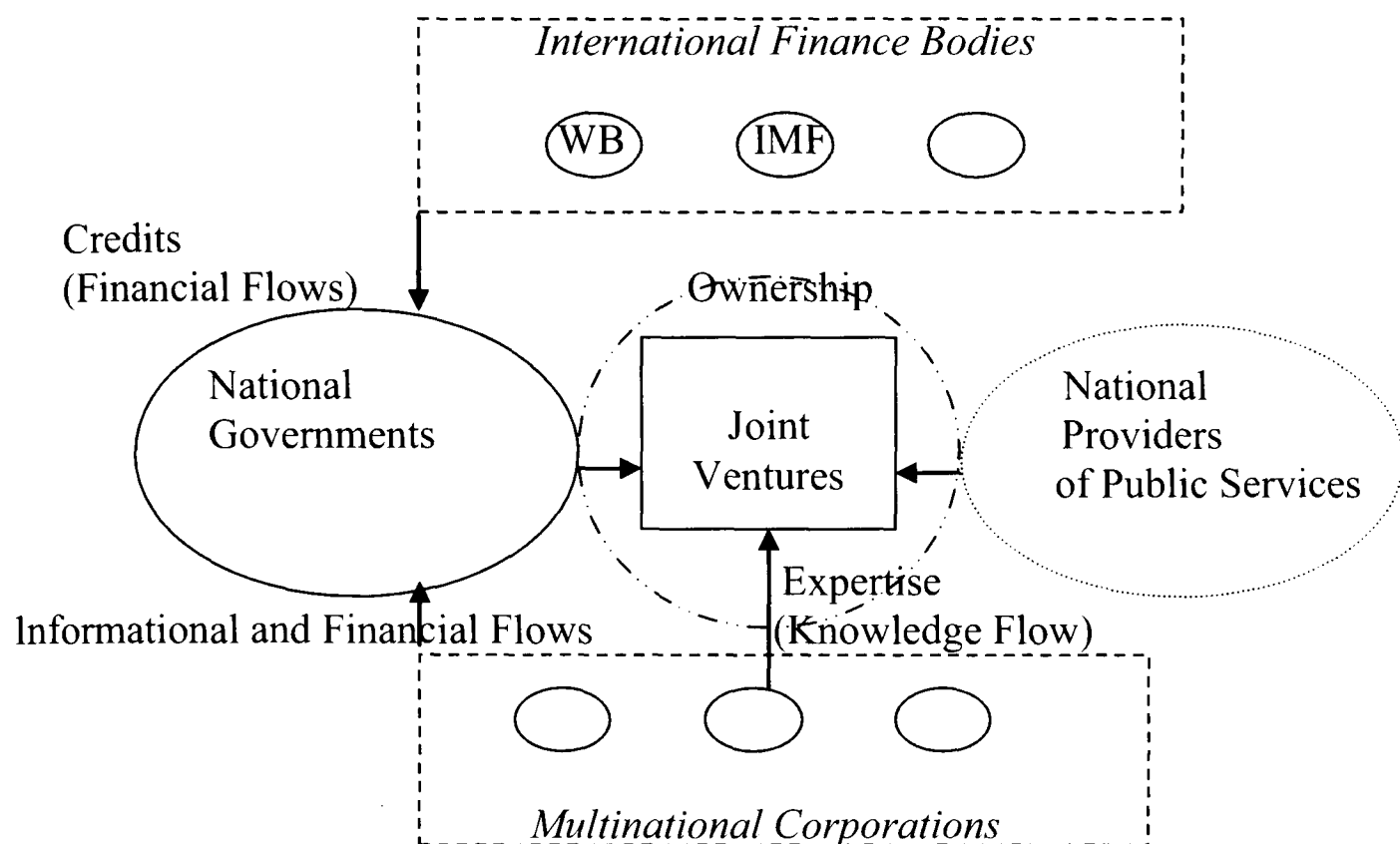


Figure 4.1 Main actors involved in international acquisitions<sup>22</sup>

The involvement of leading actors of globalisation in the internationalisation of public services proves the argument that the internationalisation of public services can be regarded as a facet of globalisation.

To provide a supplementary support for this argument it is possible to note that the internationalisation of labour is frequently seen as a very important component of the global economy. The process of penetration by multinationals national markets makes a contribution to the internationalisation of labour (Gordon, 1994). Although this impact is not particularly strong in public services, it still allows us to associate the internationalisation of public services with globalisation processes.

Finally, it is possible to refer to Daniels's (1993) list of the dominant economic activities, which includes finance, insurance, property, consultancy, legal services, advertising, design, marketing, public relations, security, information provision and computer system management. These dominant economic activities are deeply linked to globalisation processes. Although public services are not mentioned by Daniels in his list, a closer look at the

<sup>22</sup> A modification of what has been suggested by D. Hall.

activities of and interaction among local and international actors in public services can reveal that they are highly embedded in networks of the dominant sectors of the global economy. This also confirms the importance of public services and contributes to the strength of the argument that the internationalisation of public services is an important facet of globalisation.

To sum up, the internationalisation of public services is a significant facet of globalisation. Surprisingly, this dimension of globalisation has not been sufficiently explored by researchers. This thesis aims to fill this gap in globalisation theory. It studies the global ownership network in public services. More specifically, it focuses on global ownership networks in public utilities, and two sectors of public utilities, water and electricity, have been selected for this research. These two sectors have been chosen for a number of reasons. First, they are a very important part of public services and represent many general trends of public services. Second, these sectors are relatively self-contained. Finally, they have been selected because there is good quality empirical data available for the analysis of these two sectors.

In accordance with inquiry lines of this thesis, identified in Chapter 2 and 3, this analysis focuses on pattern of ownership in public utilities and a possible trace of regionalism in this pattern. Details are explained in the two subsequent sections.

## ***4.2. International Acquisitions and Ownership Concentration in Public Utilities***

There are many aspects of current developments in public services but this thesis focuses only on one aspect of the internationalisation of public services – international acquisitions of utilities. This section brings insight into international acquisitions in public utilities and identifies key points of interest with regard to the first line of inquiry of this dissertation, concerning structural properties associated with the core and periphery.

There are several forms of involvement of multinational corporations in the acquisitions of utilities. The most difficult is the purchase of equity stakes in largest national privatised companies. An equity stake of 10 per cent and more is normally regarded as sufficient to influence the companies. National

companies in which MNCs control assets more than 10 % (but less than 50%) are called associates. Even more power can be exercised over the utilities in which MNCs control more than 50 per cent shareholder's voting power. They are called subsidiaries (World Investment Report 2004: 345). In addition, there are forms which do not need so much investment. For example, multinationals can establish partnerships or create joint ventures with national companies.

The control over public services may even enhance political influence and status. Many issues related to public services have played an important role in political campaigns of many Russian politicians (Martusevich & Börkey, 2004). Even after the political influence of the oligarchs considerably declined after 2000, public services remained an important political issue since the Russian government encouraged an involvement of private investment in utilities and the willingness to follow this policy was regarded as an essential sign of political loyalty. For example, leading Russian corporations, such as Alfa-Group, Novogor, Interros, Kompleksnie Energeticheskie Sistemi, Gazprom, and RAO UES indicated their significant interest in public services across the country and even abroad (Popov, 2004).

This thesis mainly aims to identify the general pattern of overseas acquisitions in public utilities. This issue is very relevant both for public services policies and the globalisation debate because despite the implementation of the program of liberalisation aiming to promote competition in public services, ownership in public services has a tendency to concentrate. For example, some European companies seem to concentrate into a continental oligopoly: nearly half the electricity in the EU is generated by companies belonging to just 5 groups – EDF, RWE, E.on, Enel and Vattenfall, as can be seen in Figure 4.2.

**EU 25 (2004): about 3,000 TWh**

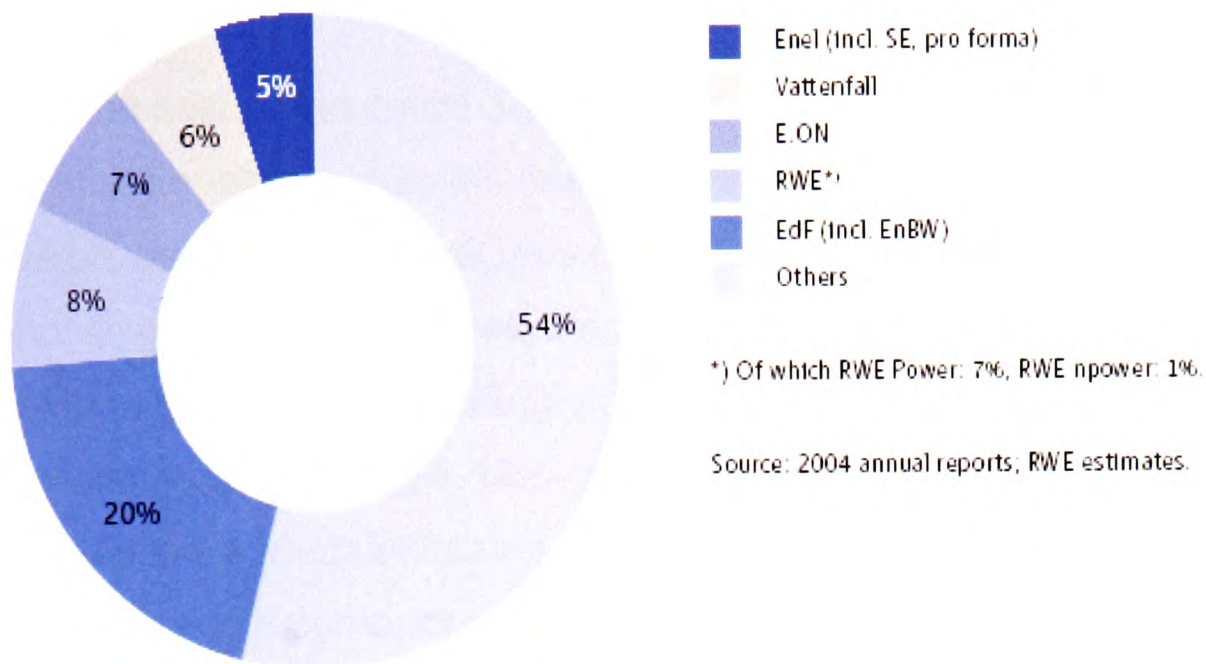


Figure 4.2 Oligopoly in electricity: 5 companies = 46% of EU (Hall, 2006b)

Moreover, these corporations are going to strengthen their dominance and continue to purchase smaller firms. Thus, Suez intends to merge with Gas de France, and E.on plans to buy up the largest Spanish company, Endesa (Hall, 2006b). This tendency however needs to be examined in further research and on a larger scale. In particular, it is of great interest to assess possible trends of ownership concentration in public utilities, and check if the Triad thesis is of relevancy for this industry. This inquiry line of the dissertation is well related to one of the most important and interesting globalisation debates that have been identified in Chapter 2. It has been re-formulated in terms of ownership in Chapter 3, and is examined in detail in the subsequent chapters (mostly in Chapter 6).

The second line of analytic inquiry of this dissertation is concerned with regional trends. This research dimension is also important both for theorists of globalisation and for researchers of current developments in public services, as has been explained in Chapter 2 and 3. There are a number of underlying factors that can be associated with regionalisation trends. The next section therefore outlines and explains the choice of the factors that might possibly influence decisions on international acquisitions of national PPPs within particular regions.

### ***4.3. Factors of Influence on International Acquisitions in Public Utilities***

The second research dimension of this thesis is concerned with the trend of regionalisation, which has been identified in some of globalisation research, as indicated in previous chapters. There is a long tradition in economic geography (Marshall, Perroux, Krugman, Harvey) that views the development of regional production as an inevitable consequence of capital accumulation. For example, Harvey (2003: 103) claims that regional diversification is an unavoidable feature of the accumulation of capital and that “interregional competition and specialisation in and among these regional economies consequently becomes a fundamental feature of how capitalism works.” Regionalisation trends have been also revealed by economic historians like Sydney Pollard, who argues that regional development has been a basis for the development of Britain.

It is of a great interest therefore to examine whether ownership acquisitions in public services reflect the trace of regionalisation and which factors (or types of variables) are more associated with regionalisation trends, if any. There are a number of underlying factors – potential candidates to be associated with regionalisation trends. As a starting point, it seems logical to pay attention to the factors associated with the main dimensions of globalisation, identified in Chapter 2. To recapitulate, they include, apart from economic, political and cultural dimensions.

Furthermore, it makes sense to refer to similar research in related industries, because the factors that could impact on ownership acquisitions (or on decision making regarding acquisitions) in certain industries have been examined in several studies. For example, it is possible to delineate the main forces that have been identified among major factors of influence on decisions regarding FDI. Strategic motivation has initially been seen as the most important of them because it was believed that strategic motivation is monolithic, market-oriented, mainly based on host country market and effective mechanisms for attracting MNCs (Coyne, 1997). By contrast, Usher (1977), Rueber (1973), Rolfe & White (1992) have pointed out that investment incentives less important for the location of FDI than such variables as country

stability and market size. Their studies have been followed by Kudina's (2005) assessment of the impact of political stability on FDI in developing countries. In addition, Evans & Doupnik (1986) argued that the key variable of FDI attraction is profit repatriation.

The studies mentioned above have outlined economic and political factors among major drivers of FDI. A number of other studies have indicated that another pair of factors, including cultural and geographical factors, might influence FDI. For example, Sathe & Handley-Schachler (2006) discovered that explicit cultural variables have a measurable effect on FDI flows in India. Furthermore, Jovana Trkulja (2005) showed that a number of geographical factors, including road networks and proximity to surrounding markets seem to also impact on decisions of foreign investors.

As it has been indicated above international acquisitions and FDI can be connected. All these factors therefore can be regarded as important determinants of international acquisitions. Consequently, although investments in public services can be fundamentally different from investment in other industries, on the basis of this short review, until it is proved to be wrong, it is possible to identify four main groups of factors that may impact on overseas acquisitions of national utilities as *economic*, *political*, *geographical*, and *cultural* factors. They are described in a more detail in following subsections.

#### 4.3.1 *Economic Factors*

Economic factors are arguably most important for any investment decision. It is evident that firms with foreign operations encounter a lot of problems and their activity is associated with a considerable number of risks. In order to explain the motivation of international companies to invest in foreign economies, Hymer (1960) suggested that multinationals attempt to exploit market imperfections for their own competitive advantage. Another reason for FDI can be seen in the intention to diversify activities in order to diminish possibility of failure (Letto-Gillies, 1998: 61). It is evident that the

Hymer's most widely acknowledged approach is largely based on economic factors.

Economic factors are also important because capital expansion needs a certain infrastructure – transport and communications, including roads, railways, airports, cable networks, electricity grids, etc (Harvey, 2003). Although it is possible to create this physical and financial infrastructure, this process might take a long time to complete and requires a substantial long term investment. As far as foreign destinations for capital are concerned, this sort of investment could be a risky business. This means that a certain level of economic prosperity and development, which is normally associated with a substantial development of infrastructure, might be an important component related to international acquisitions.

Economic factors may influence the pattern of ownership acquisitions in public services, because decisions about acquisitions are normally made on the basis of cost-profit analysis and they are considerably impacted by market forces. The majority of MNCs are clearly profit-seeking motivated when they get involved in public services and their decision is normally based on economic grounds. This involvement is frequently regarded as reasonable because public services have features of monopoly oligopoly, very reliable demand for product, and (mainly) very reliable long-term growth in demand. In addition, they are so essential that governments must support them, which means that they are effectively guaranteed against bankruptcy. These make various segments of public services, including water and electricity, very attractive for MNCs. There are also many examples that multinational companies involved in public industries in order to diversify their activities with the aim of securing their incomes. It is hardly necessary to note further examples of the significance of economic factors for international acquisitions in public services.

Instead, it makes sense to outline other possible factors of influence, including geographical, political and cultural. They may to some extent overlap with economic factors since the effect of each of them can be measured in economic terms. In this respect, for example, a transaction cost paradigm is pertinent (Monye, 1997: 691). It should be noted that transaction costs as an economic component are also hugely dependent on the



geography, politics and culture of societies (Strong & Weber, 2004). These groups of factors are reviewed in the subsections that follow.

#### 4.3.2. *Geographical factors.*

Some researchers point out at a diminishing role of geography, viewing globalisation as a liquefaction process in which capital becomes hypermobile (O'Brien, 1992; Amin & Robins, 1990: 210). In this view, geographic space is associated with a dynamic system of global flows rather than a static configuration of locations (Castells & Henderson, 1987). However, this approach is increasingly disputed in recent years by insisting on "the stubborn locational rootedness of world capitalism in regional production complexes combined with its continued unevenness across the globe" (Scott, 2003: 32); Amin & Thrift, 1992; Dicken et al., 1997; Lever, 1997).

In this respect, it is of particular relevance to return to Harvey's views on the process of the accumulation of capital. Harvey (1999: 373) argues that the process of capital accumulation and internationalisation has a different pace in different places. In some countries, it was generally welcomed, while in other locations, it encountered severe resistance. In some places, it progressed peacefully, whereas in many other locations it was accompanied by coercion and violence. Importantly, this process has led to physical transformations (apart from the transformation of social relations). These physical transformations have also progressed unevenly: "Vast concentration of productive power here contrasts with relatively empty regions there... Tight concentration of activity in one place contrasts with sprawling far-flung development in another. All this adds up to what we call "uneven geographical development of capitalism"" (Harvey, 1999: 373).

The irregularities of spatial development became especially important in Fordist economies and attracted much attention of geographers and economists in the mid-1950s (Friedmann & Alonso, 1967: 21). Economic geographers have studied a variety of aspects of spatial development, including industrial locations and land-use patterns (Garrison & Marble, 1957),



urbanisation and central place systems (Berry & Garrison, 1958a, 1958b), transportation network (Garrison 1959b, 1960), and spatial dynamics of social interaction (Morrill & Garrison, 1960; Nystuen & Dacey, 1961). These studies claim, and have arguably provided sufficient evidence that geography as a whole must become an analytical, law finding discipline, conjoined with quantitative methodologies (Clark et al.: 21).

There are many reasons for this argument. Geographical factors are frequently important for business performance. For example, it can be explained by the fact that transport costs are a considerable component of total costs and total costs typically drop when transport costs decrease. No wonder that many researchers consider the level of transport costs to be of crucial interest for regional policies (Combes & Lafourcade 2005: 26). Geographical closeness is normally associated with low transport costs and frequently diminishes negotiation costs and costs of finance transactions. Hence geographical factors can be regarded as significant for business profitability and investment attractiveness.

This conclusion is based on certain empirical evidence. A substantial number of studies have shown that although globalization progresses geographical distance is still a considerable barrier to economic transactions. For example, so-called gravity models of international processes reveal that even at the beginning of the twenty first century, the trade between countries falls off steeply with distance. The same conclusion has been drawn about cross border equity transactions (Porter & Ray, 1999), FDI (Di Mauro, 2000) and technology flows (Keller, 2000).

There are many studies that highlight the special place of geographical factors in the globalisation process. Some of them point to a special role of regions. Thus, in the late 1970s, some economic geographers paid attention to the resurgence of regional economies in the areas previously peripheral to the Fordist manufacturing activities. The new so-called post-Fordist industries were characterised by innovation and growth, but most importantly, by a relatively high-level of spatial agglomeration and dense intra-local networks (Scott, 2003: 29).

The regions eventually became so important that they started to be seen as sources of competitive advantages in global economic order (Porter,

1990 and 1998; Saxenian, 1994), contributing to the vision of economic globalisation as a long-term process that intends to balance levels of functional integration of different national economies, and is, at the same time, “durably anchored in (and to be responsible for the rise of) a world wide archipelago of stable regional economies or global city regions” (Scott, 2003: 32, Veltz, 1996 and 1997). The regionalisation theory assuming that multinationals actually tend to focus on the markets of their own regions than on global markets, has been supported for instance by the findings of Rugman & Verbeke (2004) which reveal that most MNCs’ trade operations are within their home regions. An effort of quantifying the effect of geographical factors has also been made by Asmussen (2006) who has proposed a multidimensional index of global and regional orientation.

However, it is unclear whether geographical factors make an impact on public services. Most theories assume international supply chains, but this does not apply in public services generally or water and electricity in particular. Public utilities do not especially rely on transport costs. Consequently, it is possible to assume that the impact of geographical factors is not particularly significant in public services. This assumption however needs an additional empirical verification because of the importance of this group of factors in globalisation theories. One of the pioneering attempts in this respect is undertaken in this study and this is one of the research targets of this thesis.

#### *4.3.3 Political factors.*

Business and economics are embedded into the political environment and social institutions. This is especially explicit in the framework of New Institutional Economics (North, 2005; Williamson, 2000), which views institutions as a critical constraint of economic processes and operates with the concept of transaction costs, which occur from the connection between institutions and purely economic components of production. North (1995: 19) points out that the new institutional economics “extends economic theory by

incorporating ideas and ideologies into the analysis, modelling the political process as a critical factor in the performance of economies.”

The basic unit for the *national* political environment is the state. The state can affect businesses in many ways and it can even completely dominate the national economies as it did in the communist states in the first half of the twentieth century. The state is important in capitalist economies as well. For example, Harvey (2003: 105) argues that the state could foster and capture regional dynamics of capital flows in order to strengthen its own power. He also points out the important role of the capitalist states in the creating of the infrastructure essential for the expansion and accumulation of capital, including roads and communications systems that facilitate the flow of labour, goods and capital. In addition, the states are capable of reforming and establishing the basic institutions for capital accumulation and expansion, or vice versa. The level of national political stability also makes a great impact on businesses (Kudina, 2005) since it diminishes internal business conflicts and influences FDI.

It should be noted that states can also play an important role when the domestic capital overflow the national borders. However, for this case many functions of the national states are overtaken by a variety of sub-national political institutions (the European Union or NAFTA, for example) that compose the *international political environment*. It has already been mentioned in Section 3.1 that several global organisations have been established in the second half of the twentieth century in order to facilitate and regulate international policies. They make a substantial impact on national policies and have sufficient capability of influencing trade cooperation and foreign investment flows.

Political factors are likely to greatly affect international acquisition of public utilities for a number of reasons. First, it has been argued that in the contemporary world governments are intensively involved in the protection on national markets (Castells, 1996). This should be especially true with regard to public services since they provide goods essential for life of the entire society. Second, international acquisitions of public services imply privatisation of local companies. Privatisation itself is a political decision which is made on the highest level of governance and it frequently depends on

election results. Thus, there is no doubt that political factors affect the acquisition of utilities on local levels.

Political factors are important on global levels as well. Multinational corporations are actively supported by policies of global financial institutions and by the governments of their host countries. The World Bank, for instance, encourages national governments to privatise public services in order to be qualified for its financial aid programmes and this conditional financial aid policies considerably impact on political situation in many countries across the globe. To sum up, the pattern of international acquisitions in public services is likely to reflect the regional arrangements of political attitudes related.

#### *4.3.4 Cultural factors.*

Culture is multidimensional concept. According to Terpstra & David (1991: 6), culture can be defined as “a learned, shared, compelling, interrelated set of symbols whose meanings provide a set of orientations for members of a society.” Culture is comprised of the individuals that share the same system of beliefs, norms of behaviour, and values (Morrison, 2005: 168).

Culture and cultural factors can influence economies and societies in many ways. For example, Weber (1978) has shown that, on the macro-level, the values of Protestantism played a very substantial role in the development and expansion of capitalism in Western Europe. The influence of cultural factors can be also found on the micro-level. Thus, it has been found that economic interaction takes place not only through formal but also through informal mechanism, which is reinforced by histories and cultures. For example, some innovation studies have revealed that the social (including cultural) context contributes to the success of interaction between the producers of new advanced process technologies and their users (Lundvall, 1988). It has been shown that at times of changing paradigms, when the technology is particularly complex and expensive, the “closeness” (in both physical and cultural sense) improves interaction and leads to effective innovation. Culture communality further reinforces this link, “since it

is easier for producer and user to understand one another at deeper levels of meaning” (Lundvall, 1988: 355).

Cultural factors can make an impact on economic relations between countries, as well. For example, political and economic alliances are often created between countries that share similar culture which may include similarity of attitudes, tradition, religion, and values. These examples and arguments show that although the link between economic processes and cultural values is not completely clear and remains a challenging mystery, there is a possibility that certain cultural factors could impact on configurations of international acquisitions in public utilities.

The significance of cultural factors however might weaken arguments of mainstream theories of globalisation that normally downgrade the impact of local cultures on the choice of international economic transactions. Also, this may challenge the main postulate of Marxist theories that highlight the dominant role of the internationalisation of capital, which, in its pursuit to maximize profit, overcomes national and cultural boundaries.

#### *4.3.5 Variables to be tested as Factors of Influence in this study*

It is evident that there are many variables that can be associated with the above mentioned factors. Each of the variables can measure to some extent different aspects of geography, cultural, political, or economic activities (or even a variety of combinations of them). Moreover, different sets of variables may need different methods to deal with them. The choice of variables for this study is directed by a necessity to limit the number of variables used and to apply the same statistical technique to all of them.

It would be unreasonable to assume that the selected variables are able to describe or represent all aspects of so broad factors as economic, geographic, political, or especially cultural. Instead, the selected variables are rather simple indicators that reflect certain aspects of these dimensions, the aspects that we regard to be relevant for the purposes of this research and suitable for the intended statistical technique. Most importantly, the variables to be selected are different from one another in terms of their belonging to

different types of variables that can be associated with a particular factor of each.

The variable for the *political factors* selected for this study is the membership in the Organisation of Economic Cooperation and Development (OECD). Although this variable constitutes and explains only a tiny fraction of political developments in the contemporary world, it has been selected because many rich or relatively wealthy countries are members of this political organisation. Many earlier studies have revealed that roles of wealthy and poor countries in the contemporary world are different, and therefore it is reasonable to expect that the variable of the OECD membership plays a certain role in explaining the international ownership pattern in public utilities, especially with regard to ownership concentration.

In order to explain the choice of this variable in more detail, there is a need to return to Harvey's views on the accumulation of capital. Harvey argues that uneven geographical development results both in concentration and dispersal of capital. The concentration of capital is unavoidable because there are powerful constraints for the dispersal (or internationalisation) of capital. To illustrate this point, Harvey (1999) points out the large quantities of capital that are embedded in the land itself, and emphasises that there is a particular need for the social infrastructures, because they play an important role in the reproduction of both capital and labour power, while "the provision of costly physical and social infrastructures is highly sensitive to economies of scales through concentration". In addition, Harvey shows that there are certain restrictions on the mobility of capital tied down in concrete labour processes, and argues that all these constraints serve to keep capital in place and result in the trend of the concentration of capital (Harvey, 1999: 418).

In spite of these obstacles, the national and international expansion of capital does take place, but it requires certain infrastructural requirements for capitalist production in these new destinations: "Geographical expansion entails the prior establishment of property rights, law, administration, and basic physical infrastructure such as transportations" (Harvey, 1999: 409). The level of infrastructure needed for capital production is associated with a relatively high level of economic development that distinguishes the countries-members of the OECD from the other world. Importantly, these countries have

also the essential environment and established economic and political institutions required for the development of capital. Hence, the choice of the variable of OECD membership looks appropriate for the goals of this study, and this choice is further supported by the fact that it also fits the criteria of the statistical technique selected for this study, which is described in detail in the next chapter in Section 5.5.

Keeping in mind the main points of the argument for the previous variable, it is not particularly difficult to explain why the variable to be associated with the economic factor is the average income differential. This variable well reflects the level of economic prosperity and development, but more informative than Gross Domestic Product (GDP) or Gross National Product (GNP). Importantly, it is not directly associated with political factors.

Although this variable may be an imperfect measure for economic factors in general, it is an appropriate measure for this study, because it reflects differences in economic wellbeing of populations in a variety of countries. It is suitable for the statistical technique used in the study, and quite relevant for the debates arisen in this thesis. For example, the analysis undertaken in this dissertation may reveal that wealthier countries use their economic prosperity and resources to acquire privatised utilities. Further information about subgroups of this variable is provided in Chapter 7.

As far as *geographic factors* are concerned, it should be noted that most studies on regionalism are concerned with economic geography. However, it is of interest to draw a line between economic geography and natural geography. The natural geography makes an impact on economic geography, although this link not always very transparent. For example, Krugman says that

*“Anyone who looks even casually at the real geography of economic activity is struck by the important degree of arbitrariness or, at best, historicity involved. New York is New York because of a canal that has not been economically important for 150 years, Silicon Valley as we know it exist because of the vision of one Stanford official two generation ago. Yet rivers and ports surely do matter. Well in new geography models in which a system of cities evolves, these*

*observations are in fact reconciled. Favourable aspects of a location, such as availability of a good harbour, typically have a `catalytic` role: they make it likely that, when a new center emerges, it will be there rather than some other location in the general vicinity. But once a new center has become established, it grows through a process of self-reinforcement, and may thus attain a scale at which the initial advantages of the location become unimportant compared with self-sustaining advantages of the agglomeration itself. In an odd way, natural geography can matter so much precisely because of the self-organising character of the spatial economy (Krugman, 2003: 58).*

We have decided to deal with natural geography in this study, and the variables of regions and continents are to be associated there with geographic factors. The link with geography in this case is provided by the fact that continents are divided by geographical borders – oceans. Many regions are not divided by oceans, but the countries within the geographic regions could be characterised by similarity of their geographic locations, associated with certain places on the continents and relatively small geographic distance between one another. (It has been shown in Section 4.3.2 that geographical distance is still a barrier to economic transactions, as gravity models of international processes related to a variety of economic transactions reveal (Porter & Ray, 1999; Di Mauro, 2000; Keller, 2000), and, consequently, a geographic classification can be to some extent based on it).

Finally, the concept of civilisations proposed by Samuel Huntington (1993) is associated in this study with *cultural factors*. Although culture is a very multidimensional term, the concept of *civilisations* is arguably best suited for the purposes of this study for the encompassing the global cultural differences and similarities. This dissertation uses the classification of civilisations proposed by Samuel Huntington (1993). This classification has been outlined by Huntington in his theory of the Clash of Civilisations, which he introduced in a 1992 lecture at the American Enterprise Institute, and later developed in an article (Huntington, 1993) and completed in a book (Huntington, 1996).



Huntington uses this theory in order to explain lines of conflict in the modern world. According to Huntington, the current major conflicts are caused not by economic and ideological contradictions, but by cultural differences, and he argues that the conflicts lie mostly along cultural and religious lines. He advocates the concept of different civilisations as the highest rank of cultural identity, and argues that this concept will be increasingly useful in the understanding of international conflicts. For example, Huntington (1993) explains:

*It is my hypothesis that the fundamental source of conflict in this new world will not be primarily ideological or primarily economic. The great divisions among humankind and the dominating source of conflict will be cultural. Nation states will remain the most powerful actors in world affairs, but the principal conflicts of global politics will occur between nations and groups of different civilizations. The clash of civilizations will dominate global politics.*

To illustrate his thesis, Huntington distinguishes nine civilizations, including Sinic, Latin American, African, Islamic, Western, Hindi, Orthodox, Buddhist and Japan civilisations.

It should be noted though that the Huntington's theory of conflicts and his concept of civilisations are not universally accepted. His article published in *Foreign Affairs* created more responses than almost any other essay ever published in that journal. Huntington's theory has been criticised from a variety of different paradigms: the implications, methodology, and even the basic concepts of this theory. This thesis has been especially heavily criticized by in the American Academia, and a number of its inconsistencies have been identified. Let us briefly summarise main points of this criticism.

The first aspect of criticism is associated with his thesis of the intensification of intercivilisation conflicts after the Cold War. It has been argued that evidence provided by Huntington to support his theory is not sufficient. It has been doubted that the proportion of such conflicts to the overall conflict frequency is actually in increase. On the contrary, more detailed empirical studies on the post Cold War period have not identified any

particular increase in the frequency of these conflicts. Instead, it has been shown that regional wars and conflicts shortly intensified immediately after the end of Cold War, and then their number has constantly declined (Tusicsny, 2004).

The second dimension of the criticism of the Huntington's theory concerns cultural aspects of civilisations. Some of Huntington's opponents have claimed that social values are more flexible in content and transmission than Huntington might think (Russett et al., 2000). For example, it has been pointed out that many nations in Asia, Europe and Latin America have become democracies in the recent years, while many western countries remain constitutional monarchies. Furthermore, Said (2000) argues that Huntington's categorization of civilisations is too rigid, and it omits the dynamic interdependency and interaction of culture.

Some other Huntington's adversaries have claimed that civilisations identified by Huntington are rather fragmented and not internally united (Russett et al., 2000). Moreover, it has been argued that the criteria of the proposed delineation are vague. For example, it has been pointed out that although cultural differences between China and Japan are not more substantial than between China and Vietnam (Tusicsny, 2004), Vietnam and China are associated by Huntington with the Sinic civilization, while Japan forms a separate civilization. In addition, the Western civilization in Huntington's classification involves both Protestant and Catholic branches of Christianity, it disregards Germanic and Romance cultural differences in Western Europe, and it ignores a great deal of other considerable differences between cultures and nations, as well as the impact of important non-religious factors, like in the case of the distinction between the Western and Orthodox civilizations. In addition, it has been claimed that Huntington's approach is essentialist and arbitrary, and that it ignores the current trend of universalisation of western values (Sherman, 2003: 160). Other opponents have argued that Huntington's taxonomy is simplistic and that it does not take account of internal developments and tensions within civilizations.

The third criticism can be associated with the role of cultural differences as the basis for conflict. For example, Berman (2003) referring to

the causes of terrorism, points out that many Islamic extremists have been living or studying in western countries for a long time. He claims therefore that not cultural or religious identity mostly cause the conflicts, but philosophical beliefs.

Finally, Huntington's theory has been criticised because of its role in supporting certain international policies of the United States. In this respect, Huntington has been likened with British historian Toynbee who advocated controversial religious theories about Asian rulers at the beginning of the twentieth century. It has been claimed that Huntington's theory is interventionist and aggressive, it maintains military expectations in the minds of the Americans, and ultimately serves as yet another means of expanding the Cold War (Said, 2000).

Although the critics have revealed many weaknesses and controversies of the Huntington's theory, his classification of civilisations has been selected for this study for a number of reasons. To start with, the concept of civilizations (not necessarily in Huntington's terms and borders) is a logical choice for a study taking into account cultural differences while researching certain economic issues. First, this term is very close in its meaning to the term "culture". These terms are frequently used as synonyms in both popular and academic circles (Britannica, 1974: 956). Second, an existing difference in their meaning distinguishes civilisations from cultures by their high level of social complexity and organization, and by their diverse economic and cultural activities. Thus, the concept of civilization is usually used for relatively complex urban and agricultural cultures.

Third, another difference in the meaning of these terms is associated with the view that "civilisation" is wholly or mostly *material* phenomenon, although Albert Schweitzer believes that being purely *material* is rather a deficiency of some forms of civilisation, which loses from time to time its *ethical* dimension (Schweitzer, 1923). To sum up, it can be argued that in many senses, civilisations have more stability and territorial clarity than cultures, while being substantially based on them. This makes the concept of civilisations very appropriate for a study of some aspects of economic transactions among modern nations, and, consequently for this research.

It should be noted that there are other concepts related to culture and cultural values. National values have been the subject of many studies, and cultural differences over the planet has been summarised and categorised by Geert Hofstede (1994). He has proposed comparing national groups along several cultural dimensions including power distance, uncertainty avoidance, individualism, masculinity and long-term versus short-term orientation. For the technique selected for this study the measurement of cultural differences is not particularly suitable, although the Hofstede concept can be and has been successfully used in relevant studies. Since we do not need to measure the difference between cultures, the concept of civilisations is more appropriate for the analysis undertaken in this dissertation.

Furthermore, Huntington's criticism has mostly addressed the aspects of Huntington's theory that are not relevant for this study. For example, it is not important for this dissertation, if it is the philosophical or the cultural identity that causes modern conflicts (Berman, 2003), because this research mostly concerns with territorial borders of civilisations. Also, it is not important whether there is an increase or decrease in the number of modern conflicts either before or after the Cold War - for the same reason that we are concerned with the borders of civilisations, not with the nature of their relationships.

As far as Huntington's criticism on the territorial divisions among civilisations is concerned, it should be noted that similar critics about the borders and mobility of cultures can be equally applied to any other classification of civilisations or cultures because of their endless diversity and evolution. Most, if not all, concepts designed to divide the world into a clearly defined sets of cultures (or civilisations) are likely to be contested because culture refers to very broad aspects of human life, is very multi-dimensional and its fundamental characteristic is its endless and complex diversity (Leach, 1982). As Woodward (1988: 89) points out, this cultural diversity "is not a simple kind, easily reducible and quantifiable, but shifting, subtle and complex as a Shakespeare play." As a result of this, there is no perfect classification of human cultures and civilisations.

Compared to other classifications of civilisations, Huntington's concept has a number of advantages important for this study because it is relatively

simple and is suitable for SNA technique chosen for the analysis. In other words, in spite of the above mentioned (and other) drawbacks, the variable of civilisations in Huntington's terms has been selected for this analysis because it has a value and is an indicator. It addresses some aspects of culture and can be used in the selected method of analysis.

#### **4.4. Summary of Research Questions of this Study**

Following our discussion in Chapter 2, Chapter 3 and Chapter 4, the relationship between economics, politics and culture in globalisation needs to be examined in more detail. In narrow terms, taking into account the importance of global ownership networks in public services, the research questions for this study can be summarised as follows:

**Research Question 1** *What is the pattern of global ownership in the utilities, following their domestic privatisation and restructuring?* This research question is vitally important because it helps us to address a number of globalisation theories and debates regarding preferential developments under globalisation and corresponded inequality among countries. This research, for example, helps to examine the issues of ownership concentration and test the Triad thesis with regard to public utilities.

**Research Question 2** *What factors impact on the ownership patterns?* This research question can be rephrased in such a way: *What considerations do the management of companies probably make when taking decisions on investments in public services?* This research question addresses a regional dimension (in a broad sense) to the internationalisation of the public services. Research Question 2 is important both for globalisation theory and for practical decision making with regard to the assessment of policies related to international acquisitions in public services.

It is important to keep in mind that the goal of this research question is not a comprehensive assessment of the impact of the studied factors. This task would need a very large set of variables and is too complex for a single study. Instead, a small set of different types of variables is selected – one variable for each of the types (except for the case of the geographic factor, in which two variables (continents and regions are used). These types are different in terms of their association with the factors used, as explained in Section 4.3.5.

As it has been shown in that section, the selected variables may not be the most indicative of the factors used (and arguably none of individual variables could possibly be). Perhaps, an accurate reader might even prefer to use the word “variables” instead of the “factors”. We have chosen the word “factors” in order show that the variables used in the study belong to different types, although it may cause a certain misunderstanding of the goals of this research. This explanation aims to reduce the chance of this misunderstanding.

The following set of research subquestions to some extent refine Research Question 2 by addressing its more specific aspects. In particular, **Research Subquestion 2.1** asks: *Do geographical factors (in terms of continents or regions) impact on international acquisitions in public services?* This research subquestion is especially close to the most commonly used form of the regionalisation theory because regions are most frequently defined in terms of geography or economic geography.

**Research Subquestion 2.2** *What is the role of economic factors (in terms of income differentials) in relation to the internationalisation of ownership of public services?* This research question aims to identify if economic factors could possibly impact on ownership processes in public services. For example, it is worth researching if global trends with regard to FDI are similar to patterns of ownership acquisitions in public services. It could be of interest to examine if multinationals involved in international ownership acquisitions in public services aim to entry only most alluring markets in terms of profitability rather than bother with providing services for less advantaged countries.

**Research Subquestion 2.3** *Do political factors (in terms of the OECD membership) impact on international acquisitions in public services? Political reasons have been frequently mentioned among driving forces of globalisation. It is of interest to explore their impact on internationalisation of public utilities (although it is important to be aware of the risk of the existence of contra-directed processes that can be associated with the impact of these political factors (for example, accumulation and dispossession of capital (Harvey, 1999 and 2003)).*

**Research Subquestion 2.4** *What is the importance of cultural factors (assessed on the basis of the Huntington's concept of civilisations) in ownership processes related to public utilities? Cultural factors are expected to have an impact on the patterns of international acquisitions in public services. One of the reasons for this assumption is associated with the fact that cultural factors may be relevant to all the resistance to water and electricity privatisation. Thus, they may impact on political dimension of public services reforms and international acquisitions.*

However, this impact is not expected to be very significant since products of public services are not particularly influenced by cultural values and are rather essential needs for every citizen of the planet. In any case, it has not been empirically tested, yet and an attempt of addressing this issue can be regarded as a contribution of this thesis in globalisation theory and public services research. This statement is equally pertinent for all the factors of influence that have been reviewed in Section 4.3 and for all research questions of this dissertation.

**Research Subquestion 2.5** *What out of the geographical, economic, political and cultural factors assessed in this study is more significant for explaining international ownership patterns in public utilities? This research question aims to compare relative power of the above mentioned factors.*

It should be emphasised that findings for Research Questions 1 and Research Question 2 are used in order to assess globalisation debates and

theories, which is the main purpose of this dissertation. Consequently, Research Question 3 of this study is as follows:

**Research Question 3** *What implications do the findings for Research Questions 1 and Research Question 2 (with its subquestions) bring for an understanding of globalisation?*

It is of a particular interest here to assess the approach that views globalisation as a form of economic colonialism. Research Question 1 and Research Question 2 with its subquestions 2.1 - 2.5 look quite appropriate for this purpose, because they can help us identify the presence or absence of colonial activities (which could be associated with staying or going outside particular cultural, geographic or politico-economic blocs or regions) and assess their features.

To summarise, the previous chapters have outlined key processes of internationalisation and globalisation. Several globalisation debates and theories have been reviewed and some of their drawbacks identified. It has been argued that the internationalisation of public services can be regarded as an important facet of globalisation which deserves additional attention from researchers and theorists of globalisation. One aspect of the internationalisation of public services, international acquisitions in public utilities, has been chosen for an analysis in this thesis, and the key research questions have been identified. Research Question 1 makes an inquiry into the ownership pattern of global network of public services, Research Question 2 examines key factors that make an impact on it, and Research Question 3 assess the implications of findings for Research Questions 1 and 2 for globalisation theory. The details of the methodology of this research are discussed in the next chapter.



# Chapter 5

## Methodology

The previous three chapters have outlined the background of this study and identified the main research questions. This chapter describes the methodology of the project. The chapter consists of several sections. Section 1 summarises the main research questions that have been discussed in the previous chapter. Section 2 reviews several common methods and indicators that have been used in order to address similar research questions. It shows that although these estimates can measure some important features of globalisation, they are not particularly convenient for macro-level research and for this study, which is mostly concerned with a macro-analysis of global properties of the internationalisation of public services.

As explained in detail in Section 3, Social Network Analysis (SNA) can be an appropriate alternative. The section reviews history and principles of social network analysis and explains the relevance of this method for this sort of academic inquiry. Then, Section 4 rephrases the main research questions and subquestions in terms of social network analysis and outlines the main hypotheses of the thesis. Section 5 describes the research techniques and key concepts that are used in order to test the hypotheses. Furthermore, Section 6 reviews the main software packages that are normally used for social network analysis and explains which SNA packages are used for this research. Section 7 describes the data set that is used for this analysis. The final section summarises the advantages and disadvantages of the use of this method for this research.

### ***5.1. Research Questions***

Three main research questions of this thesis have been identified in Section 4.4. Research Question 1 is concerned with the issue of ownership concentration in public services. This research question is important both for

the globalisation debate and for empirical assessment of current policies and developments in public services.

As far as the globalisation debate is concerned it is possible to say that the findings regarding the pattern of ownership network in public services will help address a wide range of internationalisation theories in general and to assess the validity of centre/periphery theories. In particular, concentration ownership can be estimated and the appropriateness of the Triads thesis for global ownership acquisitions in public utilities assessed (Hirst & Thomson, 1996). These findings can be further scrutinised with regard to their relevance to the Marxist approach as well as imperial and colonial studies. Finally they are likely to contribute to the debate of optimists and pessimists on the nature of globalisation processes. In terms of current developments in public services, Research Question 1 will provide empirical testing for recent initiatives which international financial institutions (IFIs) propose for reforms of public utilities in many countries. For example, the findings will help estimate the degree of ownership concentration in selected segments of public services. In addition, they will provide empirical data for addressing issues of diversification and exclusiveness of multinationals' policies.

Research Question 2 consists of Research subquestions 2.1, 2.2, 2.3, 2.4, and 2.5. This research question should bring insight into how various factors impact on the structure of international acquisitions in public services. As it has been explained in detail in Section 4.3.5., the list of selected variables associated with the factors includes continents and regions (for geographical factors), income differentials (for economic factors), OECD membership (for political factors), and civilisations (for cultural factors).

The findings for Research Question 2 are also significant both for academic debate on globalisation and for practice of policy makers. This research question is useful for the optimist/pessimist debate on the meaning of globalisation, and it is valuable for research on imperialism-colonialism and assessment of certain Marxist theories. In addition, it provides empirical findings for verification of some of the theories of FDI and for testing so called globalisation and regionalisation theories. From the practical point of view, this research dimension can be important for policy makers who make decisions regarding investment in public services.

It should be noted that Research Question 1 and Research Question 2 are complementary. Although they refer to different aspects of the ownership network under study, they help researchers understand better some important realities of public services and assess them in terms of their relevance to the globalisation debate. In other words, the assessment of findings for Research Questions 1 and 2 help us address Research Question 3, which aim to examine implications of the findings of Research Questions 1 and 2 for globalisation theory. The connections between the research questions of this study are shown in Figure 5.1, while their relevance to discourse on globalisation and to key issues of current developments in public services is summarised in Table 5.1.

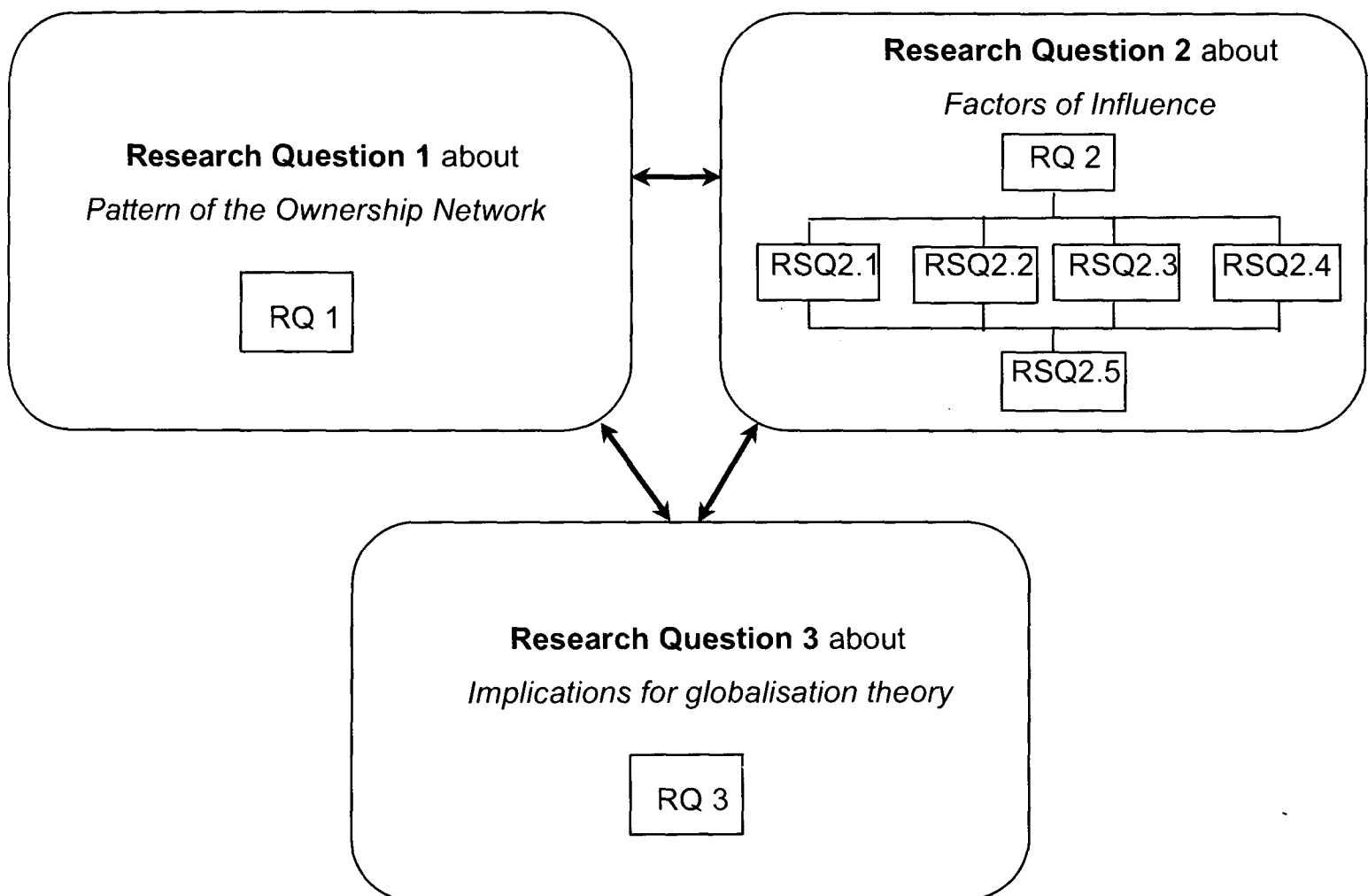


Figure 5.1 Research questions (RQ) and research subquestions (RSQ) of the study

*Table 5.1 Research Questions and their Relevance to the Globalisation Debate and Public Services Policies*

	<b>Research Questions</b>	
	<b>Research Question 1</b>	<b>Research Question 2</b>
	Pattern of ownership and measurement of ownership concentration	What factors impact on ownership patterns and decision making about investments in public services
<i>Relevance to globalisation theories and debates</i>	Internationalisation theories; Theories of centre/periphery; World system theory; Marxist approach; Imperialism/Colonialism; Debate of Optimists and Pessimists.	Regionalisation theory; Globalisation theory; Links to theories of FDI; Marxist approach; Imperialism/Colonialism; Debate of Optimists and Pessimists.
<i>Relevance to the analysis of current policies and development in public services</i>	Issues of diversification; Ownership concentration; Exclusiveness; Critical assessment of arguments for policies of IFIs.	Assessment of a variety of factors for decision making regarding investment in public services; Critical assessment of arguments for policies of IFIs.

Research Questions 1 and Research Question 2 can be broken into several specific statements that address and clarify issues outlined in the research questions. (In this thesis we will call them hypotheses even though they are not to be tested with the use of statistical methods. This is done in order to distinguish them from research questions which have more general character). Because they are not particularly important for the content of the two subsequent sections, the hypotheses are not outlined in this section but will be described in detail in Section 5.4. Instead, the next two sections concern the methods which can be used for addressing the research questions discussed above. Section 5.2 reviews some conventional methods

and measurement, while Section 5.3 introduces an alternative approach, which constitutes the main method of this research.

## ***5.2. Review of Methods and Measurements that Have Previously Been Used to Address Main Research Questions of this Study.***

As far as Research Question 2 is concerned, it is possible to say that a variety of methods has been used for research on determinants of investment flows. For example, most of the research on FDI has used linear cross-country regressions. Some researchers, however, regarded the findings obtained with the use of this method as a bit too controversial and proposed a series of improvements. Thus, Chakrabarti (2001) suggested Extreme Bound Analysis (EBA) in order to improve the validity of the results.

Dynamic panel data analytic models (Ahn & Schmidt, 1995; Bond, 2002) can be also mentioned in this respect. For instance, Cheng Hsiao (2001) used this method in his analysis of FDI to developing countries. This method comprises a variety of models, including the so-called two-way fixed effects (FE) and two-way random effect (RE) models, pooled ordinary least squares (POLS), two-stage least squares instrumental variable (IV) model, first-differenced GMM (DGMM) and system GMM (SGMM) models. The last of these models, SGMM, for example, has been used by Kudina (2005) in her research on the role of political stability on propensity of countries to attract foreign direct investment.

It should be noted, though, that these estimation methods differ in efficiency and bias and have a number of problems, including omitted variable and measurement errors. Because of these limitations, Swapan Sen, Krishna Kasibhatla and David Stewart (2007) preferred to combine all the models in their recent research on factors of economic growth. In addition, these methods hugely depend on the quality of data for analysis.

Furthermore, for a measurement of internationalisation, which is an important concept of Research Question 1, many remarkable indicators have been suggested. They can be divided into individual and regional estimates. I

start this section with a review of individual indicators of internationalisation. They can be broken into three groups: structural, performance and attitudinal indicators.

Structural indicators aim to show chronological development of any particular firm. This group includes the number of affiliates in other countries, the amount of foreign assets, the number of employees in foreign branches, the amount of sourcing abroad, the number of countries where the company has its affiliates, and the amount of value added abroad (Schmidt, 1981; Dunning, 1992: 7). The last indicator is considered to be the best indicator of economic performance of foreign branches of a company. It shows the revenues of foreign branches minus all inputs they have made. Another branch of structural indicators estimates the extent of internationalisation of the governance structures of a corporation such as the proportion of foreigners in the board of directors, the proportion of shares that belong to shareholders from other countries, and some others (Schmidt, 1981).

Performance indicators of internationalisation assess the impact of foreign activities of a company on its economic performance. Dorrenbacher (2000) points out a few major performance indicators. Turnover, the first of these indicators, can be measured by foreign sales in any particular country (normally as the amount of export from the home country added to revenues of foreign branches minus their revenues from the export to the home country). There is also another indicator that is based on turnover. It is calculated as the sum of turnover of foreign branches divided by the sum of turnover of national branches of the company. The third performance indicator is the sum of operating income that was made by all foreign branches.

Attitudinal indicators aim to assess how parent companies threaten their foreign subsidiaries, although there are some doubts about the reliability of these measures. A “soft” indicator that was suggested by Perlmutter assesses four types of attitude of top managers towards foreign branches of the company: a polycentric (host country oriented), an ethnocentric (a home country oriented), a geocentric (globally oriented), and regioncentred (regionally oriented). Perlmutter & Heenan (1974) argue that the ethno centric type reflects the least degree of internationalisation while geocentric one its highest degree.

Sullivan (1994: 332) developed a “hard” statistical indicator. This indicator is calculated as the proportion of the years the top managers spent working in foreign branches to the cumulative term of their working experience. This indicator assumes that “international vision” increases with the rise of foreign experience of the top managers of the parent company.

Another approach to internationalisation is based on regional diversification. Smidt (1981) used the Herfindahl-index in order to distinguish countries with homogeneous distribution of foreign activities from those with a completely heterogeneous pattern of international activities. Furthermore, Perriard (1995) developed this approach. He compared the distribution of a parameter of any particular company in a region with the total international distribution of the same parameter.

Letto-Gillies (1998) has suggested another index to measure corporate internationalisation - so called “network spread index”. This index measures the proportion of foreign countries where any particular company has any subsidiaries to the number of countries where the company could (at least in theory) have them.

Kuschker (1993) and Johanson & Vahine (1977) have proposed to take into account the geographical and cultural distance from the home country. An even more sophisticated index has been introduced by Sullivan (1994). Sullivan’s index is called “physic dispersion”. It assumes that managerial doctrines differ from country to country. However, it is possible to divide the world into zones with similar principles of management and Sullivan identified ten major zones. His index reflects the extent of foreign activities of a company. The bigger the number of countries where the company is active in, the larger its psychic dispersion in terms of internationalisation.

For the processes of internationalisation, a few models have been proposed. Apparently, the most interesting of them is the Three Polar Model (TPM). It has been frequently used in research on international trade, foreign direct investment, and other global socio-economic developments. According to this model, there are three centres of dominance, namely North America (the United States and Canada), European Union and Japan, as shown in Figure 5.2.

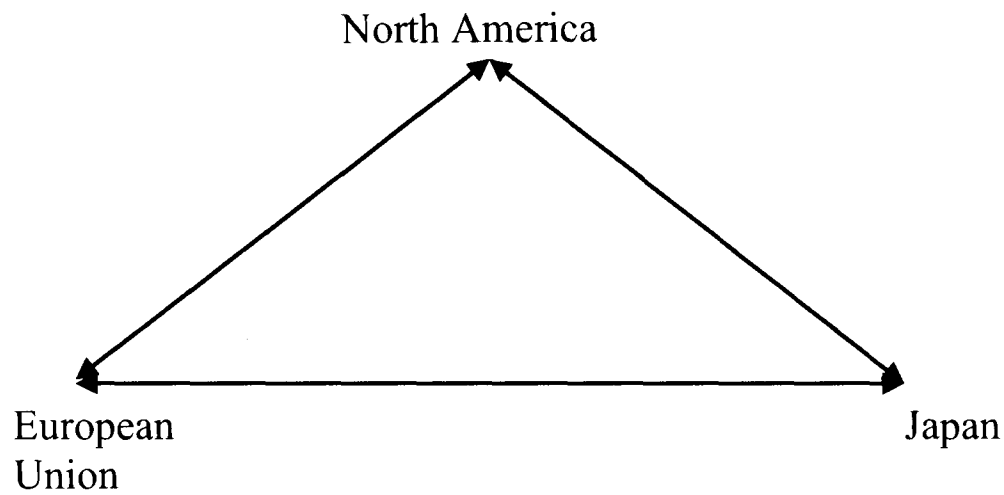


Figure 5.2 Three Polar Model of internationalisation

*The first pole (North America) includes:*

1. United States
2. Canada

*The second pole includes:*

1. Austria
2. Belgium
3. Denmark
4. Finland
5. France
6. Germany
7. Greece
8. Ireland
9. Italy
10. Luxemburg
11. Portugal
12. Spain
13. Sweden
14. The Netherlands
15. The United Kingdom<sup>23</sup>

*The third pole*

Japan

It should be noted that the Three Polar Model can be viewed in terms of connections among the polars and in terms of concentration of economic production (or ownership) in them. The latter aspect is known as the Triad thesis (Hirst & Thomson, 1996).

The Three Polar Model can be presented in its extended modification – the ETPM. The Extended Three Polar Model (ETPM) includes three other

---

<sup>23</sup> This list of countries is taken from the website of the European Union, available on URL [http://europa.eu.int/abc/governments/index\\_en.htm#members](http://europa.eu.int/abc/governments/index_en.htm#members) (February, 2004)



regions, in particular Latin America, Africa and Asia. This model assumes the existence of strong ties between North America and Latin America, between the European Union and Africa, and between Japan and Asian countries. The Extended Three Polar Model can be seen in Figure 5.3.

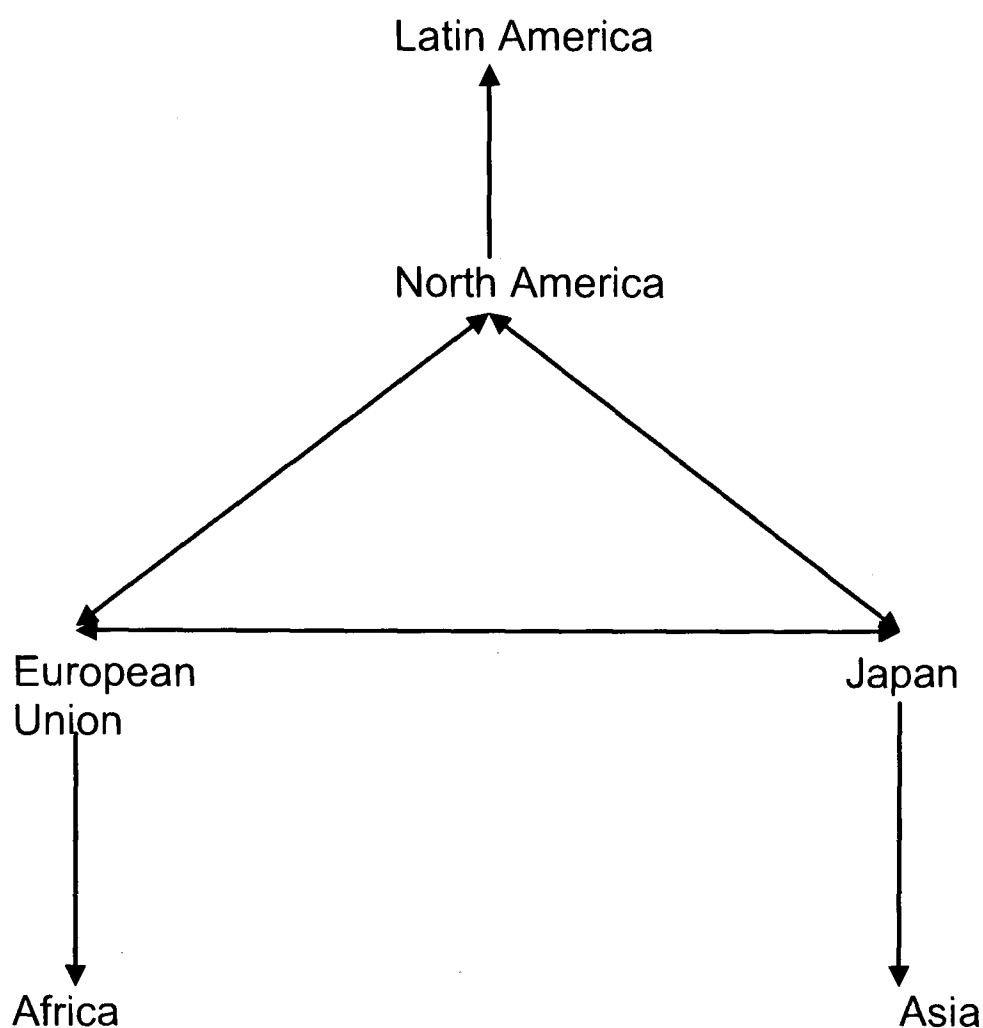


Figure 5.3 Extended Three Polar Model

To our knowledge, neither TPM nor ETPM has been used for studies of ownership. However, as there are a variety of similarities between acquisitions, foreign direct investments and international trade, it may be of interest to check how relevant these models are for understanding the process of international acquisitions.

Since our study focuses on FDI and ownership acquisition of public services, approaches that have been suggested for measuring ownership concentration should be also examined in this review. First of all, it should be noted that business analysts used several indicators in order to estimate the concentration of ownership in industries and economies, including: companies' market share, value added, advertising revenue, sales, shares of assets, the number of employees, and some other measures.

Some researchers also argue that taking into account companies' sales and turnover can be useful indicators while identifying ownership concentration because these indicators reflect the economic power of the companies. Another measure of influence is based on cross-subsidization and illustrates the ability of a firm to cover its losses in one sector or business enterprise by revenues extracted from others.

Alternatively, the ownership concentration in an industry can be measured by total revenue or revenue shares of its companies. The larger share of industry output is produced by a firm, the bigger impact this firm has on the industry and the prices within the industry. Consequently, revenue share of the firms inside the industry is a good indicator that reflects the relative power of the companies and the plurality of the market.

Some analysts who focus on ownership concentration in the mass media industry have suggested an alternative approach, which reflects the importance of media companies for their consumers. This method is based on the fact that output and market value not necessarily reflect the quality of the service and how it meets the needs of consumers. In addition, a number of other indicators have been recommended, including: shares of audience, and shares of time which the audience spent while "consuming" production of any particular media organisation.

It is evident that patterns and trends of foreign ownership acquisitions could be meaningful indicators of internationalisation and some of the indicators of internationalisation discussed above can be used for this purpose. However, it should be noted that the reviewed indices of internationalisation are relatively good on an individual level. By contrast, they are not particularly convenient in research on global or macro levels. Since this thesis is mostly concerned with global trends in public services, there is a need for alternative indices and methodology. This method is proposed and explained in the next section.

### **5.3. Social Network Analysis – Main Research Method:**

Social Network Analysis is the main method of this study. What is known as Social Network Analysis is a set of methods for the analysis of social *structures*, methods which are specifically geared towards an investigation of the *relational* aspects of these structures (Scott, 1991: 39). Consequently, the techniques of social network analysis are specifically designed to explore *relational* data rather than attributive, although attributes of actors can also be taken into account.

The difference between social network analysis and conventional methods, which also can be used to describe social structures, is that rather than focusing on attributes of the actors involved, social network analysis explores the structure of connections of the actors. In other words, the actors are described by their relations, which are seen by social network analysis as fundamental as the actors themselves.<sup>24</sup>

Social Network Analysis appeared about half a century ago. It was initially introduced by sociometric analysts and later developed by the researchers from Harvard, who modified some techniques of graph theory, and by anthropologists from Manchester, who used these developments to identify the structure of community relations. Central concepts of social network analysis are centrality, density, components, cliques, and distances, which are explained in greater detail in Section 5.5 (Scott, 1991: 7).

Since its appearance, social network analysis has been used for anthropological, social, business, political and managerial studies. For the most part, it has been used for describing social structure, for example in studies by Bavelas (1950), Burt (1980), Freeman (1989), Leavitt (1951) and Tichy et al. (1979). However, other applications of this method are abundant: for example, it was used to study international communication, political and cognitive networks, for research on social capital. Social network analysis helped to understand the role of kinship and to estimate the impact of social structure on getting job.

---

<sup>24</sup> This statement is taken from materials of an SNA course at the University of California (Introduction to Social Network Analysis, Course of the Department of Sociology at the University of California, Riverside).

Social network analysis has been used for communication and informational studies. For example, Burkhardt & Brass (1990) estimated organisational impacts of a new information technology. They showed that a new technology changes social structure and raise the status of those able to deal with the uncertainty which frequently caused by innovations. Rice & Aydin (1991) have found that social structure, especially positional and relational proximity, has an impact on attitudes towards an information system.

Social network analysis has also been used for research on corporate networks. It is possible to outline some dimensions of these studies. First of them is concerned with interlocking directorship and its effects. For example, Carroll et al. (1977), Sonquist & Koenig (1975) and Burt et al. (1981) have explored various aspects of joint membership in several director boards and assessed its impact on the performance of the corporations. The second dimension underlined the importance of ties between enterprises and banks (Levine, 1972). It has been shown that ties with banks and financial bodies are crucial for the start and performance of the firms.

SNA has been used for studies of multinational companies. Although this dimension is not particularly developed and such studies are mostly undertaken within broader projects, it is possible to note a study of a media ownership network with many multinational companies, which was undertaken by Kim Norlen, Gabriel Lucas, Michael Gebbie and John Chuang from the University of Berkeley (Norlen et al., 2002). Furthermore, Josep Rodriguez, Julian Cardenas and Christian Oltra, a group of researchers from Spain, in their research on networks of corporate power examined multinational ownership networks in Europe and identified the presence of four large separated networks that control nearly 80 per cent of the corporations (Rodriguez et al., 2004).

There have been attempts to use elements of social network analysis in studies of political networks and policy networks. Despite limited use of quantitative measures, this research field is very multidimensional. For example, Dimitrius Christopoulos (2004) examined network dependence of political entrepreneurs, Lomnitz & Scheinbaum (2004) analysed the role of social networks in privatisation processes in Hungary, and Matthew Bond

(2004) matched the network of interlocking directorates and patterns of political donations by the largest British corporations, aiming to describe corporate political action.

It should be noted that studies in this field sometimes go beyond national borders and can involve international actors. For example, Chung Rok Pang (2004) researched the EU trade policy process and pointed out that only a few core policy actors had real influence and power in policy making, which made countries-outsiders search for alternative strategies in order to benefit from EU policies. Some international policy studies intersect with research on management and governance. For example, Silke Adam (2004) has researched EU Governance Structures and Angelica Marte (2006) undertakes the project on global leadership, which aims to facilitate collaboration of international teams, in particular after an acquisition.

Social network analysis is suitable for studies of global processes. This argument can be proved even by similarity between SNA and the world system theory and dependency theories, which are frequently used for this purpose. This similarity rests upon the fact that SNA and these theories underline the priority of relational features over individual attributes. Social network analysis suggests that the characteristics of social units are determined by their positions in social networks (Scott, 2000; Wasserman & Faust, 1994). The proponents of world-system/dependency theories also argue that the structural characteristics of nations in global networks do matter for their development. Moreover, the world system can be defined in terms of relations.<sup>25</sup> For example, Chase-Dunn & Grimes (1995: 338) define it as “a set of nested and overlapping interaction networks that link all units of social analysis” (Chase-Dunn & Grimes, 1995: 338; Wallerstein, 1974).

Because of this similarity, many researchers have successfully used the network analysis approach for their studies of the world system. For example, Snyder & Kick (1979) used bock-model analysis of ties of military interventions, diplomatic exchanges, treaty membership, and trade in order to describe the structure of the world system. They found that the structure

---

<sup>25</sup> The concept of world system has been mostly developed by Immanuel Wallerstein. He defines it “as a unit with single division of labour and multiple cultural systems.” It is analysed not only in politico-economic terms but also in historical and socio-cultural. See Wallerstein (1974, 1980, 1984).

consists of three layers, which are core, semi-periphery, and periphery. Moreover, they discovered the dependence of economic growth of nations on their positions in this structure.

It was not the only study in this respect. For example, Nemeth and Smith (1985) examined flows of commodity trade and identified the presence of four strata of countries,<sup>26</sup> including core, periphery, and weak and strong semi-peripheries. Smith & White (1992) explored the dynamics of the pattern of asymmetric trade between strata. Their findings were more consistent with Snyder & Kick (1979) research. They identified only three strata, including core, periphery, and semi-periphery with some sub-clusters inside the strata. There have been also a number of other empirical studies regarding the world system and the core-periphery hierarchy (Steiber, 1979; Breiger, 1981; Chase-Dunn, 1989).

The framework of the world system/dependency theories can be used in globalisation and internationalisation research because they have a lot in common. For example, they share the point that the global system cannot be described by focusing on a single society. One of the consequences of internationalisation is the rise of inter-connectedness at the global (or regional) level. Although it does not mean that the involvement of more than one country should restrict academic analysis by focusing only on relations between countries (it is quite possible to study the attributes of many countries), this inter-connectedness of actors involved in globalisation processes allows social network analysis to be relevant for studying some aspects of internationalisation and globalisation (Kim & Eui-Hang, 2002: 446).

For example, Krempel and Plümper have contributed to the research on internationalisation by a number of SNA studies that primarily focused on international trade. In one of the most recent of them (Krempel & Plümper, 2003) they used world trade data for biggest trading nations from 1980 to 1994 in order to assess the appropriateness of globalisation, regionalization and macroeconomic imbalance theories. They have created a series of gravity models that were improved step by step through the visual analysis of estimation errors of the models representing the structure of global trade.

---

<sup>26</sup> Strata is plural for stratum. A stratum can be defined as a layer of countries internally consistent characteristics that distinguishes it from contiguous layers).

Their findings show that no single theory can explain the process of internationalisation. Instead, each of the above-mentioned theories can capture only some of the important features.

Hugh Louch, Eszter Hargittai, and Miguel Angel Centtano (1999) have explored the process of the internationalisation of communications. They have measured how the pattern of international communications had changed from 1983 to 1995. They have discovered the presence of the hierarchy of telephone contacts. The wealthiest countries occupied the dominant position in the communication network in terms of number of contacts while less developed countries formed the periphery. The density of telephone contacts between large cultural groups did not increase significantly during the considered period.

Sangmoon Kim and Eui-Hang Shin (2002) have also tested the trends of globalisation and regionalisation by comparing data on international commodity trade between 1959 and 1996. Their study has revealed that the world had been increasingly globalised because the number of trade partners had increased and trade network became denser between 1959 and 1996. They have discovered that the network of global trade had become more decentralised in 1996. Also, their research has shown that density of within-regional (intraregional) ties is greater than between-regional (interregional) ties. In addition, within regions ties are stronger. Kim & Shin's study has shown that the densities of ties both within regions and between regions had increased during this period, and this has made them conclude that the processes of regionalisation and globalisation do not contradict each other.

This brief review has shown that social network analysis is relevant for a study of global systems and the process of internationalisation. However, to our knowledge, SNA has not been used for a study of global processes associated with the internationalisation of public services. This research is one of the first attempts in this respect. SNA techniques used in this study are explained in the subsequent sections.

## 5.4. Hypotheses

Research questions of this thesis identified in Section 4.4 can be broken in a number of more specific statements which we will call Hypotheses even though they are not to be tested with the use of statistical methods. In terms of social network analysis, Research Question 1 about the pattern of ownership network in public services can be presented as follows: Do the entities compose groups with few or no links (as shown in Figure 5.4) or are they connected in a single component (as illustrated in Figure 5.5 and 5.6)? And if the latter is right, does this structure have a star like pattern (Figure 5.6) or the entities are multi-connected to each other as shown in Figure 5.5?

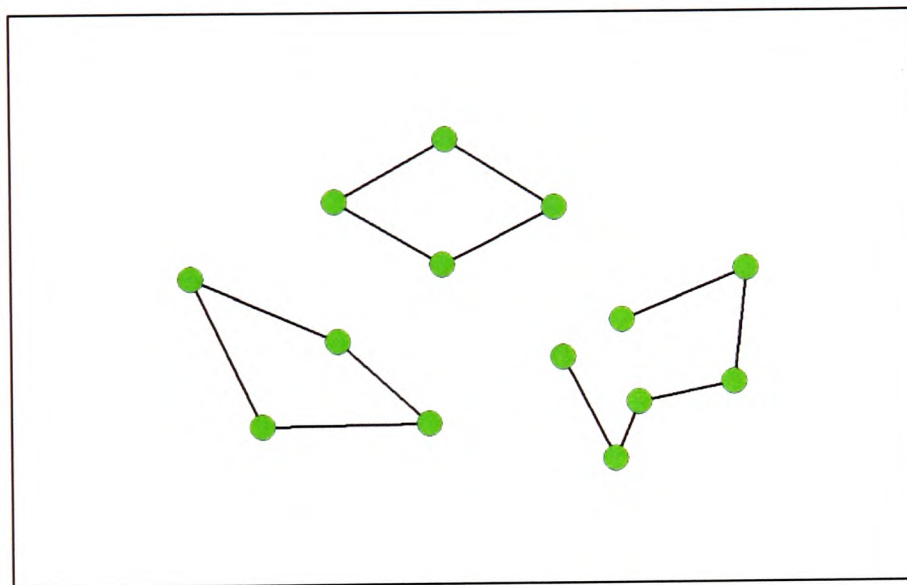


Figure 5.4 Pattern of fragmented network

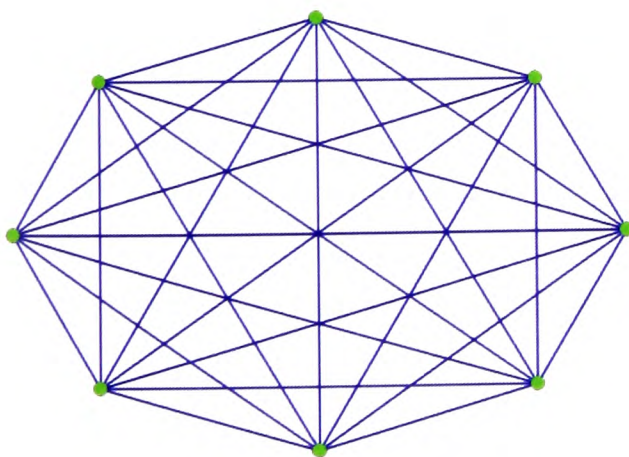


Figure 5.5 Pattern of integrated network

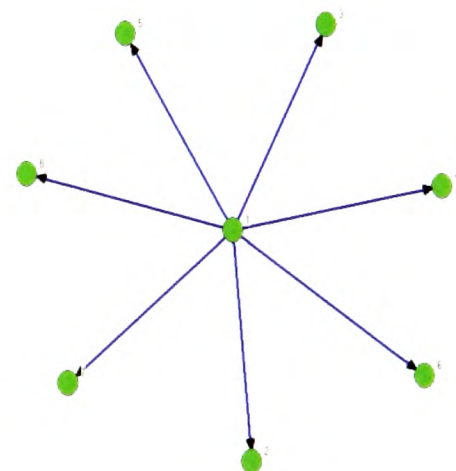


Figure 5.6 Star-like network

Consequently, the hypotheses of the first research question of this thesis can be outlined as follows:



**Hypothesis 1:** *The ownership network of public utilities consists of a single component.*<sup>27</sup>

**Hypothesis 2:** *The pattern of this single component reflects the dominance of some companies and countries over others in terms of ownership.*

The second hypothesis can be broken into two sub hypotheses:

**Hypothesis 2.1:** *The ownership network has a star like pattern;*

**Hypothesis 2.2:** *The ties are directed from the core to the periphery of the network.*

Also, it may be of interest to verify if the centre-periphery approach to an understanding of the pattern of ownership network in public services is more relevant than the use of the Three Polar Models. Although the TPMs can be less relevant for the description of the internationalisation of ownership than for the description of some other economic international processes, there have been not many acknowledged studies in this respect. Therefore, the next hypothesis of the thesis can be outlined as follows:

**Hypothesis 3** *Three Polar Models (Figure 5.2 and Figure 5.3) are suitable for the description of the ownership network in public services.*

The relevance of the research questions to theories of globalisation has been explained in Section 5.1 and summarised in Table 5.1. For example, the confirmation of Hypothesis 1 would mean the presence of high interconnectivity of international acquisitions in public services, which allows us to regard this sector as part of the world system. Furthermore, if the findings of this study support both sub hypotheses of Hypothesis 2 – it confirms it and gives us an evidence of a high concentration of ownership in these industries.

---

<sup>27</sup> Component is a group of connected nodes that is disconnected from other groups and nodes in the network. For example, there are 3 components in Figure 5.4.

The confirmation of Hypothesis 2 would also support centre – periphery theories because it will verify the existence of clusters of countries with different structural properties. This would strengthen the arguments of proponents of the pessimistic approach to globalisation, which rests upon the argument that globalisation increases inequality among countries. By contrast, if the results obtained contradict Hypothesis 2, it would support the viewpoint that globalisation promotes integration among countries and strengthen the position of associates of the optimistic approach.

Research Question 2 and the related set of hypotheses assess another aspect of globalisation. It has been argued that globalisation dissolves cultural and national identities, diminishes the role of national governments and downplays the impact of geographical factors. Hypotheses 4 and 5 aim to test whether this is the case in public services. These hypotheses are outlined below:

***Hypothesis 4: Geographical and cultural factors do not make significant impact on international acquisitions in public services.***

This hypothesis can be divided into two sub-hypotheses:

***Hypothesis 4.1: The impact of the cultural factor on international acquisitions in public services is insignificant.***

***Hypothesis 4.2: The impact of the geographical factor on international acquisitions in public services is insignificant.***

There are a variety of acquisition forms in public services and they are primarily associated with financial transactions, which are made normally through electronic bank transfers. Consequently, it is possible to expect that the influence of the geographical factor is insignificant.

***Hypothesis 5: The impact of economic and political factors on international acquisitions in public services is significant (or more significant than the impact of geographical and cultural factors).***

This hypothesis can be also divided into two sub-hypotheses:

***Hypothesis 5.1: The impact of the economic factor on international acquisitions in public services is significant.***

***Hypothesis 5.2: The impact of the political factor on international acquisitions in public services is significant.***

This set of hypotheses helps us test the appropriateness of the globalisation and regionalisation theories for the description of ownership network in public services (Section 2.3). The regionalisation theory is associated with the impact of regions that are normally defined as membership in trade areas NAFTA, ACEAN, and European Union (Coleman et al., 1998). However, there are a number of ways of defining regions and the principles of these classifications can vary. It is possible to define regions in geographical terms (such as continents). It is also possible to define regions on the basis of cultural, political, and economic factors (as has been argued in Chapter 4). Thus, if the impact of the geographical (or cultural, political, or economic) factor is strong, it would support the regionalisation theory. On the contrary, if these factors are non-significant, it would jeopardise the appropriateness of the regionalisation theory and thus strengthen the validity of the globalisation theory.

### ***5.5. Key SNA Concepts and Main Techniques Used in the Subsequent Analysis***

The hypotheses outlined in the previous section are to be tested with a number of SNA techniques, which are discussed in this section. For example, some elements of visualisation in line with component analysis are used in order to test Hypothesis 1. Visualisation is also used for testing Hypothesis 2, Hypothesis 3, Hypothesis 4, and Hypothesis 5. In addition, it is accomplished there by the use of a variety of measures of centralities, distances and the

index of centralisation in the case of Hypothesis 2, and by the use of QAP, density matrices and EI index in the case of Hypothesis 4 and Hypothesis 5.

Three Polar Models, the relevance of which to the study of the ownership pattern in public services is to be checked in Hypothesis 3, have been described in Section 5.2. As far as Hypothesis 4 is concerned, the geographical factor is associated with geographical regions and continents, whereas the cultural factor is represented by civilisations according to Samuel Huntington's (1993) classification. Influence of economic factors while testing Hypothesis 5 is associated with income per person, while the impact of political factors is assessed on the basis of membership in the Organisation for Economic Cooperation and Development (OECD). The summary of the techniques used in this thesis is shown in Table 5.2.

*Table 5.2 Main Hypotheses and Research Techniques Used in the Study*

<i>Research Techniques</i>	<b>Research Questions</b>						
	<b>Research Question 1</b>				<b>Research Question 2</b>		
	Pattern of Ownership				What Factors Impact on the Ownership Pattern		
	H* 1	H 2		H 3	H 4		H 5
	H 2.1	H 2.2		H 4.1	H 4.2	H 5.1	H 5.2
<i>Common Approaches and Measurement</i>	Qualitative Methods, Percentage, Ownership and Internationalisation Indices.				Regression Analysis (If data is available).		
<i>SNA Techniques Used in this Thesis</i>	Visualisation, Component analysis.	Visualisation, K-core, Degree Centrality, In-Degree Centrality, Out-Degree Centrality, Betweenness Centrality, Distance, Indices of Centralisation.		Visualisation.	Visualisation, QAP, Density, EI index.		

\*Note: H replaces the word "Hypothesis". For example, H 1 means Hypothesis 1.

These SNA concepts and techniques together with some additional concepts that are useful for this research are reviewed later in this section. This list includes the concepts of centrality, centralization, distance, density, K-core, EI index, QAP, and clique. Also, this section encompasses the definitions of some important non SNA terms of the thesis.

### **Centrality**

The most important from the concepts used for this study is the concept of centrality, which also is one of the main concepts in social network analysis. Centrality is normally regarded as a measure of importance based upon the actors position in the network, although some SNA researchers, in particular Bonnacich (1987) and Friedkin (1991), continue to explore possibilities of using different measures of centrality for estimation of the concept 'social power'.<sup>28</sup>

A number of approaches to measure centrality have been proposed. Freeman (1979) synthesised them in concepts of *degree centrality*, *closeness centrality*, and *betweenness centrality*. The simplest of them is *degree centrality* which is based on the rows of the adjacency matrix. *Closeness centrality* is more informative. It is calculated on the basis of the matrix of geodesics and takes into account the shortest indirect distances centrality.

### **Degree Centrality**

Degree centrality is simply each actor's number of ties in a non-directed graph. The formula of actor level degree is as follows:

$$C_D(n_i) = d_i(n_i)$$

---

<sup>28</sup> For example, an actor with high degree centrality maintains contacts with numerous other network actors. Actors have higher centrality to the extent they can gain access to and/or influence over others. A central actor occupies a structural position (network location) that acts as a source or conduit for larger volumes of information exchange and other resource transactions. In contrast, peripheral actors maintain few or no relations and thus are located at the margins of the network.

The actor level degree centrality can be standardized and normalized in the following way. The degree of each actor is divided by the maximum possible number of ties, which is equal to  $g-1$ , where  $g$  is the number of nodes of the network under study. The result is usually presented as percentage. The standardized formula of actor level degree centrality is as follows:

$$C'_D(n_i) = d_i(n_i)/(g-1)$$

These indices can be used in directed graphs, provided the number of permitted actor ties is not fixed.

### *Closeness Centrality*

Another concept of centrality is *closeness centrality*. The higher *closeness centrality* of an actor, the shorter path distances between them and all others. It is possible to define actor *closeness centrality* as the inverse of the sum of geodesic distances from actor  $i$  to the  $g-1$  other actors. Formula of closeness centrality for actors is as follows:

$$C_C(n_i) = \left[ \sum_{j=1}^g d(n_i, n_j) \right]^{-1}$$

It is important to note that the concept of *closeness centrality* can be used only for connected graphs, because distance cannot be calculated for completely disconnected actors. Similar to *degree centrality*, *closeness centrality* can also be standardized by dividing by a maximum possible distance with consequent presentation as percentage.

### *Betweenness Centrality*

Another concept of centrality is so called *betweenness centrality*. It describes the position of an actor in terms of being located in the geodesics connecting many pairs of other actors in the network. In case if several geodesics connect a pair of actors, it is assumed that each of the geodesics

has equal probability of being used. *Betweenness centrality* is a very important measure for brokerage. Being a cutpoint in the shortest path connecting two other actors allows the between actor to control exchange of resources or information.

*Betweenness centrality* for actor  $i$  can be defined as the sum of the probabilities, for all pairs of actors  $j$  and  $k$ , that actor  $i$  is involved in the pair's geodesic(s):

$$C_B(\mathbf{n}_i) = \sum_{j < k} \frac{g_{jk}(\mathbf{n}_i)}{g_{jk}}$$

*Betweenness centrality* can be standardised by dividing *betweenness centrality* scores by the highest possible value for betweenness and presenting result as percentage.

All reviewed concepts of centrality allow researchers to gain similar results in identifying key actors. However, they differ in detail and the final decision which concept to be used depends on the goals of the study.

### *Other Centrality Measures*

There are a number of other measures of centrality such as information centrality (Wasserman & Faust, 1994), Bonacich power, eigenvector, flow betweenness, influence, Hubbel, and Katz.<sup>29</sup> However, they are not reviewed in this section because they are not used in this study. Instead, it should be noted that several other important indicators of social network analysis are based on the measure of centrality. One of these indicators is the concept of *centralisation* which measures the extent of similarity to a star network.<sup>30</sup> A variety of indices of centralisation are reviewed in the next subsection.

---

<sup>29</sup> Based on Chapter 5 in Wasserman, S., Faust, K. (1994) *Social Network Analysis: Methods and Applications*, Cambridge: Cambridge University Press, available on URL [http://www.soc.umn.edu/~knoke/pages/Centrality\\_and\\_Prestige.doc](http://www.soc.umn.edu/~knoke/pages/Centrality_and_Prestige.doc) (November, 2006).

<sup>30</sup> An image of a star network can be seen in Figure 5.6.

## Centralization

The measure of *centralization* is one of the most important in this study. While different measures of centralities refer to individual actors of networks, centralization describes groups in a networks or the whole network. In the most general terms, graph centralization measure is an expression of how tightly the graph is organised around its most central point (Scott, 2000: 89).

Index of centralization describes the distribution of centralities (dispersion, spread, variability) in the network under study. According to Wasserman, this index illustrates “the extent to which a single actor has high centrality, and the others, low centrality” (Wasserman & Faust, 1994: 176).

Many researchers have contributed to the development of this index, including Mackenzie, Hoivik, Gleditsch, Leavitt, Freeman, Nieminen, Faucheux and Moscovici among others. For example, Hoivik & Gleditsch (1975) defend an approach to centralization, which considers it to be the dispersion in a set of actor centrality indices.<sup>31</sup>

Freeman (1979) has introduced a more comprehensive mathematical definition for centralization. He defines centralization as “the ratio of the actual sum of differences to the maximum possible sum of differences.” His index quantifies the dispersion or variation among individual centralities, as shown below.

### *Freeman's General Centralization Index*

$$Ca = \frac{\sum_{i=1}^g [Ca(n^*) - Ca(n_i)]}{\max \sum_{i=1}^g [Ca(n^*) - Ca(n_i)]}$$

$Ca(n_i)$  is an actor centrality index;

$Ca(n^*)$  is the largest value of actor centrality in the network.

---

<sup>31</sup> Reported in Wasserman, S., Faust, K. (1994) *Social Network Analysis: Methods and Applications*, Cambridge: Cambridge University Press, p. 177.



This general centralization index contrasts the difference between the largest actor centrality and the others. Values of this index vary from 0 to 1. If centralization (Ca) is equal to 1, it means that the network or the group has the absolute star like pattern, in other words one actor completely dominates the other actors. If centralization is equal to 0, it means that all actors have the same centrality and none of them is more dominant than the others (Wasserman & Faust, 1994: 177).

Freeman (1979) also suggested three different ways of operationalizing centralization. All of his indices of centralization vary from 0 to 1. If a network has the form of star or wheel, the values of the indices are equal to 1. Freeman's formulas for a variety of centralisation indices are outlined below.

#### *Freeman's Degree Centralization*

The general formula for centralization can be transformed in the degree centralization index in the following way:

$$C_D = \frac{\sum_{i=1}^N (C_D(n^*) - C_D(n_i))}{(N-1)(N-2)}, \quad \text{where } C_D(n_i) = \sum_j a_{ij}$$

$C_D(n_i)$  is degree centrality for node  $n_i$ ;

$C_D(n^*)$  is the largest degree centrality;

$a_{ij}$  is the direct or adjacent link between actor  $i$  and actor  $j$ .<sup>32</sup>

#### *Freeman's Closeness Centralization*

Freeman's formula for closeness centralisation is as follows:

$$C_C = \frac{\sum_{i=1}^N (C_C(n^*) - C_C(n_i))}{(N-1)(N-2)(2N-3)}, \quad \text{where } C_C(n_i) = (N-1) \left( \sum_{j=1}^N d(n_i, n_j) \right)^{-1}$$

$C_C(n_i)$  is the standardized actor closeness centrality for actor  $n_i$ ;

<sup>32</sup> Source: Wasserman, S., Faust, K. (1994) *Social Network Analysis: Methods and Applications*, Cambridge: Cambridge University Press, p. 180, and Proposed American National Standard – Working Document Knowledge Management – Metrics Candidate Metrics, Global Knowledge Economics Council, 3/27/2002.

$C_c(n^*)$  is the largest standardized closeness centrality;

$d(n_i, n_j)$  is the number of lines in the geodesic linking actor  $i$  and actor  $j$ .

### *Freeman's Betweenness Centralization*

Finally, Freeman's betweenness centralisation can be expressed in the following way:

$$C_B = \frac{\sum_{i=1}^N (C_B(n^*) - C_B(n_i))}{(N-1)^2(N-2)/2}, \quad \text{where } C_B(n_i) = \sum_{j \neq i} (\beta_{ji}(n_i) / \beta_{ji})$$

$C_B(n_i)$  is the actor betweenness index for node  $n_i$ ;

$C_B(n^*)$  is the largest betweenness centrality;

$\beta_{jk}(n_i)$  is the number of geodesics linking two actors that contain actor  $i$ .

### *Directed Graphs*

The formulas above are for non directional relations. However, researchers normally focus on directional relations. Wasserman (1994) recommends using only two measures of centrality for directional networks, in particular, degree and closeness centrality (Wasserman & Faust, 1994: 202). As far as indices of *centralization* are concerned, the formula of *degree centralization* index for directional networks can be obtained from general formula in the following way:

$$Ca = \frac{\sum_{i=1}^g [Ca(n^*) - Ca(n_i)]}{(g-1)^2}$$

$g$  is the group size (the number of nodes) (Wasserman & Faust, 1994: 200).

In principle, it is possible to gain a similar formula for *closeness centralization*. However, Wasserman & Faust (1994: 200) have pointed out that to their knowledge, none "has calculated the denominator of this index when the measured relation is directional."

## ***Distance***

Another important concept of this study is *distance*. According to the simplest definition, the *distance* between two points is the length of the shortest path (*the geodesic*) that connects them (Scott, 2000: 68).

## ***Density***

Density of a graph is defined as the number of lines in a graph, expressed as a proportion of the maximum possible number of lines (Scott, 2000: 72). A formula of density is given below:

$$D = \frac{L}{\frac{N(N-1)}{2}}$$

L is the number of lines present;

N is the number of nodes.

## ***K-Core***

The concept of *core* is one of the most important concepts of this research. The definitions of *core*, which are used in this thesis, are given by Scott in his *Handbook on Social Network Analysis*: “*K- core* is a maximal subgraph in which each point is adjacent to at least k other points” (Scott, 2000: 110). In other words, all the points within the k-core have a degree greater than or equal to k.

The alternative concept of *core* is the concept of *m-core*. While *k-core* is calculated on the basis of degrees of the points, “*m-core* describes the original nested components discussed by the GRADAP group. An *m-core* can be defined as a maximal sub-graph in which each line has a multiplicity greater than or equal to m. An *m-core* is a chain of points connected by lines of the specified multiplicity” (Scott, 2000: 113).

## ***Cliques***

The concept of *cliques* has been defined in many ways. The most popular approach to *cliques* views them as the maximal complete “sub-graphs” (Harary, 1969; Luce & Perry, 1949). In other words, a clique is a subset of points in which every possible pair of points is directly connected and the clique is not contained in any other clique (Scott, 2000: 115). *Cliques* in directed networks are called strong. Non directed networks have weak cliques.

## ***Quadratic Assignment Procedure (QAP)***

Quadratic Assignment Procedure (QAP) is an important technique for addressing research questions related to Research Question 2 of this study. *QAP* is a permutation test which is used in order to compare two square (one mode) matrices cell by cell. First, all values in each matrix are treated as long vectors of numbers (the diagonal values are not taken into account). Then these vectors are correlated like normal variables.

As the majority of statistical tests are not applicable in this case because observations are not independent, another procedure is used in order to assess the correlation between these matrices - a non parametric significance test. It is a randomization test which correlates randomly permuted rows (and associated columns) of one of the matrices with the other matrix. This is repeated hundreds of times and a distribution of correlation coefficients is build. The p value, which is calculated during the test, indicates the proportion of random correlations that are equal to or larger than the correlation between the two original matrices.<sup>33</sup>

---

<sup>33</sup> QAP, The materials to M.Everett's course on Social Network Analysis.

### ***E-I index.***

This index is used in order to assess the comparative densities of ties within and between groups. The formula of this index looks as follows:

$$\text{EI index} = \frac{E-I}{E+I}$$

E is the number of ties between groups;  
I is the number of ties within groups

## **Visualization**

Visualization is one of the most important tools of this study and it deserves a more detailed review. Various formats of visualisation in SNA are reviewed in this section. There are several main formats in social network analysis: matrices, point and line images, only point images and cellular automata representation. They are examined in the subsections that follow.

### 1. Matrices

One of the most common formats of representing and visualising data of social network analysis is a matrix. In matrices actors are represented by columns and rows while the cell of intersection shows a presence (or absence) of a relationship between the actors. Table 5.3 illustrates this point. This matrix represents a network of friendship ties among students in a school.

*Table 5.3 Matrix of Friendship Ties in a School*

	Peter	John	Robert	Ann	Anthony	Nick
Peter		1		1		
John				1	1	
Robert	1				1	
Ann						
Anthony			1			
Nick		1				

It is also possible to use a simplified matrix in which digits are replaced by points, as shown in Figure 5.7.

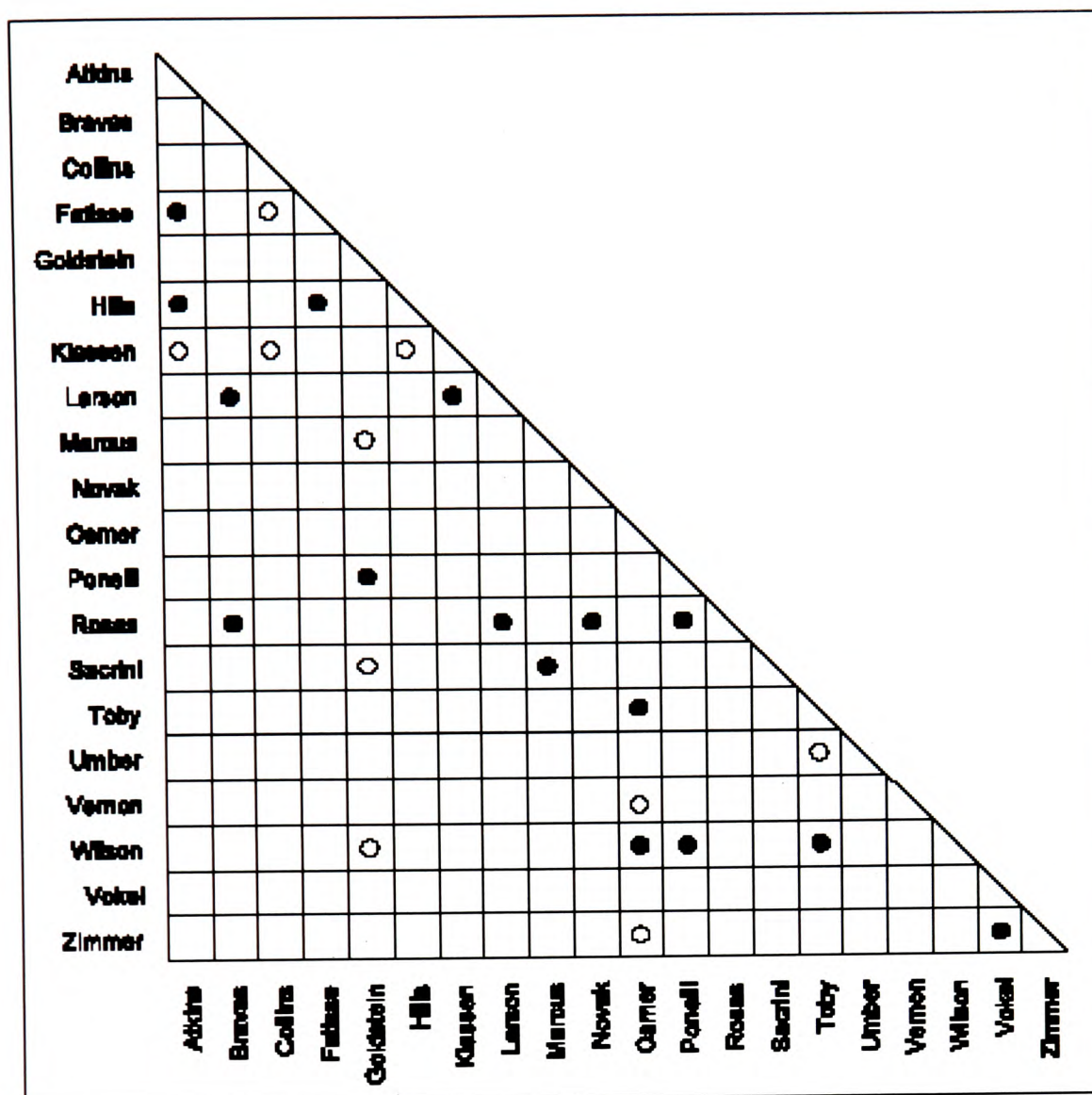


Figure 5.7 Matrix with non digital symbols (Klerks, 1999)

The matrix format of data representation is often used as a preliminary data set which is visualised through other formats.

## 2. Point and line images

This is the most common form of visualization of social network. This form of visualisation displays actors as nodes and a relationship between them as a line. For example, the image shown in Figure 5.8 visualises the network of multinational corporations and their subsidiaries in the energy sector.



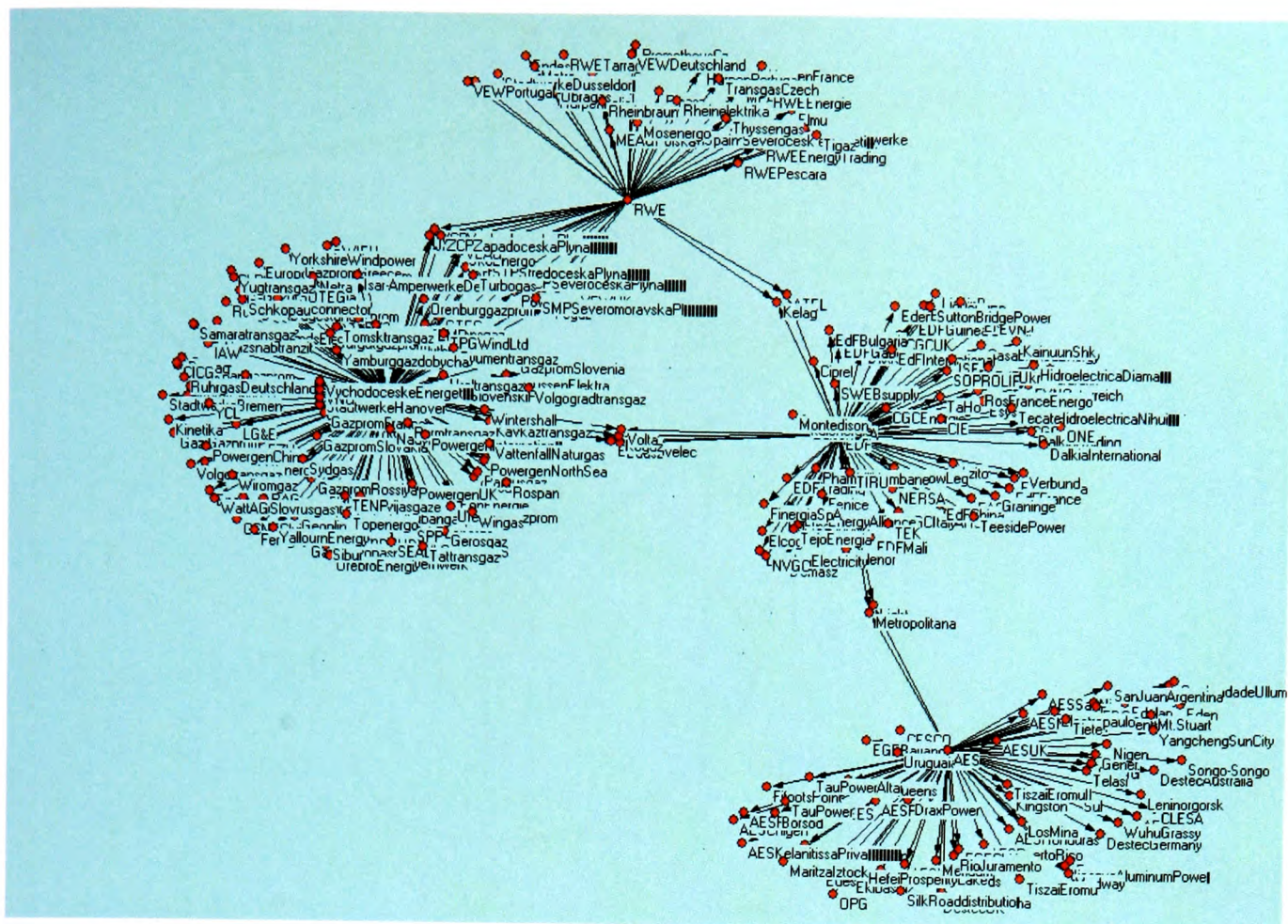


Figure 5.8 Multinational corporations of the energy sector (PSIRU presentation in Budapest, 2002)

### 3. Only Points Images

This format is mostly associated with the method of multidimensional scaling. It is possible to represent data in two and three dimensional space. The first case is shown in Figure 5.9, which visualises the concentration of economic and political actors in Hungary (Stark & Vedres, 2001: 10, 11).

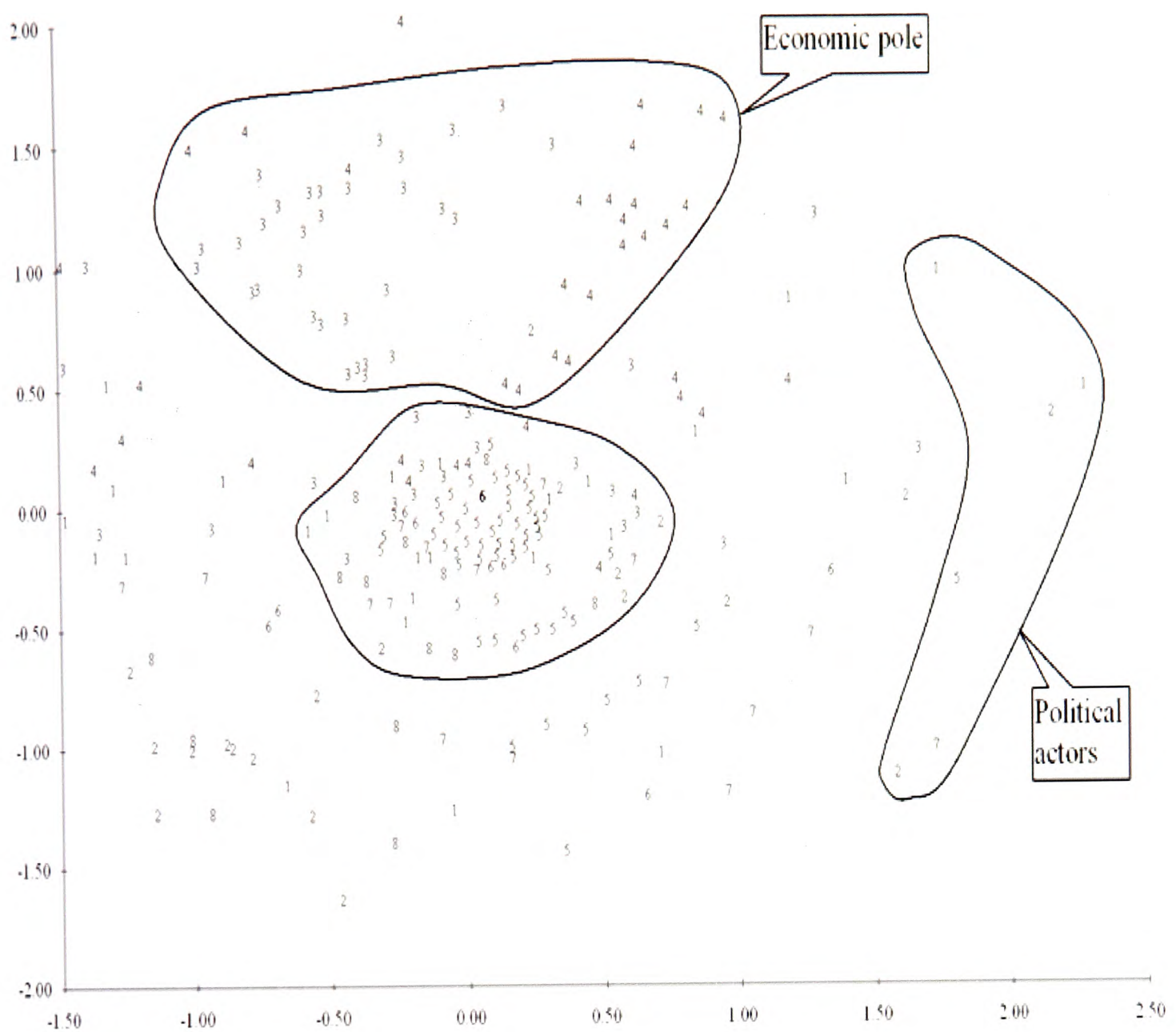


Figure 5.9 Field of economic relations. MDS, stress = 0.331, MINISSA algorithm based on correlations, N = 240 (Vedres, 1997)

It should be noted that actors in visual images are normally represented by points. However, Figure 5.9 shows that points can be easily replaced by other symbols. Some visualisation packages can produce three-dimensional images. For example, Figure 5.10 gives a three-dimensional image of Webster's data on friendship in an Australian college.<sup>34</sup>

<sup>34</sup> Webster's research is reviewed in depth later in this chapter.



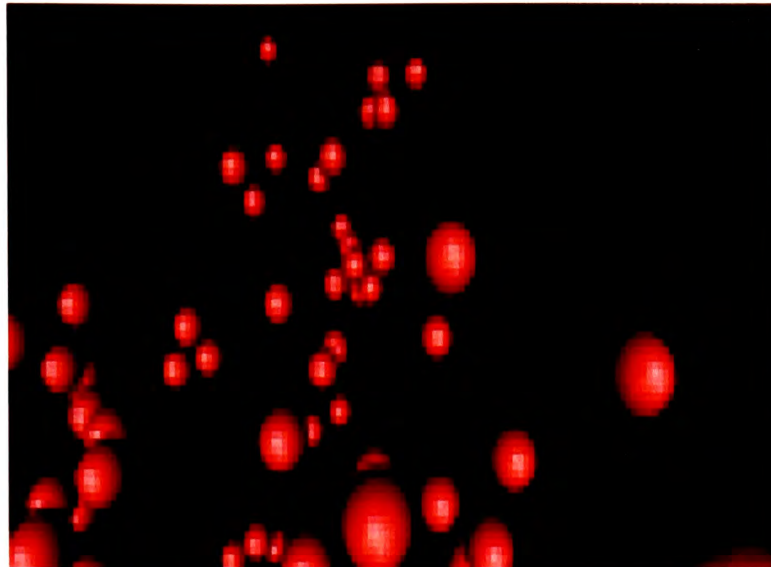


Figure 5.10 Webster's Australian friendship data

#### 4. Cellular automata representation

The last format of visualisation is *cellular automata*.<sup>35</sup> Presence of a relationship between actors in cellular automata is represented by locating them directly nearby (neighbourhood), while actors can be visualised by many shapes, depending on the number of dimensions. For example, in two-dimensional space the actors can be represented by squares, as illustrated in Figure 5.11, which shows a Bonacich's variety of exchange networks.

---

<sup>35</sup> Additional information regarding cellular automata can be found in Wolfram, S. (1986) *Theory and Applications of Cellular Automata*, Singapore: World Scientific; Toffoli, T. (1987) *Cellular Automata Machines: A New Environment for Modelling*, Cambridge: MIT Press; Gutowitz, H. (Ed.) (1991) *Cellular Automata: Theory and Experiment*. Cambridge: MIT Press; Goles, E., Martinez, S. (1999) *Cellular Automata and Complex Systems*. Boston: Kluwer Academic Publishers.

					A	B					
	B	C	D		C	D					
	A		E					A			E
									C	D	
	A	B	C	D				B			F
	A		C				B		C		
		B						A			
		D					D		E		
		E									

Figure 5.11 Bonacich's variety of exchange networks (Bonacich, 2001)

A cellular automata can be used in any number of dimensions, and the definition of neighbourhood also can vary. For example, while using a two dimensional cellular automata it is possible to define neighbours as pairs of cells sharing at least a *corner*. This is so called *Moore* neighbourhood. Additionally, a neighbour could be defined as a cell sharing an *edge*. This is the *von Neumann* neighbourhood.

It is evident that each cell can have eight *Moore* neighbours or four *Neumann* neighbours in a two-dimensional cellular automata, while an use of three-dimensional cellular automata will allow the cells to have twenty-six *Moor* neighbours or twelve *von Neumann* neighbours. In addition, a three-dimensional cellular automata enables any cell (actor) to have six neighbours with which it shares a face.

The representation of networks in the format of cellular automata has several advantages. First, diagrams produced by cellular automata are visually explicit and easily readable. Second, this format allows researchers to incorporate simple rules for forming and dissolving network ties (for example, a tie exists between neighbours) and, consequently, it provides the

researchers with a convenient tool for an analysis of the evolution of networks. Any change in the location of the points can be regarded as network change and the length of any re-location can represent the amount of change. Finally, the cellular automata can automatically produce a multidimensional scaling of cliques and their relationships because relationship and distance in this format are interconnected.

However, there are a number of disadvantages of this format. For example, a two-dimensional cellular automaton has certain limitations because any cell in this format cannot have more than four (if we use von Neumann neighbourhood) or eight (Moore neighbourhood) neighbours. In other words, we cannot apply this format for the groups of size 10 or larger. Similarly, the maximum number of neighbours of a cell that are in turn unconnected to each other is also limited. For example, regardless of the definition of neighbourhood, in a two dimensional cellular automata we can have more than four unconnected cells, each of which is connected to the same cell. Another deficiency might be caused by a strong tendency toward transitivity in this format. Cells that share a neighbour are in turn connected to other cells, which means that when actors change their location in the net, they simultaneously lose or acquire sets of indirect connections.

There are some ways to overcome the constraints of cellular automata. In fact, the last noted deficiency can be considered as an advantage because many relations in real life have a tendency to be transitive. The other limitations in the two-dimensional cellular automata, according to Bonacich, can be removed by increasing the number of dimensions. The only problem is that increasing the number of dimensions terminates our ability to represent the networks visually on a page. Despite this rather optimistic conclusion, this format is not used frequently. However, some researchers efficiently applied it to some studies, especially for analysing network change. For example, Bonacich (2001) chose this form in his study of the evolution of exchange networks.

It should be noted that the evolution of networks can be also visualised both through point and line and only point formats. The whole process of changes is illustrated by a sequence of images that portray the network at every particular time-point. For example, Figure 5.12 demonstrates the



evolution of relations between drug users in Colorado Springs over 4 years. In these images current relations are portrayed in red and blue, while past relations are shown in gray.

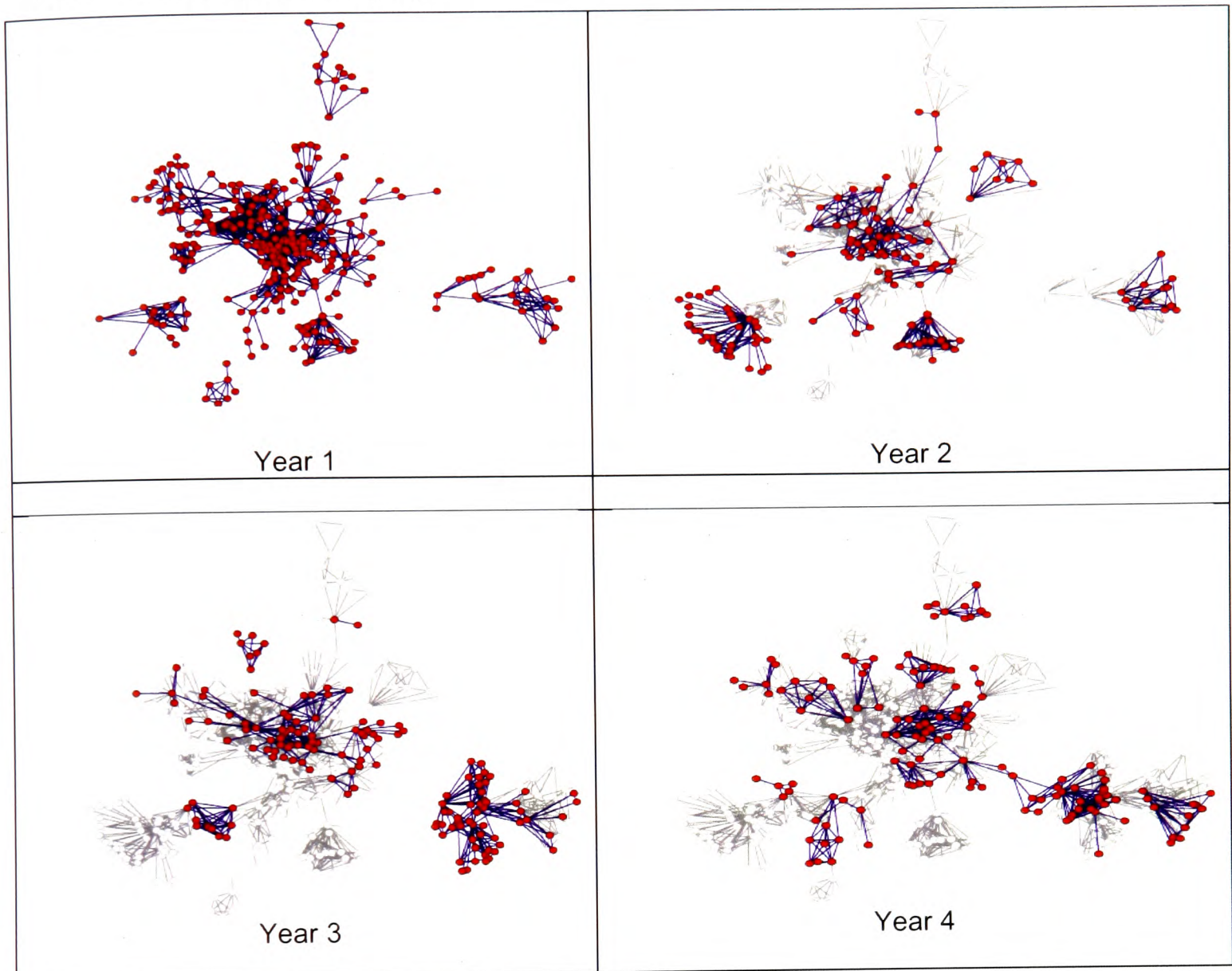


Figure 5.12 Dynamics of relations of drug users in Colorado Springs (Moody, 2004)

Finally, it makes sense to note that networks can be visualised via the use of more common formats and diagrams. For example, the network of co-citations in social science journals literature can be represented by the image shown in Figure 5.13.

The Discipline Structure of Social Science Journals  
Co-citation ties among 1657 Social Science Journals

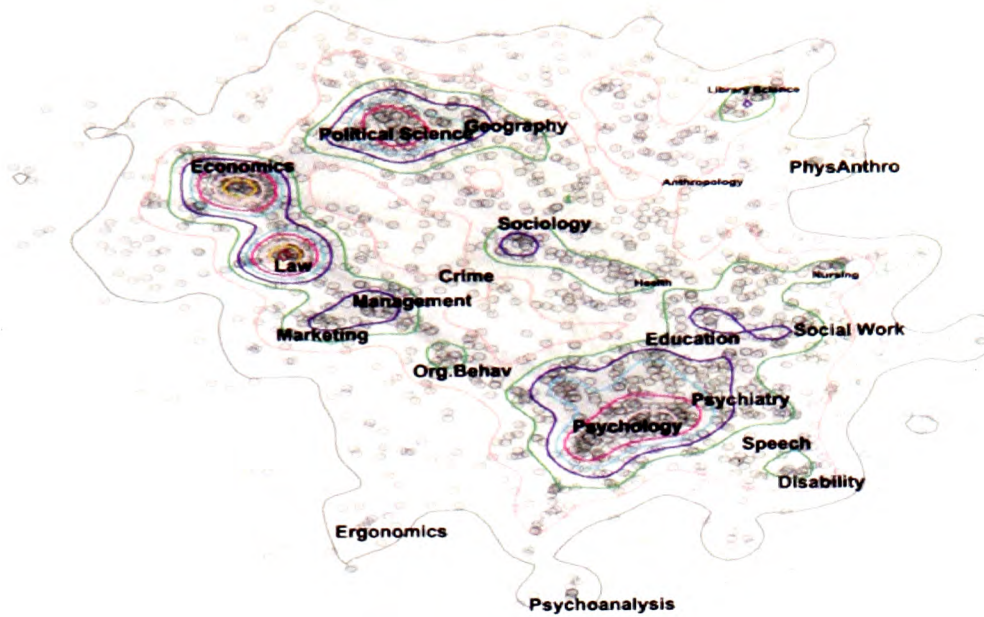


Figure 5.13 Social science journals co-citation ties (2 D) (Moody, 2005)

The visualisation of structural properties of this network can even be strengthened by the use of a three-dimensional image as shown in Figure 5.14.

The Discipline Structure of Social Science Journals  
Co-citation ties among 1657 Social Science Journals

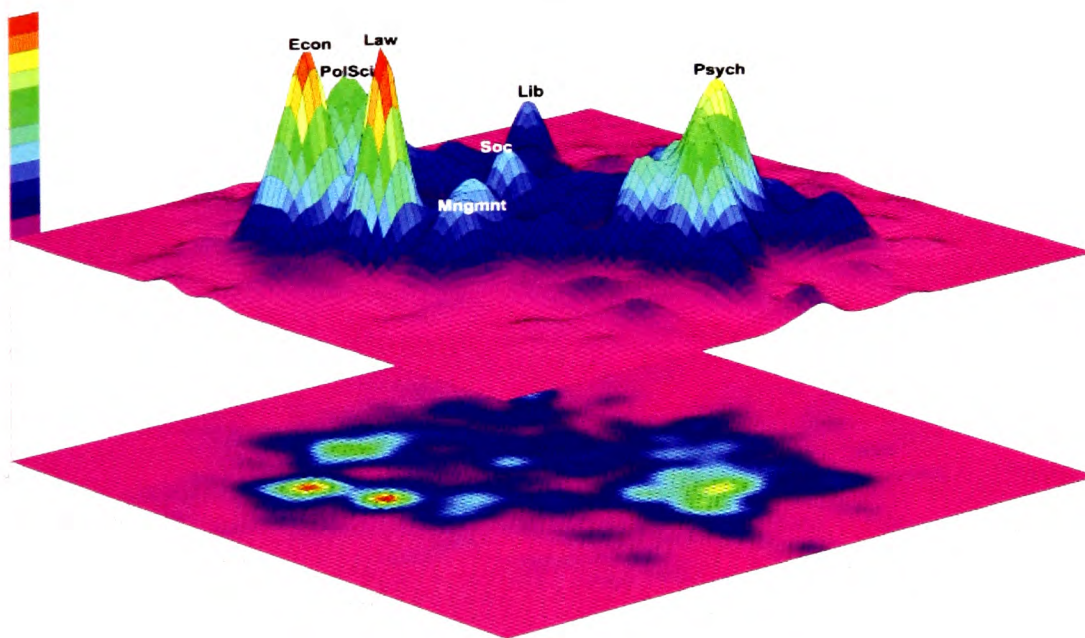


Figure 5.14 Journals co-citation ties (3 D) (Moody, 2005)

This dimension of visualisation is very promising. In order to visualise network properties it is even possible to use cartoon images like shown in Figure 5.15, which reflects the main trend of developments in Europe's energy sector.





Big fish, small pond

Figure 5.15 Evolution of Europe's energy sector (Froggatt, 2002)

Nevertheless, this potential approach is not used in this study because there is no particular need for it.

Instead, point and line images are the main visualisation format of this thesis. The points are to represent countries (in some cases – companies). Lines are to represent the relationship of ownership between the countries of the companies. It means that if a company of a country has a stake in a company of another country, this fact is represented as one arrowed line directed from the country of the parent company towards the country of the subsidiary.

The number of companies is not taken into account because this study aims to identify the pattern of internationalisation rather than to measure it. In other words, if five companies of a country have stocks in a few companies of other country, it is indicated by only one directed line from the country of parent companies toward the country of subsidiaries. The case where some companies of country A are parent companies of companies in country B, while some other companies of country B are parent companies of some companies from country A, is to be represented by two arrowed line between these countries.

## 5.6. SNA Software Packages

Numerous software packages have been created for social network analysis. This section reviews some of them and explains the choice of software packages for this study.

NETWRK 4.2 is good for analysing a network at several hierarchical levels. It allows researchers to calculate several useful indices that describe the organizational status of this network. In addition, all the pathways for recycle within the system are listed, and the system network is decomposed into two webs: one that consists entirely of recycled flow, and the other is an acyclic “tree” of straight-through, dissipative flows.<sup>36</sup>

NEGOPY is another popular SNA software package. It focuses on finding groups of nodes or actors, which are more connected with one another than with the others.<sup>37</sup> In addition, it is able to sort nodes into a number of *role categories* on the basis of their ties. Also, this program includes a number of options for working with strength of ties, as well as with unreciprocated or unconfirmed links and directed or undirected links. An advantage of this program is that it can be used for analysing large networks (up to up to 1,000 members and 20,000 links).<sup>38</sup> A diagram created by Negopy is presented in Figure 5.16.

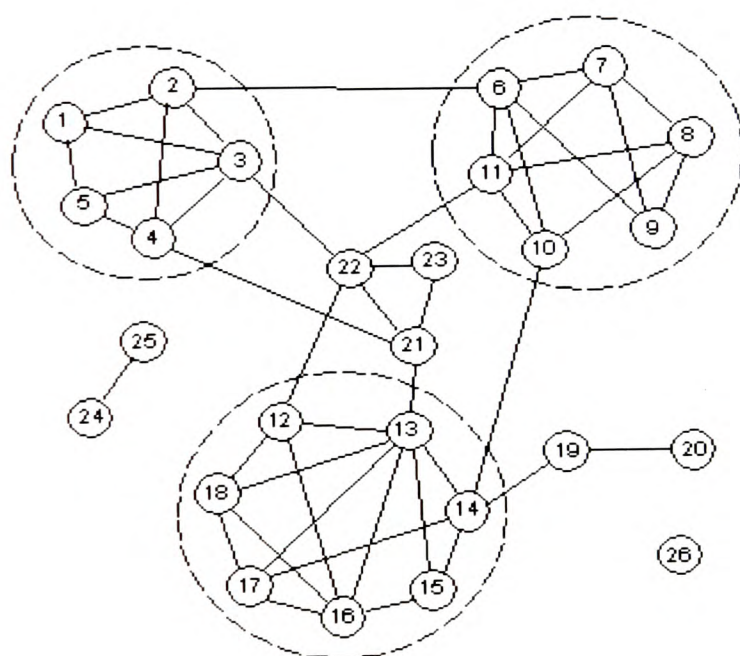


Figure 5.16 A network image created by Negopy

GLAD, a special purpose programs, was created by Duquenne in 1993. This program was designed to organize network data into a Galois lattice which deals with two mode data (Freeman & White, 1993). Galois lattice provided a significant improvement of correspondence analysis by

<sup>36</sup> URL <http://www.cbl.cees.edu/~ulan/ntwk/network.html> (September, 2002)

<sup>37</sup> These groups and called clusters. They are conceptually similar to the “cliques”, but not identical.

<sup>38</sup> URL <http://www.sfu.ca/~richards/Pages/negopy.htm> (December, 2006)



producing a different arrangement of points. Galois lattice was able to display an order structure, in which the dependencies among the column objects, the dependencies among the row objects, and those between the two were simultaneously revealed.

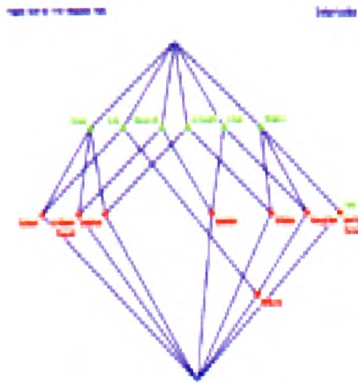


Figure 5.17 Data displayed as a Galois Lattice

For example, the image shown in Figure 5.17 represents the Galois lattice arrangement of the data on interlocking directors. It is possible to see that two pairs of directors form structurally identical pairs.<sup>39</sup> Second, the lattice shows the presence of competition between the two banks as they have no common directors. There are a great number of other details which describe the features of this corporate structure which can not be revealed through the use of the correspondence analysis.<sup>40</sup>

MultiNet, another general program for network analysis and drawing, was developed by Richards and Seary. This program can locate points using a few variation of correspondence analysis. MultiNet is able to rotate two and three-dimensional diagrams produced by it and is able to colour points. It is noteworthy that MultiNet could produce the illusion of three dimensions, if users look at the images through special red/green anaglyph glasses

The images shown in Figure 5.18 are produced by MultiNet. They represent Brajkovich's (1994) data set on 15 workers in a small high-tech start-up company. The personnel of this company consisted of 6 managers, 6 engineers, and 3 technicians. Each respondent reported who worked closely with whom. The data set reflected the general agreement on this issue of the

<sup>39</sup> Jamieson and Kappel on the one hand and Mortimer and Oelman on the other.

<sup>40</sup> Details can be found in Freeman, L.C. (2000) "Visualizing Social Networks", Journal of Social Structure, Vol. 1(1), February 4, p. 12.



whole staff. A procedure similar to factor analysis based on eigenvectors was used there.

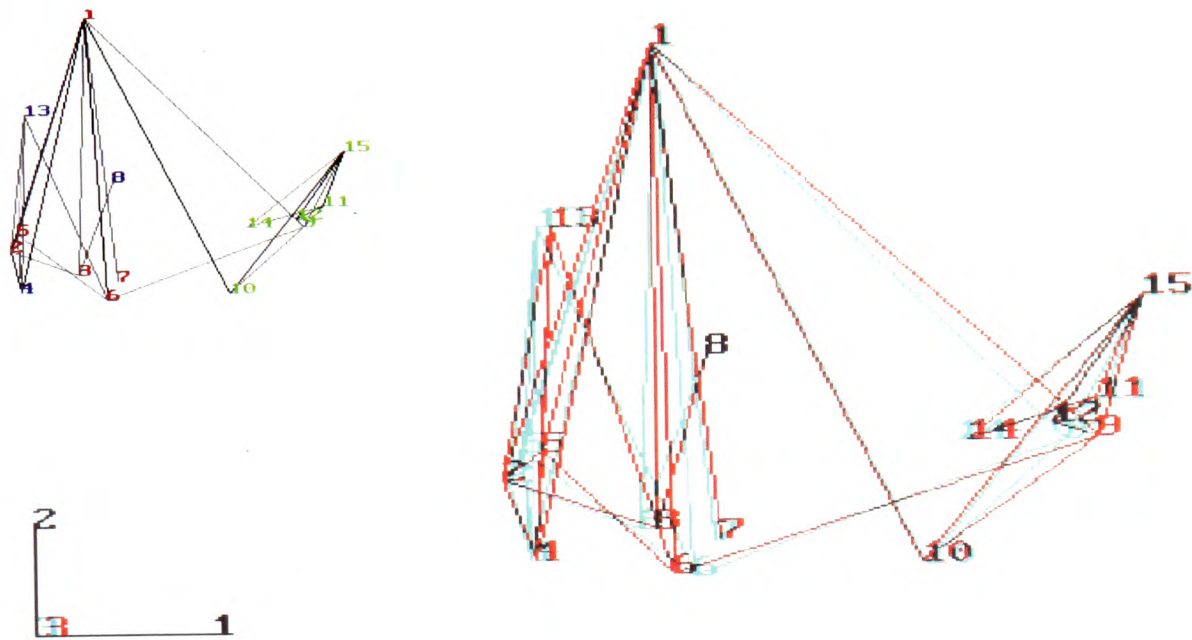


Figure 5.18 A three dimensional view of the Brajkovich data (special glasses are essential).

A normal two-dimensional diagram is shown in the upper left corner. Colour is used in order to identify the occupation of each actor. The managers are pictured in green, the technicians are in blue and engineers are shown in red. It is evident that the managers are grouped together and fairly separated from the cluster of engineers, which mediates the assembly of managers and the nebula of technicians.

A three-dimensional diagram is located on the right (the larger image). Special glasses in which the left eye is red and the right eye is blue or green would allow the viewers to see 3 dimensional image where points 5, 9 and 13 recede to the back and 1, 6 and 11 leap out at observers. An advantage of this three dimensional diagram is that it allows us to grasp more details of this structure which are not easily visible in the simpler two dimensional image.<sup>41</sup>

### Pajek

Another general network analysis and drawing program is Pajek (Spider). It was developed in 1996 by Batagelj and Mrvar. It was a successful mix of their earlier programs DRAW and ENER. Pajek has several algorithms for locating and moving points. It allows a user to vary shapes, colours, and labels. Moreover, Pajek is able to analyse huge data sets and

<sup>41</sup> URL <http://www.sfu.ca/~richards/Multinet/Pages/multinet.htm> (December,2006)

display points in two and three dimensional images.<sup>42</sup> An image produced by Pajek is shown in Figure 5.19.

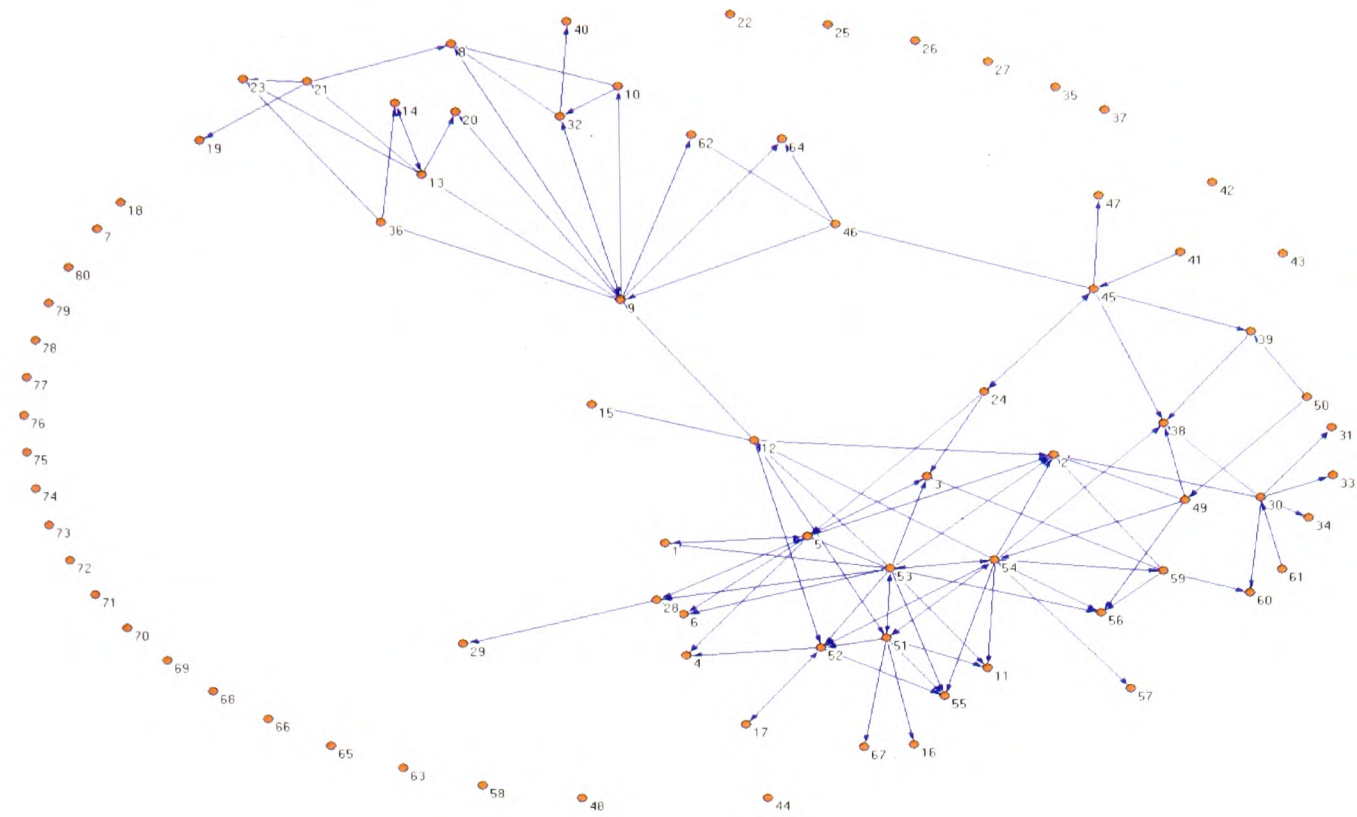


Figure 5.19 An advice network at the University of Greenwich

### Ucinet

Ucinet is developed by Stephen Borgatti, Martin Everett, and Linton Freeman, a group of network analysts from the University of Greenwich and the University of California (Irvine). Ucinet 5.0 and its latest version Ucinet 6.0 is, perhaps, the most popular of the SNA software packages. This program covers almost all SNA routines, including positional analysis and MDS. Visualisation, a limitation of Ucinet 5.0., has been considerably enhanced in Ucinet 6.0 which is connected with powerful visualisation packages Mage, Pajek and NetDraw.

---

<sup>42</sup> Three dimensional images are not of a good quality because they have too few perspective cues (Freeman).



## VISUALIZATION PACKAGES

Visualisation, or a use of images of networks, is important for many studies. Because of that, many of the SNA software packages have visualization blocks. In addition, there are a number of programs and software which is designed only for visualisation. The visualisation packages are reviewed in this section, which is based on Freeman's (2000) comprehensive study.

### NetVis

NetVis is a general graph drawing program designed by Krempel. It has several modifications of the spring embedder that automatically locate points in two dimensions. In addition, it is possible to change those locations manually and to vary shapes, colours and sizes of points. A limitation is that NetVis runs only on a Silicon Graphics workstation.

It should be noted that NetVis allows researchers to use a spring embedder for representation of two mode data sets. This program can locate points taking into account proximities in the data from both rows and columns concurrently. For example, Figure 5.20 represents a NetVis image produced by Krempel for the two mode data collected by Davis, Gardner and Gardner (1941) on participation of 18 women in several informal social events.

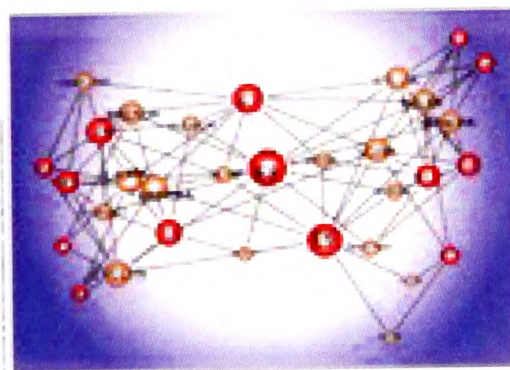


Figure 5.20 Davis, Gardner and Gardner's data on women's attendance at social events (Two Mode Data)

In this image, two events are close to each other if they share many common attendees. Similarly, two women are located in close proximity if they have participated in many events together. It is easy to see that the network is broken into two groups, and there are only few events in which representatives of both groups took part together (Freeman, 2000).

## KrackPlot

Krackplot was developed by Krackhardt, Blythe and McGrath in 1995. It runs in DOS and is able to generate high-quality screen images and printed output. Krackplot has a variety of algorithms for locating nodes and a number of devices for moving nodes and altering their colours and shapes.

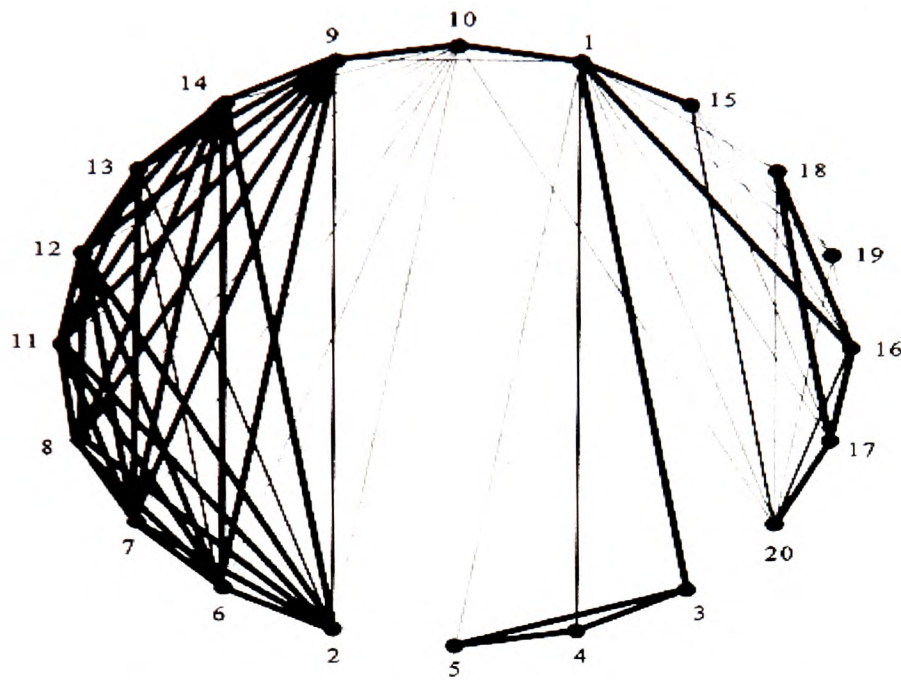


Figure 5.21 Mitchell's Krackplot image of the social support network of a homeless woman<sup>43</sup>

The image that is shown in Figure 5.21 is produced by Krackplot. This graph represents a social support network of a homeless woman, which has been researched by Mitchell in 1994. This image is used by Mitchell in order to prove that the actors of the network are split up into three clusters. To make this network image even more readable, it is possible to use Krackplot's standard routines for changing colours and shapes and its several *spring embedder* algorithms.<sup>44</sup> The result is shown in Figure 5.22.

<sup>43</sup> URL <http://www.contrib.andrew.cmu.edu/~krack/mitchell.html> (September, 2002)

<sup>44</sup> "Spring embedders are based on the notion that the points may be thought of as pushing and pulling on one another. Two points representing actors who are close will pull on each other, while those who are distant will push one another apart. Several algorithms have been developed that weight these pushes and pulls in different ways. But they all seek to find a global optimum in which there is minimum stress on the springs connecting the whole set of points." (Freeman, 2000).



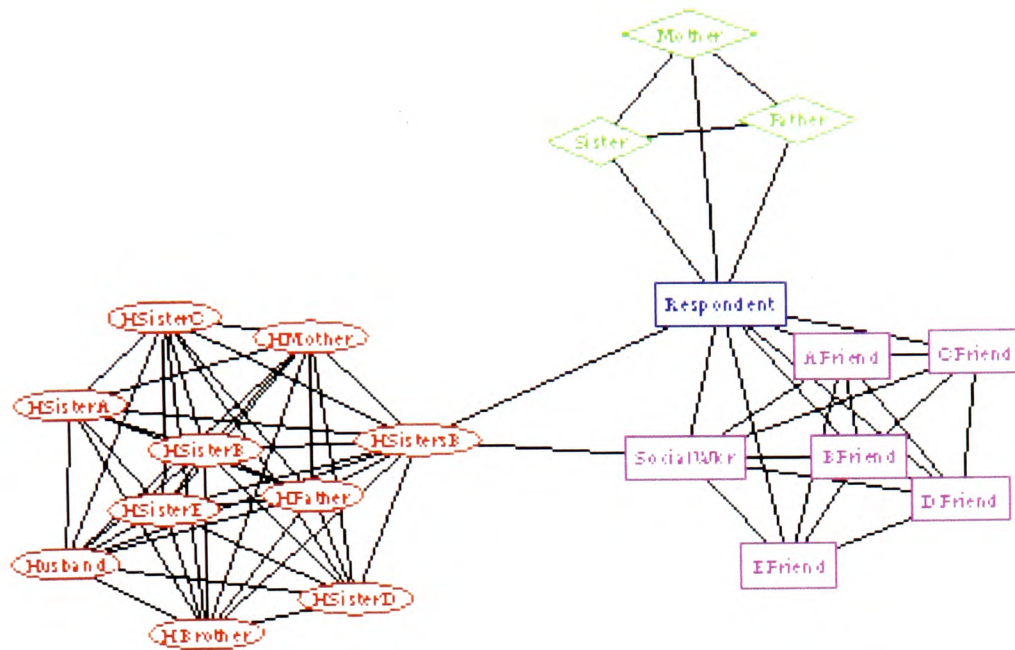


Figure 5.22 Modified image of the social support network of a homeless woman<sup>45</sup>

This graph shows the presence of three clusters that are connected through only a few links. Several devices were employed for this purpose. A spring embedder helped to allocate the points and a variety of shapes (diamond, oval) was used for identifying the groups. In addition, different colours were used in order to distinguish between the relatives of the respondent (blue) and the members of her husband's family (red).

### MAGE

MAGE is one of the most recent browser-based display programs. It was created by Richardson and Richardson in 1992. MAGE has been initially designed to display the images of protein structures. However, it has been soon discovered that it can be successfully used for social network analysis because it does not impose on visual images any restrictions based on the principles of chemistry.

The program allows users to draw lines and points, use colour and choose between several preset views. Also, viewers are able to transform the images and change viewpoints. Moreover, it is possible to control the display of layers of complex images, depth clipping of the visual image, and the zoom factor by using three scroll bars on the right side of the screen (Freeman, 2000).

<sup>45</sup> URL <http://www.contrib.andrew.cmu.edu/~krack/mitchell.html> (September, 2002)

The image shown in Figure 5.23 is produced by MAGE and presented by Freeman, Webster and Kirke in 1998.<sup>46</sup> This visual image represents the data on friendship ties among teenagers in a Dublin suburb, collected by Kirke in 1996.

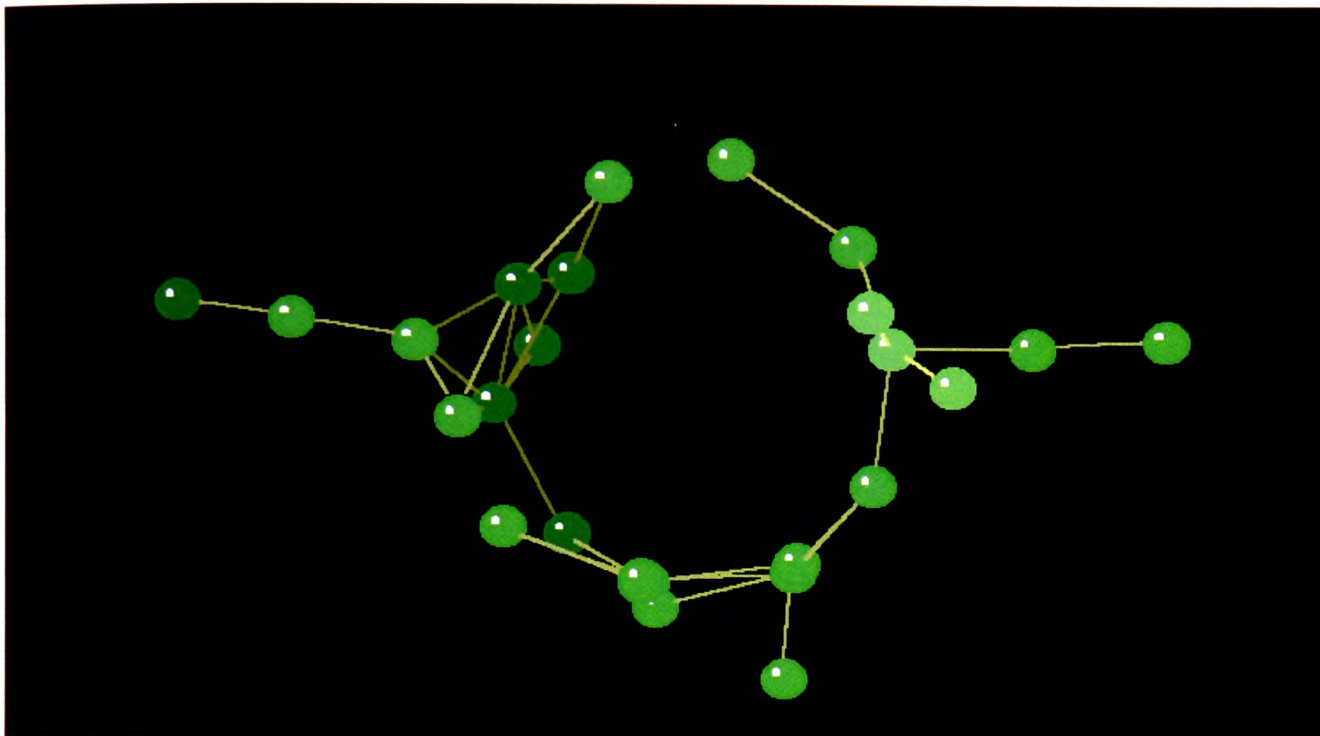


Figure 5.23 Friendship ties among teenagers in a Dublin suburb

The use of colour can help to understand better the structural properties of this network. For example, the graph presented in Figure 5.24 allows viewers to distinguish between males (in green) and females (in red), which is a very convenient option for in-depth analysis. In fact, the colour can be used not only for points but also for ties, which makes this program convenient for analysis of multi-relational networks.

---

<sup>46</sup> This diagram in the Power Point format is available on URL <http://zeeb.library.cmu.edu:7850/JoSS/images/fig32B.ppt> (December, 2002).

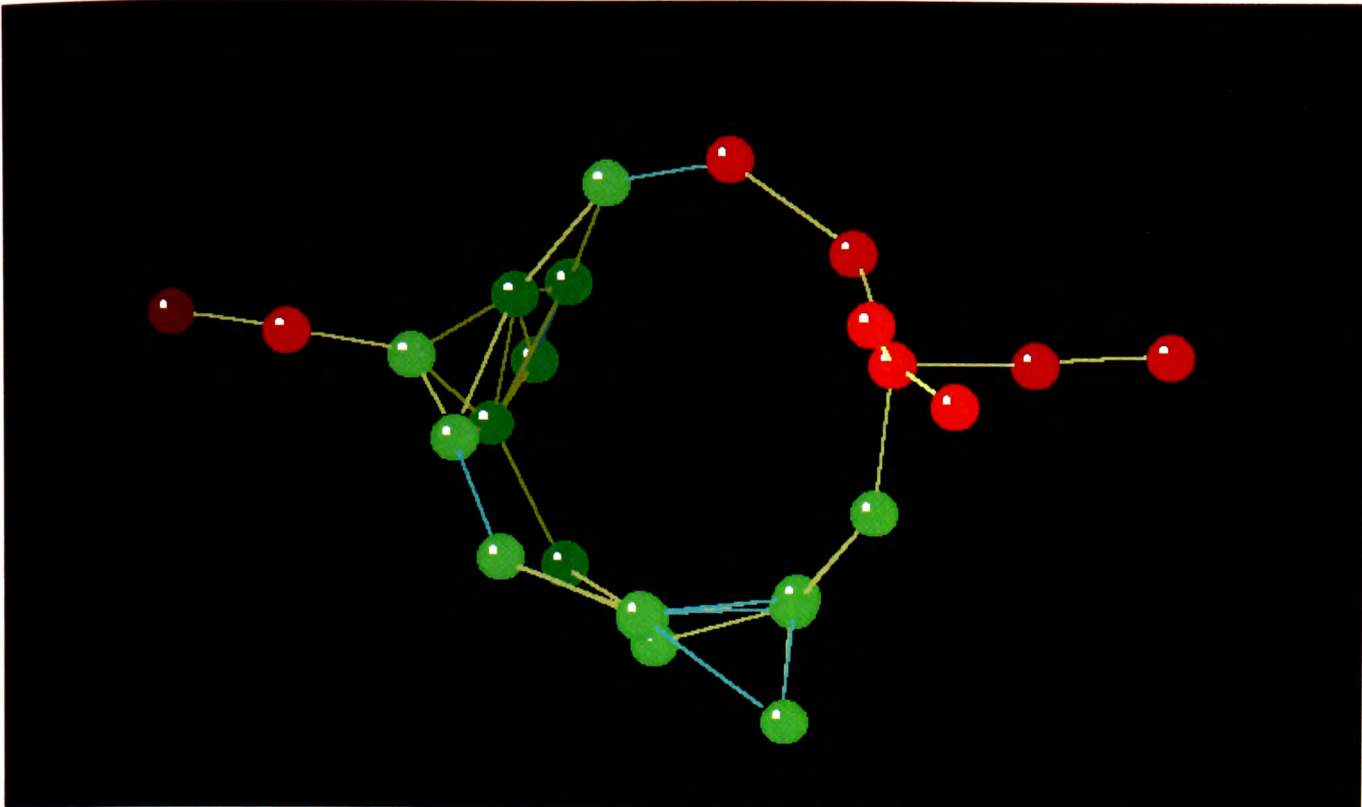


Figure 5.24 Sibling ties (blue) and the friendship (gold) among teenagers in a Dublin suburb (Freeman, 2000)

### VRML

Finally, another interesting means of visualisation – VRML (Virtual Reality Modelling Language) should be noted. VRML provides an alternative way of presenting social networks in the Internet. This language is less ubiquitous than Java and it is suitable for the majority of browsers. VRML allows users to create elegant three dimensional visual images and provides a variety of ways to manipulate them, including changing the size and rotation. It is also possible to reposition the image in any direction, and to move into or away from the image.

A three dimensional VRML image is shown in Figure 5.25. It visualises data collected by Webster (1994) on friendship ties among students at a residential college at an Australian university. 217 students were asked to name their friends and estimate the strength of their relationship. Then, correspondence analysis was applied to the data matrix which beforehand was symmetrised. The location of the points in the diagram corresponds with the first three axes of the correspondence analysis.



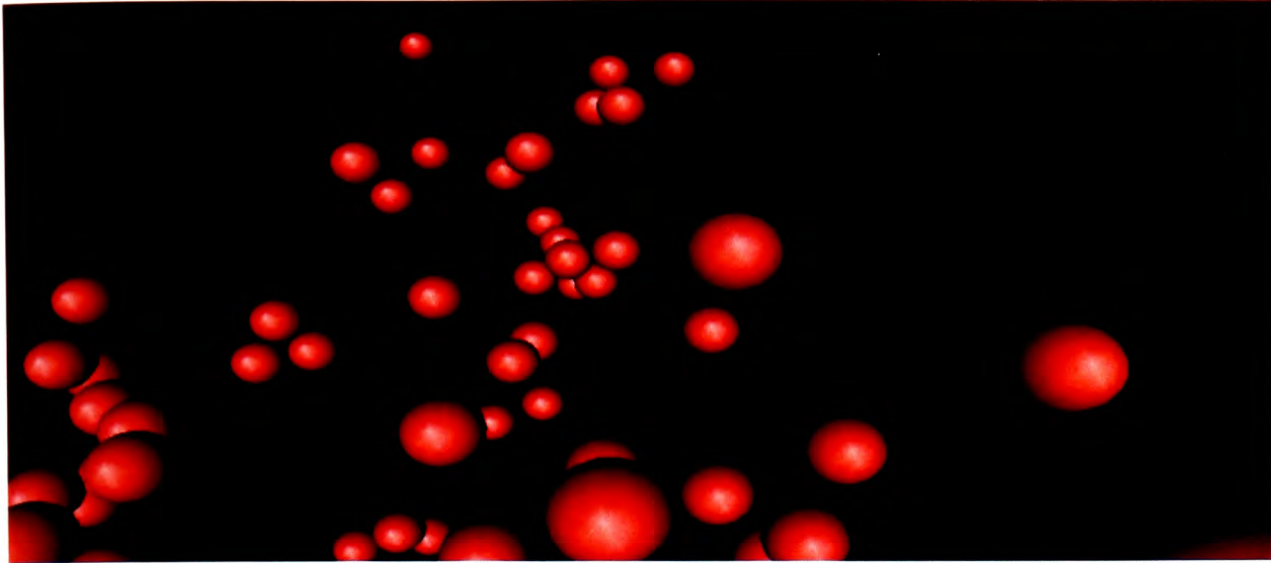


Figure 5.25 Part of a three dimensional VRML image of Webster's data on friendship ties among students at a residential college at an Australian university

After rotating and enlarging this image it is possible to discover four wings which consist of individuals beyond the nucleus, as shown in Figure 5.26.

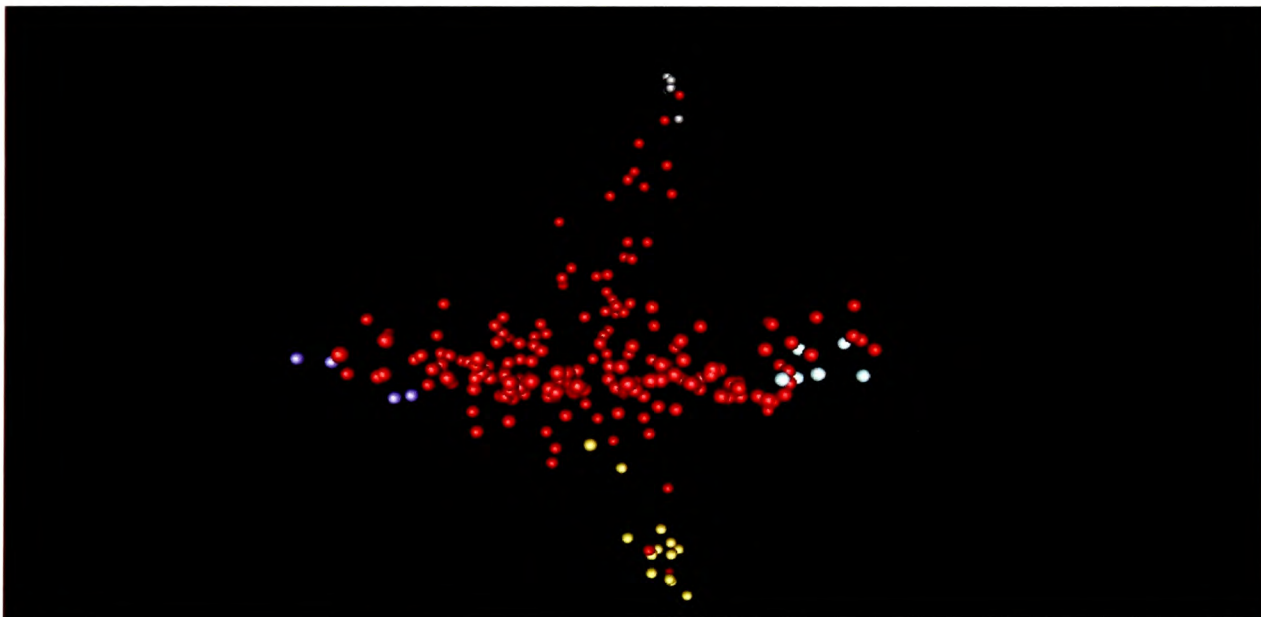


Figure 5.26 Cliques in Webster's data on friendship ties among students at a residential college at an Australian university

After an in-depth analysis Webster found out that the anchors of the four wings are composed of four out of the nineteen cliques that she discovered in her cluster analysis. The cliques are shown in different colours. The members of the *Religious* group that is made up of devout students are represented by yellow balls. Silver is used for the *Grunge* group which mainly includes students of dishevelled appearance. The group of the *Geniuses of*



*mathematics* is shown in purple, and a group of very social individuals that Webster dubbed the *Women* is represented by the light blue balls.

It should be noted that although there are many SNA software packages and visualisation programs, only a few of them are used in this thesis. Ucinet 6.0, Pajek, NetDraw and Mage are have been used in this study because they are able to calculate necessary statistics, and because they have good visualisation properties.

### **5.7. Data**

Data for this thesis is taken from PSIRU data base. PSIRU – Public Services International Research Unit is currently located at the Business School of the University of Greenwich.<sup>47</sup> This research unit is a part of Public Services International (PSI), the global confederation of public service trade unions. PSIRU was set up in 1998 to carry out empirical research into globalisation and privatisation in public services.

There are several dimensions of PSIRU research. PSIRU is primarily concerned with the developments in the water, energy, waste management and healthcare. It monitors changes in the structure of public sectors. PSIRU aims to assess the role of public services, international financial institutions and multinational companies in globalisation. It pays attention to a variety of aspects of corruption, labour relations policies, public-private partnerships, and tries to assess political and economic effects of foreign direct investments. Also, PSIRU is carrying out many joint research projects with trade unions, researchers and governmental bodies of many countries including Spain, Brazil, India and the Philippines.

These research projects and reports produced by PSIRU are based on the empirical data that is contained in the PSIRU data base. Maintaining this database is one of PSIRU's priorities. This database includes information regarding "monitoring of takeover and merger activities, financial and political developments, and developments in the sectors, covering issues such as

---

<sup>47</sup> PSIRU's website is <http://www.psiru.org> (October, 2009).

concentration of ownership, performance, pricing, financing, employment, political relations, and corruption.”<sup>48</sup> Data for this thesis (Chapter 6 and Chapter 7) has been taken from this database.

On the first of March 2003, this database contained data on 6229 companies from 142 countries. This database includes information regarding multinational companies involved in privatisation of public utilities. Companies are the main entries of the data base. They are characterised by countries, sectors, group sectors, sales and many other characteristics. Data on companies’ parents and subsidiaries are also stored in the database and the percentage owned is recorded.

There are a number of limitations of PSIRU data base. First, it does not have systematic coverage of public sector operators. Second, it does not include comprehensive data about private and public locally owned companies. Third, some segments of public services are more inclusively covered than the others. (For example, there is almost complete data on companies operating in water, electricity and waste, but it is not the case for health, telecom and some other industries, which are only partially covered). Finally, PSIRU does not find it possible to keep records of changes in ownership structure.

However, the above mentioned weaknesses are not serious limitations for this study because coverage of internationalised ownership is excellent and this study is undertaken with the segments that have near comprehensive data (water and electricity). This thesis focuses on international acquisitions in public services, which means that detailed information about locally owned companies is not particularly important. Finally, the research techniques that are used in this study do not require the use of longitudinal data.

---

<sup>48</sup> URL <http://www.psiru.org> (December, 2006)

## **5.8. Summary**

The use of social network analysis for study of the internationalisation of ownership in public services helps us to avoid several deficiencies of other methods. A drawback of the use of SNA is that a few aspects of the internationalisation of ownership are not to be taken into account. However, this method allows us to grasp and analyse the pattern of global ownership in public services, which is sufficient to reach the goals of this study and to address main research questions.

## Chapter 6

### Analysis of the Ownership Pattern in Public Services

The previous chapters have examined the process of globalisation. It has been shown that the internationalisation of public services is one of its important facets. Furthermore, the methodology of this research has been described and three main research questions regarding international acquisitions in public services have been identified. Research Question 1 concerns the pattern of the ownership network in public services, while Research Question 2 aims to identify factors that influence international acquisitions in this industry, and Research Question 3 addresses the implications of the findings of Research Question 1 and Research Question 2 for globalisation debates and theories. Social network analysis has been selected the main method of the study.

This chapter outlines results for Research Question 1. Three hypotheses are to be tested here. Hypothesis 1 states that the ownership network of public utilities consists of a single component. Hypothesis 2 proposes that the pattern of this single component reflects the dominance of some companies and countries over others in terms of ownership. Hypothesis 3 aims to verify if the pattern of the ownership network can be described with the use of the Three Polar Models (both in terms of connections and concentration).<sup>49</sup>

Several SNA techniques are to be used in order to test these hypotheses. They include a few measures of centrality, the index of centralisation, the concept of distance, and some elements of visualisation. These techniques have been selected because we regard them as the most appropriate for testing these hypotheses.

The data set which is used for this study has been described in detail in Section 5.7. The visualisation of this data shows that the global ownership structure of public services is very complex and multifarious. It can be seen in

---

<sup>49</sup> Hypotheses of this study are described in detail in Section 4.4.

Figure 6.1 which shows the ownership network of all the sectors of public utilities, including: water, energy, waste, telecommunication, health, transport and a number of others sectors. Techniques of social network analysis, however, can be successfully used in order to identify the pattern and properties of this network.

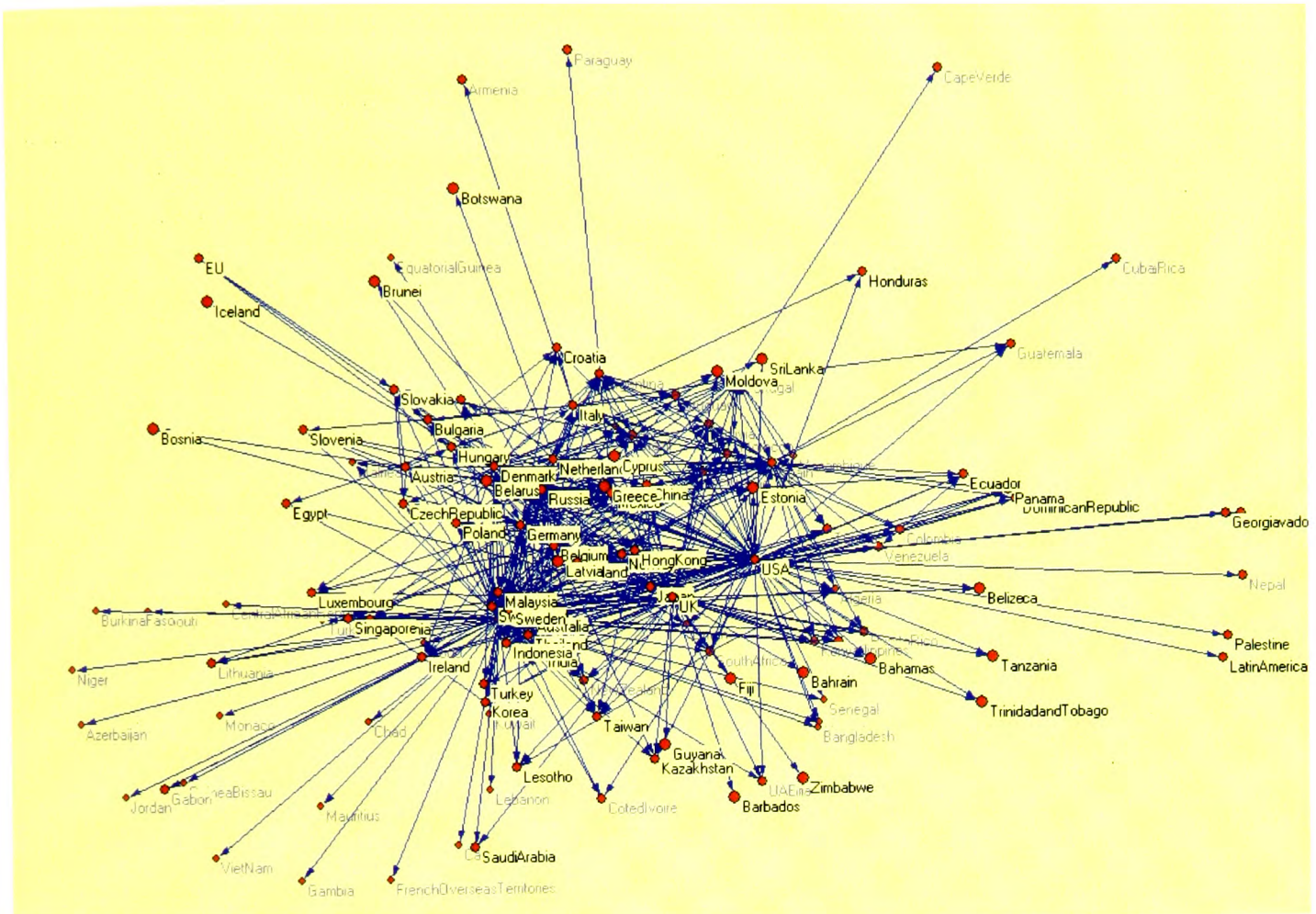


Figure 6.1 Global ownership network of public services

To start with, the network image shown in Figure 6.1 allows us to test the Hypothesis 1, which proposes overall connectivity of the ownership network. The ownership network of public services consists of only one component (it can be seen both in this Figure and as a result of using component analysis).<sup>50</sup> Thus, globalisation has resulted in the creation of an integrated world in public services.

Interestingly, this result can be explained not only by an influence of globalisation but by policies of multinational corporations. The overall connectivity of the ownership network might reflect the fact that multinational corporations do not focus on only one segment of public services but operate

<sup>50</sup> Component can be defined as a set where there exists a path between any two elements.

in several segments. This connectivity can indicate both diversification strategies of multinationals and their concurrence with policies of IFIs.

The pattern of this integration, however, needs to be analysed in some detail. For this purpose, some other routines of social network analysis can be used. In order to do this effectively, the ownership network has been divided into two sectors, the water sector and the electricity sector. For each of these sectors, the index of centralisation is calculated, the core routine is used, and an analysis of the matrix of distances is undertaken.

This chapter presents the findings that are obtained while the use of these routines. First, it outlines the results for the water sector. Then, the chapter examines the ownership network of the electricity sector. The final section extends this analysis by taking into account data for all sectors of public services simultaneously and describes the pattern of global ownership concentration in public services.

## **6.1. Water Sector**

This section focuses on the water sector. First, Hypothesis 1, which states that there is only one component in the ownership network, is under scrutiny. Second, Hypothesis 2.1 about the general pattern of the ownership network is tested. For this purpose the index of centralization is calculated and its meaning is examined and explained in Section 6.1.1. Then, the conclusion made from the measure of centralization is compared with the result obtained with the use of the core routine.

The core routine can also be used for testing Hypothesis 2.2 that assesses the direction of ties, as it is done in Section 6.1.2. Some measures of centrality are used in Section 6.1.3 in order to clarify some important points regarding the core. Then, in Section 6.1.4, the matrix of distances is calculated and the findings are compared with the results of the visual analysis of groups made while using the core routine. Finally, Section 6.1.5 tests Hypothesis 3 and examines the appropriateness of Three Polar Models for the description of the ownership pattern in the water sector.

The point and line image of the ownership ties between water companies is shown in Figure 6.2.



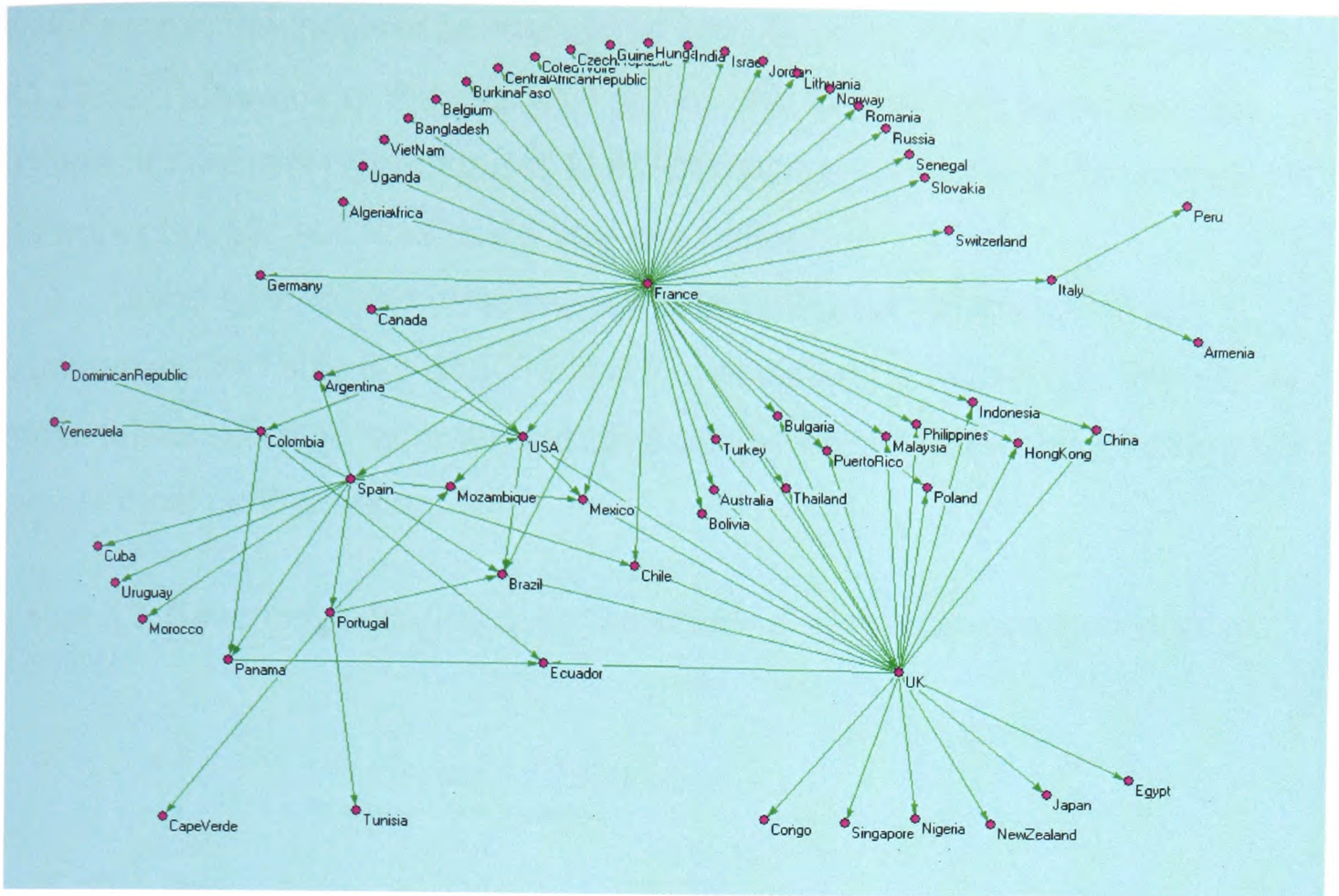


Figure 6.2 Global ownership network of the water sector

The visual analysis of this diagram shows that the global ownership network of water industry consists of one component, which confirms Hypothesis 1, which states that the ownership network consists of a single component. However, the visual analysis of this diagram is not sufficient to describe the pattern of this structure. In particular, the degree of concentration can hardly be estimated. In other words, in order to test Hypothesis 2.1 and Hypothesis 2.2 some other techniques have to be used. It is done in the next and following sections.

### 6.1.1. The Use of Degree Centralization in the Analysis of Ownership Concentration in the Water Sector

The main indicator that describes the pattern of networks is centralization. As it has been noted in the previous chapter, centralization shows how tightly the nodes of a network are integrated around the most

central its node. This index is used in order to test Hypothesis 2.1. For the water sector, the index of centralization calculated by Ucinet 6.0 is equal to 68.79 %. This value of the indicator shows that the network has a star-like pattern. It confirms Hypothesis 2.1, which proposes that the global ownership network of public services has a star-like pattern.

Some other parameters related to the index of centralisation are summarised in Table 6.1 and Table 6.2, calculated by Ucinet 6.0. The first of these tables refers to symmetrical centralisation while the other concerns non symmetrical centralisation.

*Table 6.1 Descriptive Statistics for Symmetrical Centralisation (the Water Sector)*

	1	2	3
	Degree	NrmDegree	Share
1 Mean	2.939	4.522	0.000
2 Std Dev	6.358	9.781	0.000
3 Sum	194.000	298.462	0.000
4 Variance	40.421	95.670	0.000
5 SSQ	3238.000	7663.905	0.000
6 MCSSQ	2667.758	6314.219	0.000
7 Euc Norm	56.903	87.544	0.000
8 Minimum	1.000	1.538	0.000
9 Maximum	47.000	72.308	0.000

Network Centralization = 69.90%  
Homogeneity = 8.60%

*Table 6.2 Descriptive Statistics for Non Symmetrical Centralisation (the Water Sector)*

	1	2	3	4
	OutDegree	InDegree	NrmOutDeg	NrmInDeg
1 Mean	1.485	1.485	2.284	2.284
2 Std Dev	6.486	0.857	9.978	1.319
3 Sum	98.000	98.000	150.769	150.769
4 Variance	42.068	0.735	99.569	1.739
5 SSQ	2922.000	194.000	6915.977	459.172
6 MCSSQ	2776.485	48.485	6571.562	114.757
7 Euc Norm	54.056	13.928	83.162	21.428
8 Minimum	0.000	0.000	0.000	0.000
9 Maximum	47.000	5.000	72.308	7.692

Network Centralization (Outdegree) = 71.101%  
Network Centralization (Indegree) = 5.491%

In general terms, the figures of these tables show that the direction of ties is mostly from the countries of the core towards the periphery (outdegree centralisation is nearly 71 % whilst indegree centralisation is 5,5 %), which



means that multinationals of the most central country own a great deal of the companies across the globe. This confirms Hypothesis 2.2, which states that the ties are mostly directed from the core to the periphery of the network.

### **6.1.2. Using Visualization and the Core Routine for an Analysis of Ownership in the Water Sector**

It is possible to test the validity of the proof of Hypothesis 2.1 and Hypothesis 2.2 that were obtained in the previous section by the use of the point and line images together with the K- core routine. As it has been noted in the previous chapter, K- core is a maximal subgraph in which each point is adjacent to at least k other points. To put it in a different way, all the points within the k-core have a degree greater than or equal to k (Scott, 2000: 110).

In this study the K-core routine of the program NetDraw has been used and four groups of countries identified. Let us discuss the results obtained. It should be noted that in the further analysis, the term *core* is used to refer to the most integrated group (the biggest number of ties within the group), and the term *periphery* indicate the group that has the smallest number of ties between its members.

The core of the water sector is shown in the Figure 6.3. It consists of five countries. It is evident that France occupies a special place in this structure. French water companies own water companies in all of the countries that are presented in Figure 6.3. Other countries of the core are the UK, the USA, Spain, Brazil and Mexico.

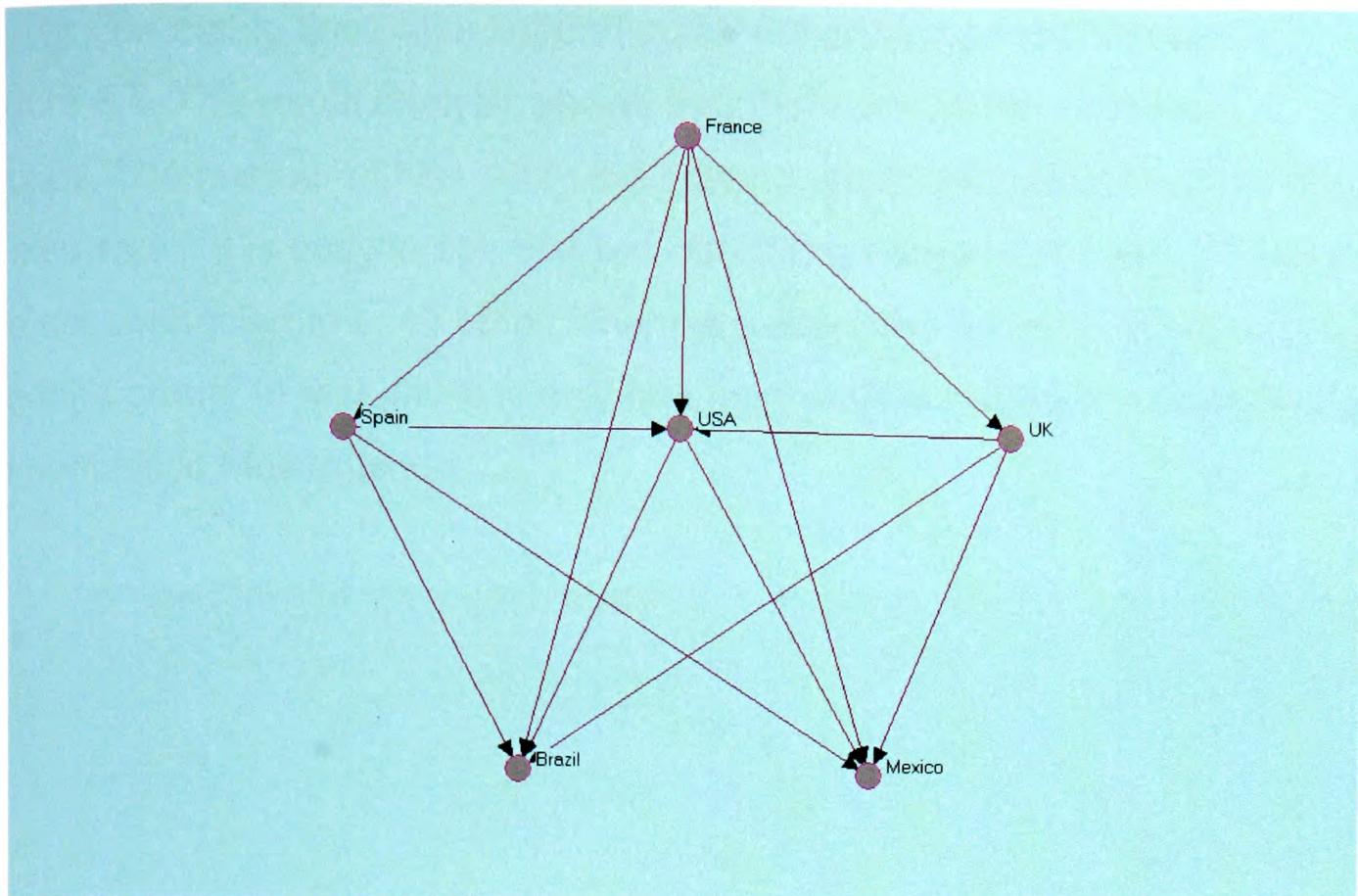


Figure 6.3 4-core of the ownership network of the water sector

Note that France, the UK, the USA, and Spain have both in-and out ties. However, there are two nodes in the core sub-graph which have only incoming ties (in-ties). These nodes represent Mexico and Brazil. They are remarkable because they have no stake in any of the other countries. However, Mexican and Brazilian water companies are owned by some companies in each of the other countries of the core.

The analysis of ties within the core will be done later in this chapter. In the meantime, it should be noted, that belonging to the core does not necessarily mean that the multinationals of this country own companies in other countries. In order to draw a conclusion about dominance of any particular node (country) in terms of ownership, the analysis of directionality of ties should have been taken into account.

Furthermore, it should be noted that there are no ties within the fourth group. For this reason, the diagram of this group is not shown, but this group will be shown together with other groups. Different colour is used to distinguish between different groups. The nodes (countries) of the second group are blue, the nodes of the third group are black, and the nodes of the periphery (the fourth group) are red.



Ownership ties of the second and the third groups can be seen in Figure 6.4. The visual analysis shows that there are no ties between the groups. The number of ties within the second group and within the third group is also small. It is easy to see that two out of five nodes of the second group are not connected to each other. There are even less ownership ties within the third group. In fact, there is only one tie: Portugal multinationals own some companies in Mozambique.

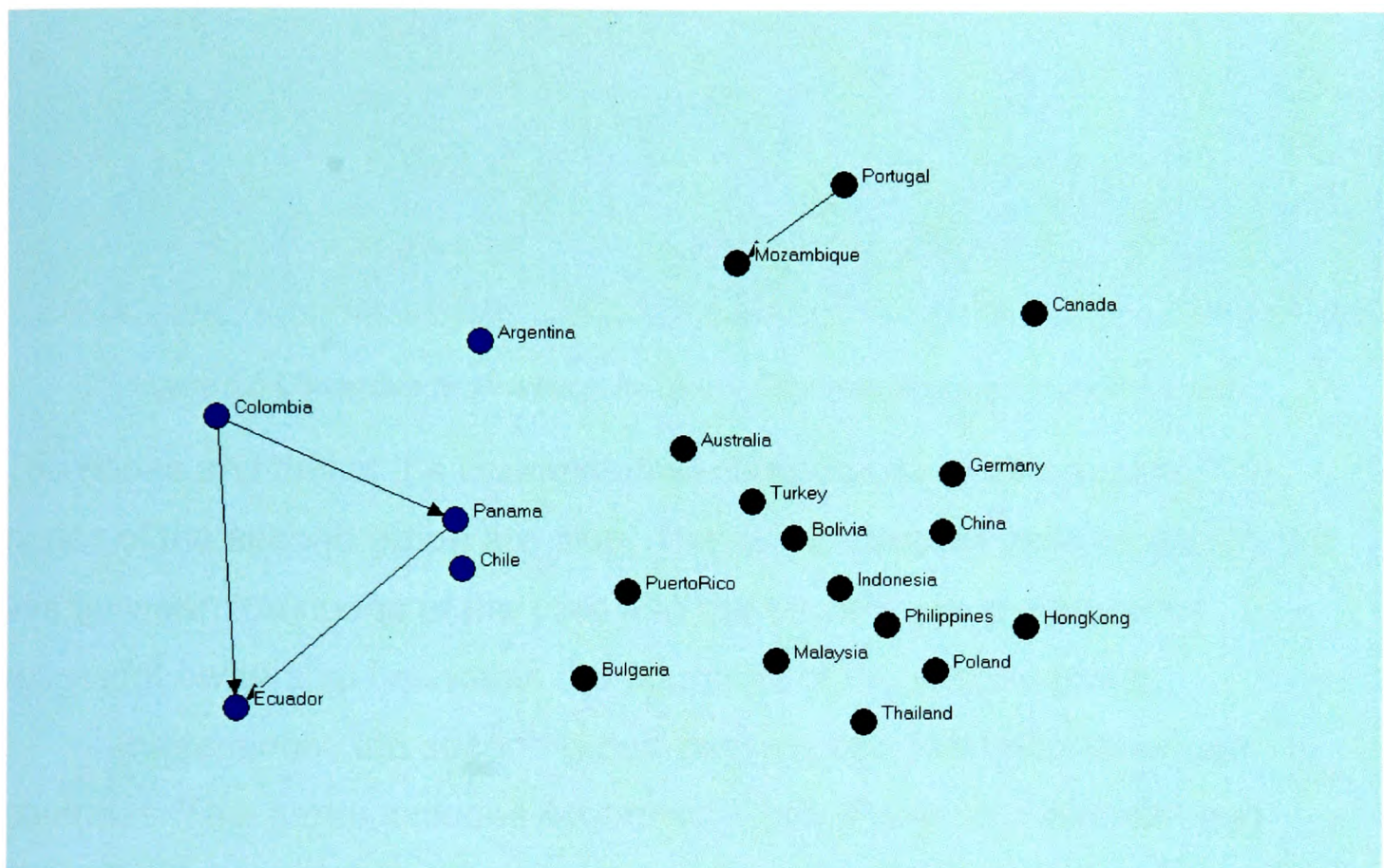


Figure 6.4 Ownership ties between and within the second and the third groups of the water sector

Although the countries belonging to the second group have no ownership ties with the countries of the third group, they are strongly connected with the countries of the core. It can be seen in Figure 6.5 and in Figure 6.6. The graph in Figure 6.5 shows ties between the countries of the core and the second group.



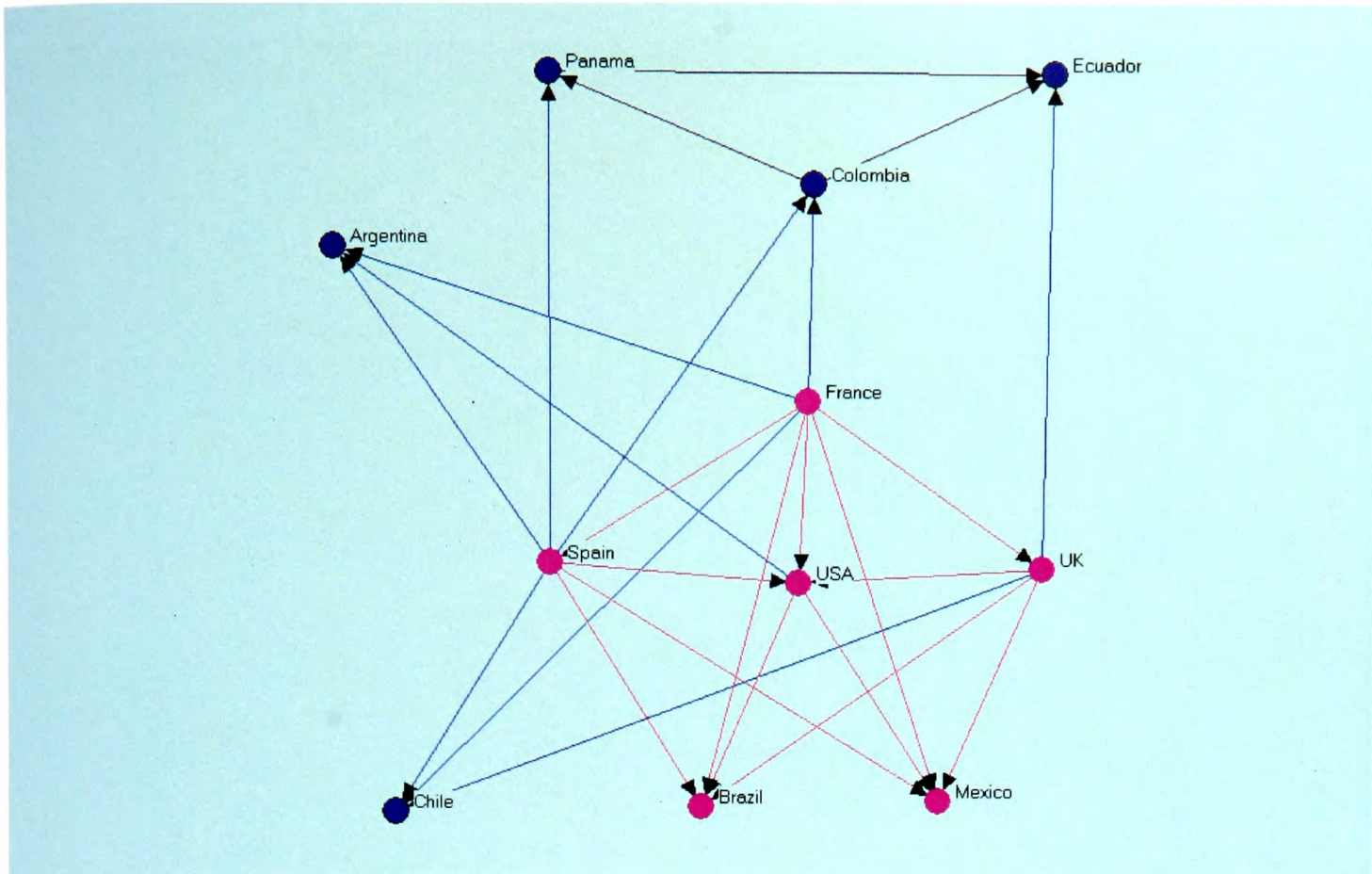


Figure 6.5 Ownership ties between the core and the second group (the water sector)

The nodes and ties of the countries that compose the core are pink. The nodes of the second group are blue. The same colour is used to identify the ties between the nodes of the core and the second group. Grey lines represent ownership ties within the countries of the second group.

Interestingly, the second group consists of a few Latin American countries. This group includes Argentina, Chile, Panama, Colombia and Ecuador. In principle, the ownership ties between these countries could indicate that the geographic factor can impact on decision making regarding international investments in the water industry. However, this chapter does aim to evaluate the influence of different factors on the ownership structure of the water sector, and this point is not elaborated in detail there but will be examined in Chapter 7.

In the meantime, it should be noticed that in Figure 6.5 the ties are directed from the countries of the core towards the countries of the second group. This shows that several multinationals of the core (at least four of them) own the water companies of the second group.

The analysis of ownership ties between the core and the third group shows the same pattern of interaction as in the case of linkages between the core and the second group. It is illustrated by the visual image in Figure 6.6.



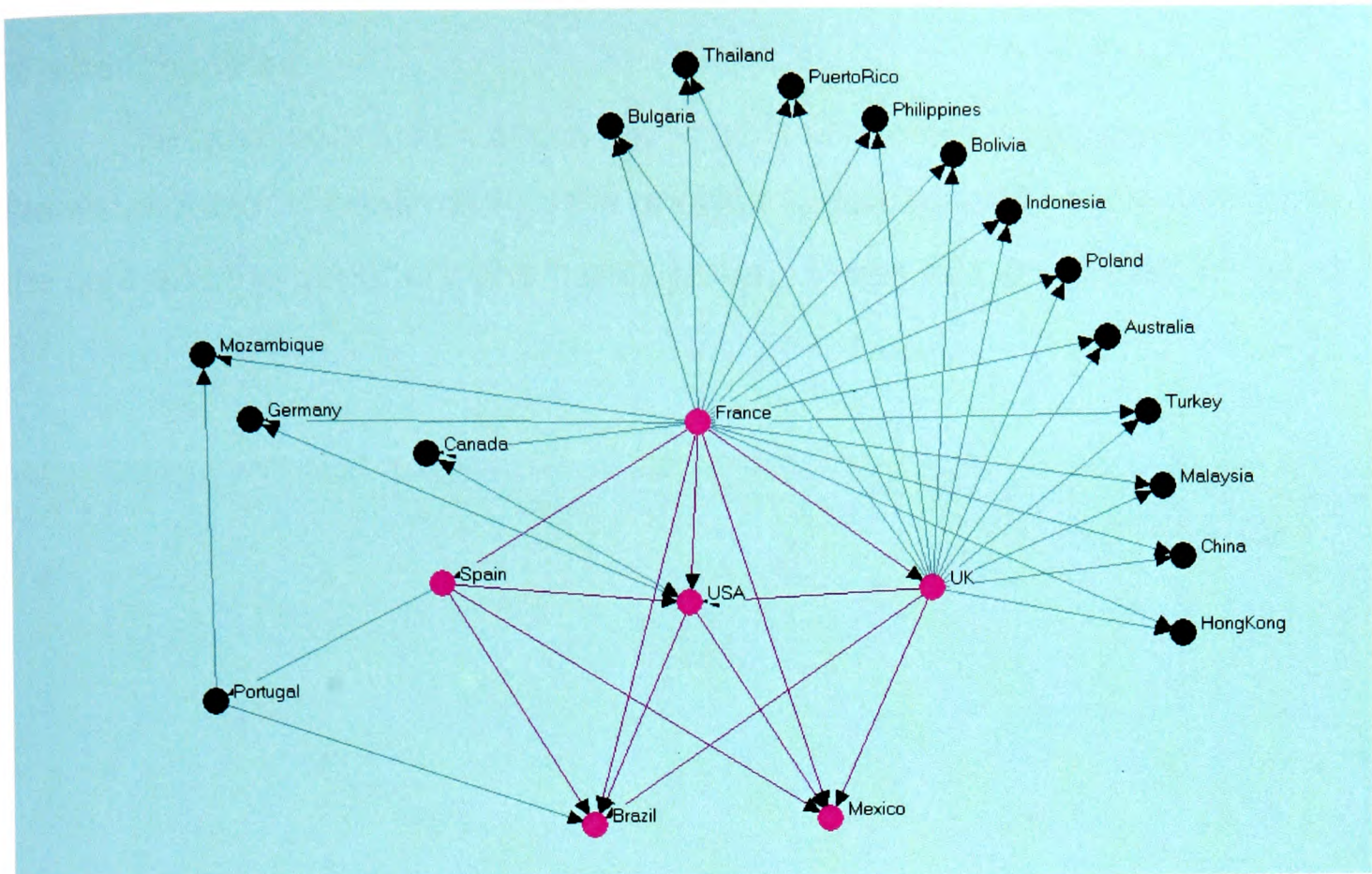


Figure 6.6 Ownership ties between the core and the third group in the water sector

Pink is used to show nodes and ownership ties within the core. Black depicts the nodes (countries) and ownership ties between the core and the countries of the third group. Ownership ties within the third group are also black coloured.

This graph shows that the nodes of the third group are heavily connected in terms of ownership to the core. It can be also seen that the number of ties between the core and the third group is greater than in the previous case. However, the direction of ties remains the same: from the core toward the nodes of the third group.

There are a few exceptions, though. First of all, Germany and the United States have two arrowed relations. The same is true with regard to the relationship between the United States and Canada. In addition, Brazil, one of the countries of the core, is owned by Portugal which belongs to the third group. Nevertheless, this does not weaken the general conclusion significantly, because the overwhelming majority of ties are directed from the core towards the third group.

Furthermore, it is interesting to learn from this diagram that France and the UK have a huge number of joint interests in several countries. French and British companies own shares in Bulgaria, China, Thailand, Puerto-Rico,



Turkey, Australia, Poland, Malaysia, Bolivia, the Philippines, and in a number of other countries.

The main conclusion about the pattern of ownership concentration in the water sector is confirmed by the analysis of ties between the countries of the core and the periphery (the fourth group). These ties are shown in Figure 6.7.

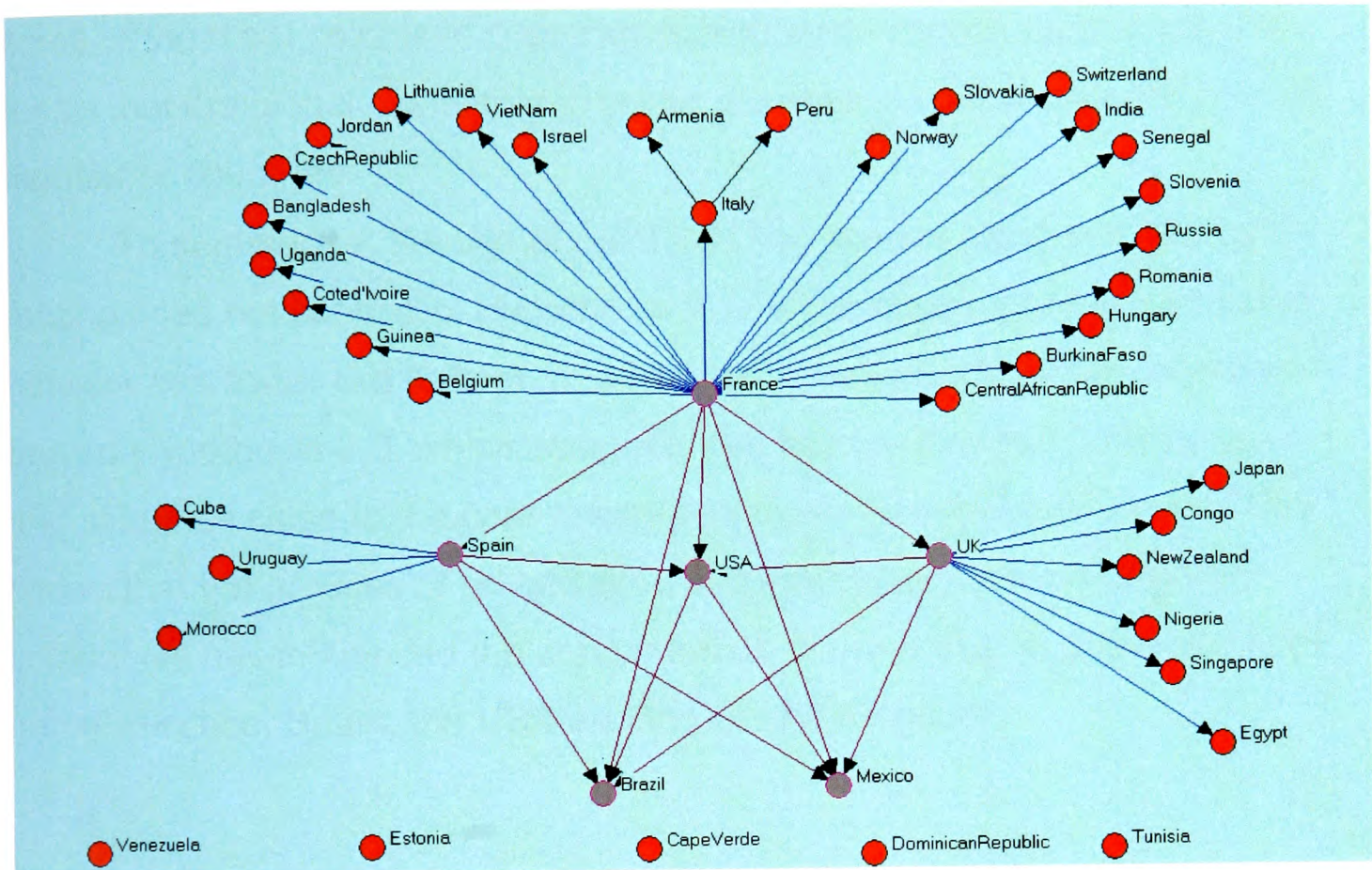


Figure 6.7 Ties between the core and the periphery (the water sector)

This visual image proves that the three countries of the core (France, the UK and Spain) own water companies of the periphery. In fact, this graph not only confirms the above-mentioned pattern of ownership concentration but also it can be seen as a good illustration of the star-like pattern of ownership in the water industry, in which a few countries of the core own water companies of the rest of the world.

The ties of Brazil and Mexico, other two countries of the core, with the countries of the other groups are worth of special note. A brief overview of the previous diagram reveals that companies of Mexico and Brazil do not own any companies in the countries of other groups. Moreover, it can be seen in Figure 6.6 that some of Brazilian companies are owned by Portugal

multinationals. It has proved once more that being in the core does not necessarily mean that a country is one of the major owners. On the contrary, Brazil and Mexico are in fact the most colonised countries. Ways of dealing with this controversy are discussed in more detail in the next section. In the meantime, it needs to be remembered that the term “core” used in the sections dealing with K-cores refers to the most connected part of the network, which means that the core includes not only major owners but also some of the most colonised countries, which by no means contradicts the thesis that the global ownership in public services is concentrated in a small number of countries.

To summarise, the use of point and line images along with the core routine does not contradict Hypothesis 2.1, which states that the ownership network has a star-like pattern. In addition, our analysis in this section has proved Hypothesis 2.2, which assumes that ties are directed from the core and countries close to the core towards the more peripheral countries. This shows that the process of privatisation and internationalisation of water companies has influenced the concentration of ownership in a few countries, namely France, Spain, the USA and the United Kingdom.

### **6.1.3 The Use of Centrality for Analysis of Ownership in the Water Sector**

The controversy regarding the core mentioned in the previous session can be avoided by the use of some *centrality* measures, in particular it is possible to use *out degree centrality* and *in degree centrality*. For example, the countries with the largest out degree centrality represent largest owning countries and could be seen as the core of the network. By contrast, the countries with the largest in-degree centrality are the most colonised countries. In and out degree centralities for the water industry are presented in Table 6.3.



Table 6.3 Statistics for Non Symmetrical Centrality (The Water Sector)

	<b>Out-degree</b>	<b>In-degree</b>
<i>France</i>	47	0
<i>UK</i>	23	1
<i>Spain</i>	11	1
<i>USA</i>	5	4
<i>Portugal</i>	4	1
<i>Colombia</i>	4	2
<i>Italy</i>	2	1
<i>Canada</i>	1	2
<i>Panama</i>	1	2
<i>Algeria</i>	0	1
<i>Bulgaria</i>	0	2
<i>Armenia</i>	0	1
.	.	.

Source: Appendix 5<sup>51</sup>

It is evident that out-degree centrality is concentrated in a few countries. The analysis of the table shows that out-ties are associated with 11 countries (16.4 %), 90 per cent of these ties are related to 5 countries (7.5 %), and 47 per cent are concentrated in 1 country (1.5 %). The concentration of out-degree can be also presented as the scatterplot shown in Figure 6.8.

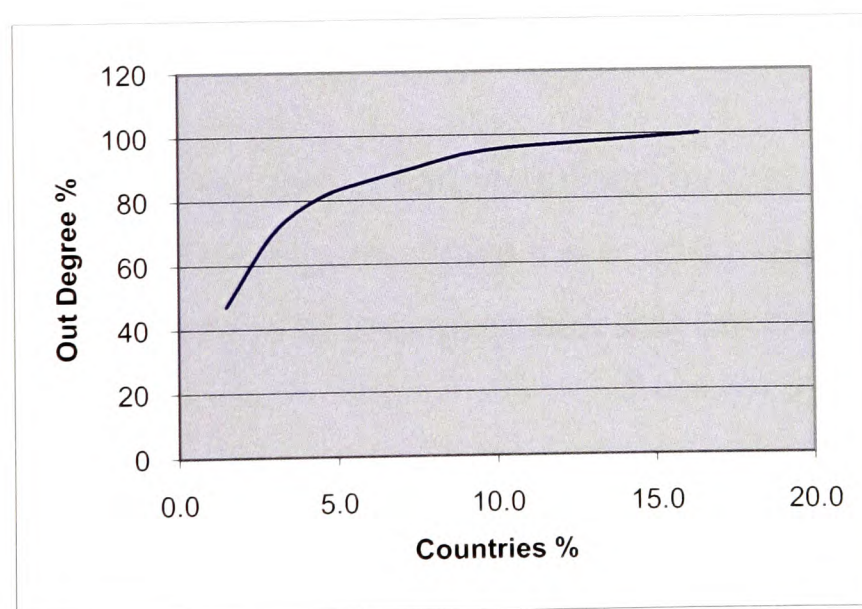


Figure 6.8 Concentration of out degree centrality (countries)

This approach allows us to identify the countries of major owners with a greater accuracy. For example, the countries that can be regarded as the core

<sup>51</sup> Data for all countries of this table is shown in Appendix 5.



of owning countries in the water sector are France, UK, Spain and the USA. In principle, it is even possible to place the countries with the largest out degree centrality in the centre of the diagram, as will be shown in Figure 6.26 in the next section. Yet, this measure has some deficiencies and cannot be recommended as a universal indicator that describes structural properties of ownership networks better than the others.

As far as in-degree centrality is concerned, it is possible to see that its distribution is much more even, as shown in Table 6.4.<sup>52</sup>

*Table 6.4 Frequencies for In-Degree Centrality (The Water Sector)*

<b>Values of In Degree Centrality</b>	<b>Frequency (Countries)</b>	<b>Sums of In Degree Centralities</b>
0	1 1.5%	0 0%
1	42 63.6%	42 42.9%
2	17 25.8%	34 34.7%
3	3 4.5%	9 9.2%
4	2 3%	8 8.2%
5	1 1.5%	5 5.1%
<i>Total</i>	66	98

To make this data more readable, it can be visualised by a scatterplot, as presented in Figure 6.9. This Figure shows the scatterplot of the percentage of countries by the percentage of in-degree ties that are associated with them.

<sup>52</sup> The completed data is presented in Appendix 5.

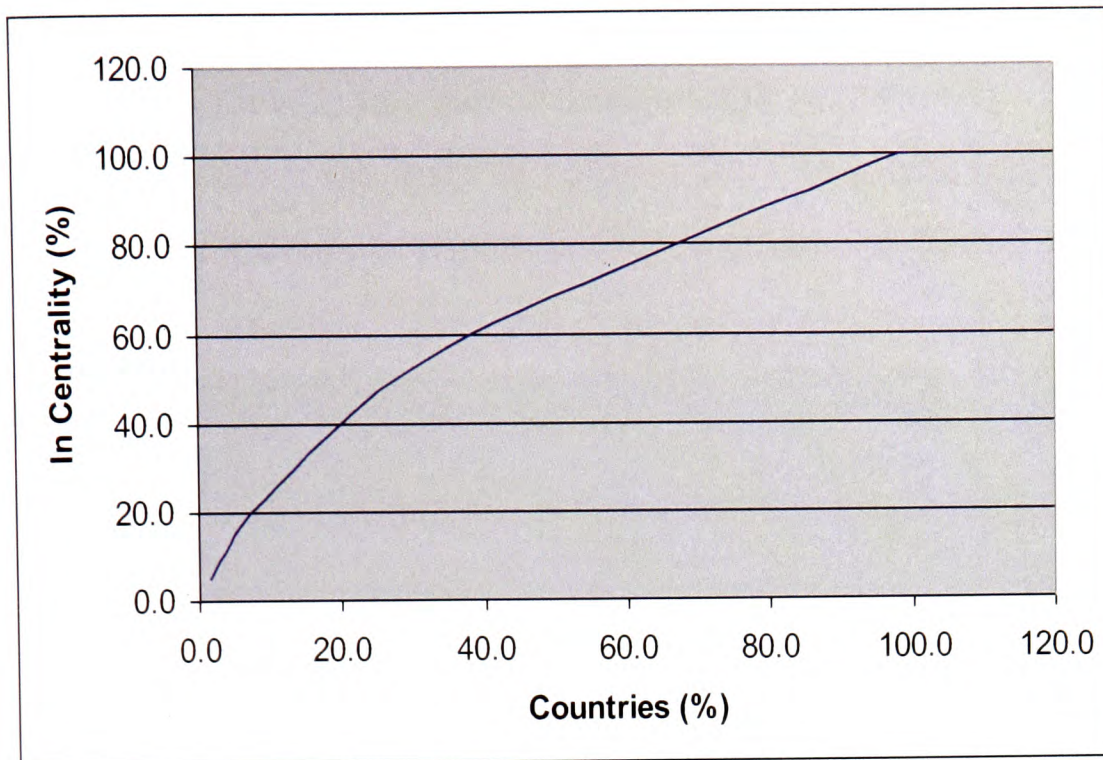


Figure 6.9 Concentration of in degree centrality in the water sector

Although this distribution is closer to the straight line than the distribution of out degree centrality, it is possible to see that there is a higher degree concentration at the beginning of this line. For example, 22.4% of in degree centrality is concentrated in only 6 countries (9%). As can be seen in Table 6.5, the countries that are associated with the concentration of in-degree centrality include the USA, Argentina, Ecuador, Brazil, México and Chile. This is shown in Table 6.5 (in-degree centralities for all countries can be found in Appendix 5).

Table 6.5 Countries with the Highest In Degree Centrality in the Water Sector

	In-Degree Centrality	Out Degree Centrality
Brazil	5	0
USA	4	5
Mexico	4	0
Argentina	3	0
Ecuador	3	0
Chile	3	0

Therefore, the core of colonised countries can be identified as including Brazil, Mexico, Argentina, Ecuador, and Chile (the USA is excluded from this list because this country has also a large out degree centrality).

The significance of the finding that there are countries-major owners and the largely colonised countries is explained in more detail in the Section 4



of this Chapter. Meanwhile, it should be noted that there is another interesting dimension for research with the use of the concept of centrality - it is a study of ownership networks on the level of companies. For example, the ownership network of water companies is shown in Figure 6.10.

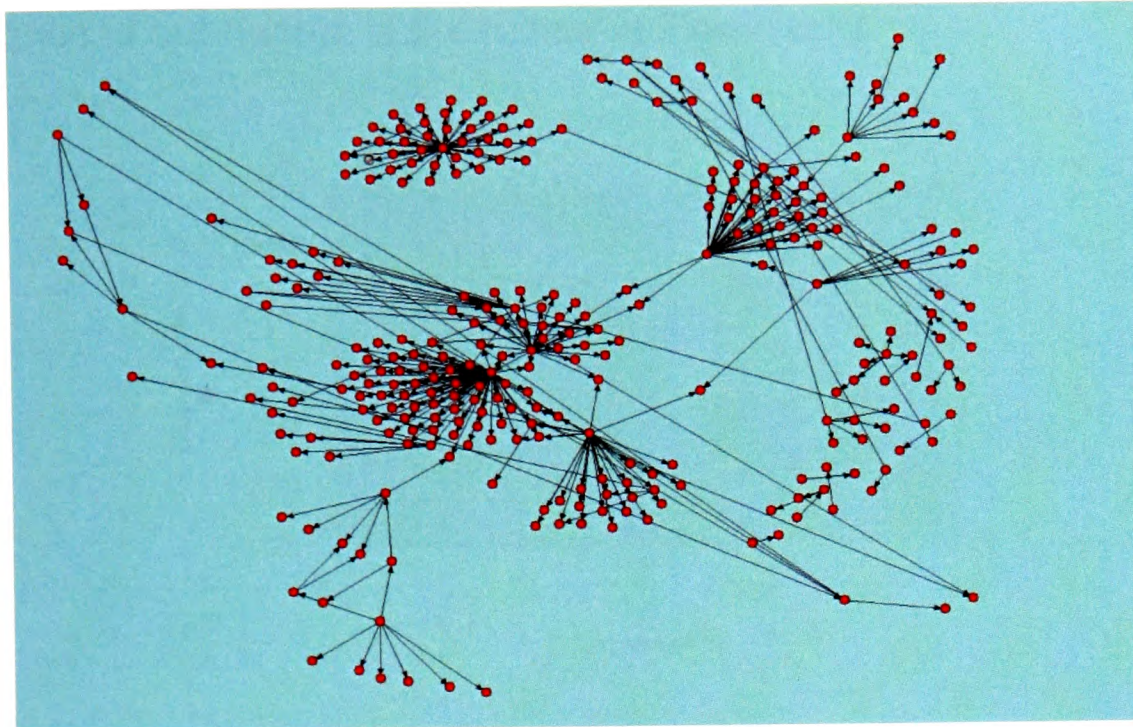


Figure 6.10 Global ownership of water companies

Two types of centrality, degree centrality and betweenness centrality can be successfully used for this analysis. Some out and in-degree centralities for this network appear in Table 6.6.

Table 6.6 Degree Centrality (Non Symmetrical) for the Water Sector

	<b>Out Degree</b>	<b>In Degree</b>
<i>ONDEOServices</i>	61	1
<i>ThamesWater</i>	40	0
<i>SAUR</i>	31	0
<i>ONDEO</i>	30	0
<i>AguasdeBarcelona</i>	29	0
<i>ONDEODegremont</i>	9	1
<i>Acea</i>	8	0
<i>Azurix</i>	8	0
<i>OTV</i>	6	0
<i>AguasdePortugal</i>	6	1
<i>InternationalWater</i>	5	0
<i>GenovaAcque</i>	5	1
<i>Eurawasser</i>	5	1
<i>VivendiWater</i>	4	0
<i>TripleA</i>	4	1
<i>Interagua</i>	3	1
<i>SCVK</i>	3	0
<i>AAAServicios</i>	3	2
.	.	.



As this table shows, out-degree centrality is concentrated in a few companies while the distribution of in-degree centrality is much more dispersed. In fact, out-degree centrality is concentrated in 30 companies (9.9% from 303 companies under study), 90 per cent of these ties are related to 17 companies (5.5 %), and 57 per cent are associated with 2 companies (0.7 %). The concentration of out-degree is presented in Figure 6.11.

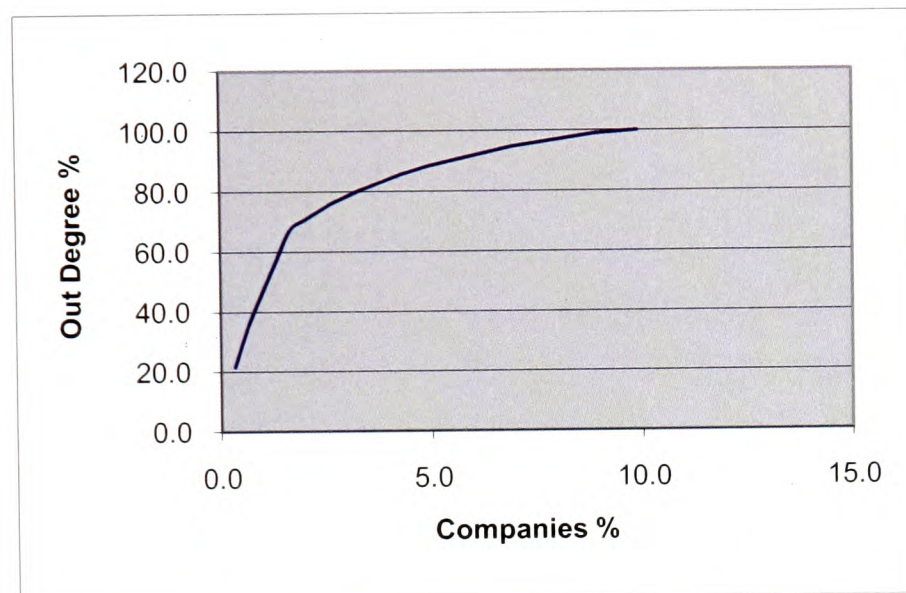


Figure 6.11 Concentration of out degree centrality (companies)

Unfortunately, this index in large measure depends on the number of companies associated with any particular company rather than it depicts structural properties of the entire network. A more universal measure can be given by *betweenness centrality*. Companies with the greatest betweenness centrality are shown in Table 6.7.

Table 6.7 *Betweenness Centrality of Some Water Companies*

	1 Betweenness	2 nBetweenness
	-----	-----
ONDEOServices (181)	67.500	0.074
Eurawasser (109)	10.000	0.011
TripleA (284)	10.000	0.011
AAAServicios (1)	9.000	0.010
GenovaAcque (119)	8.000	0.009
ONDEODegremont (176)	7.500	0.008
AguasdePortugal (33)	6.000	0.007
AMGA (5)	5.000	0.006
Sino-FrenchWaterDevelopment	4.000	0.004
AguasMetropolitanas (23)	3.000	0.003
INASSA (129)	3.000	0.003
LASSA (142)	3.000	0.003
AcquaItalia (12)	2.000	0.002
.....	.....	.....



It can be noted that the company with the largest out-degree centrality (Ondeo) has also the greatest betweenness score. It is also can be seen in Figure 6.12 that companies with highest betweenness centrality occupy important places in the ownership network. Nevertheless, betweenness centrality is not particularly useful for measuring ownership concentration and does not contribute much to our analysis.

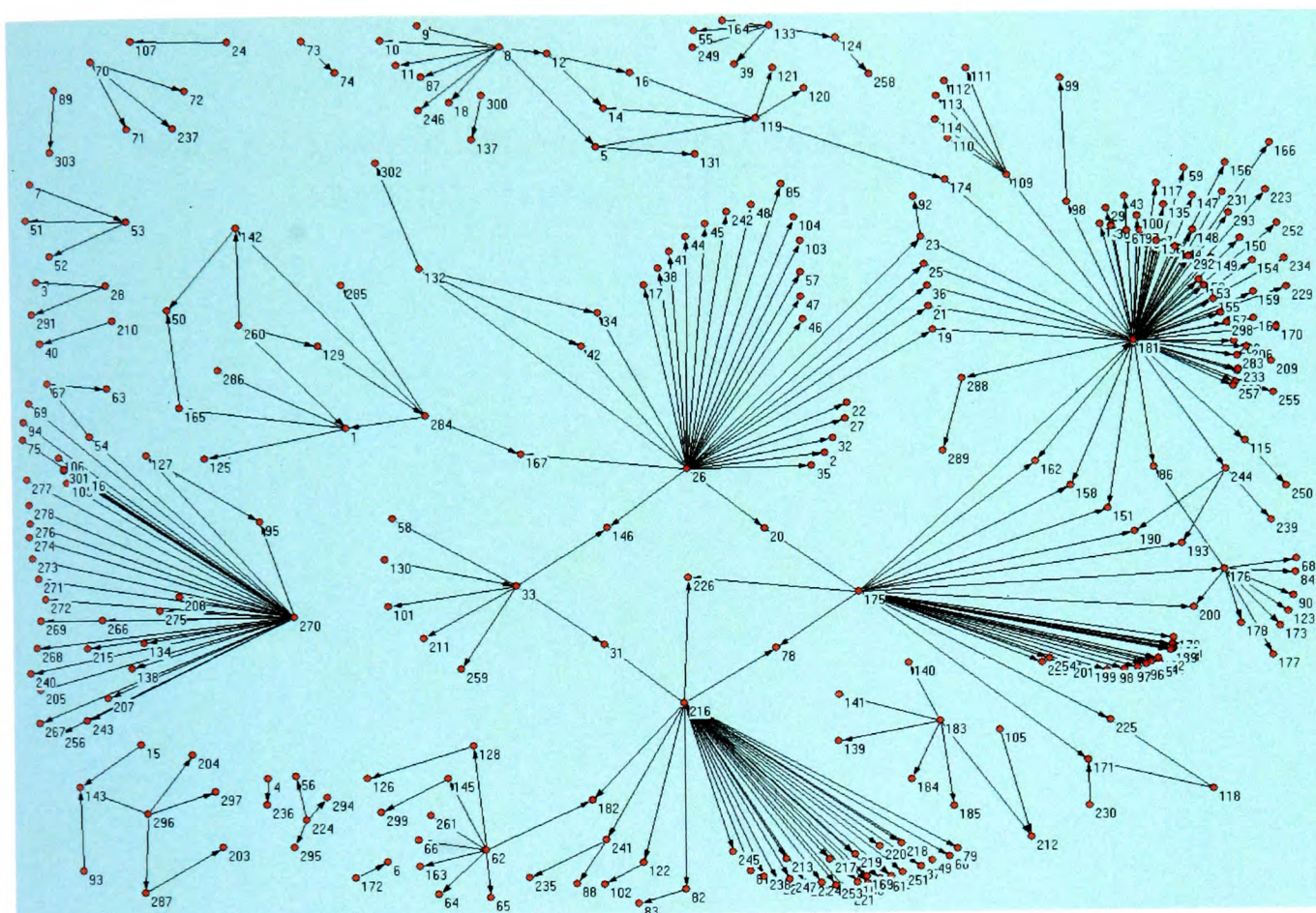


Figure 6.12 Ownership ties between water companies

To sum up, the concept of centrality helps to describe some structural properties and avoid controversy with entities of the core. It contributes to our analysis and can be used both on the levels of companies and countries. Importantly, the main findings on the level of companies resemble the results that have been obtained on the level of countries. It allows us to focus in the following analysis on the level of countries since research on the level of companies is considerably more difficult.

### 6.1.4. The Measure of Distance in the Analysis of Ownership Ties in the Water Sector

The results of the previous sections can be confirmed by using another measure of social network analysis – distance. As it has been noted in Chapter 2, distance between two nodes is the length of the shortest part between them. The matrix of distances for the water sector is presented in Matrix 6.1.

*Matrix 6.1 Matrix of Distances between Countries in the Water Sector*



The value of distance in this matrix shows how far companies of each pair of countries are from one another. For example, if the value of distance between country A and country B is equal 2, this means that some multinational corporations of country A own indirectly some companies of country B, and the closest pair of the parent-subsidary companies has one media company between them. No distance value shows that the pair of countries is not connected in term of ownership at all. Note that that this



matrix is non symmetrical, which reflect the fact that the relationship of ownership is directed.

It is evident that most values for distances of this table are equal to 0. This shows that most of the countries are not connected in terms of ownership. In other words, the pattern of this network differs considerably from the integrated pattern shown in Figure 5.5. On the other hand, in this table there are a few rows which have many non-zero distance values. These rows represent countries which are very close in terms of corporate ownership to most of the other countries. In other words, companies of these countries directly (if distance is 1) or indirectly (if distance more than 1) own some companies of the rest of the world. These countries are France, Spain, the UK and the USA.

The analysis of the matrix of distances reveals that the pattern of ownership concentration is star-like and that France, Spain, the UK and the USA occupy the core of this structure. It should be noted that this technique can be used to eliminate the countries which despite being incorporated in the core under K-core routine are colonised countries rather than the dominating ones.

#### **6.1.5. Analysis of the Relevance of Three Polar Models for Water**

This section examines the appropriateness of the Three Polar Model (TPM) and its extended version (ETPM) for the study of the international ownership network in the water sector. The Three Polar Model in terms of ownership ties of water companies is presented in Figure 6.13. The red nodes on the top of diagram represent the countries of the first pole, namely Canada and the United States. The group of countries depicted in black on the left represents the second pole (the European Union). Blue is used for Japan, which is located on the right.



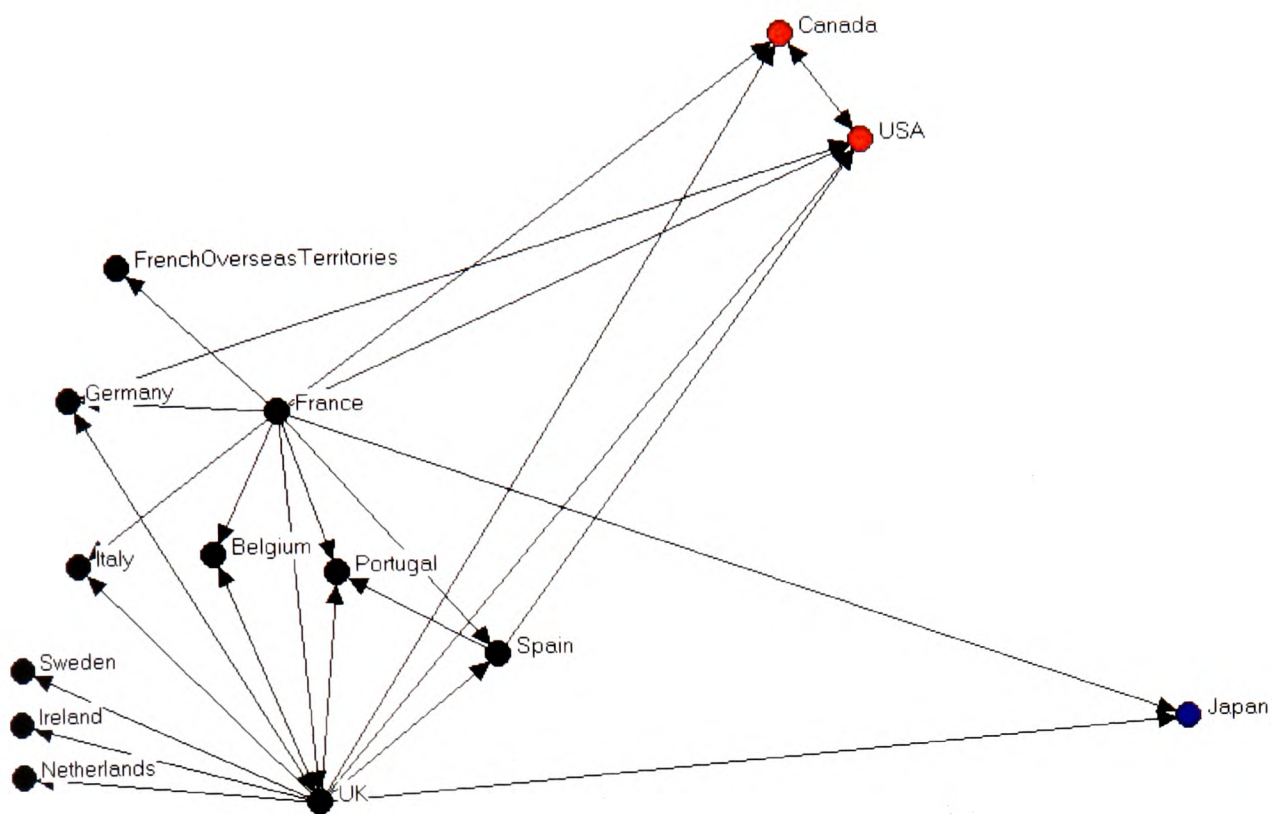


Figure 6.13 Map of ownership acquisitions in the water sector in terms of the Three Polar Model

This Figure shows that there are many ties between the poles. However, there are several important differences from the Three Polar Model. For example, there are no ownership ties between Japan and North America. Also, Japan does not own water companies in European Union.

A number of further interesting conclusions can be drawn from the visual image that shows ties between poles only, leaving aside ownership ties within the European Union and within North America, as can be seen in Figure 6.14.

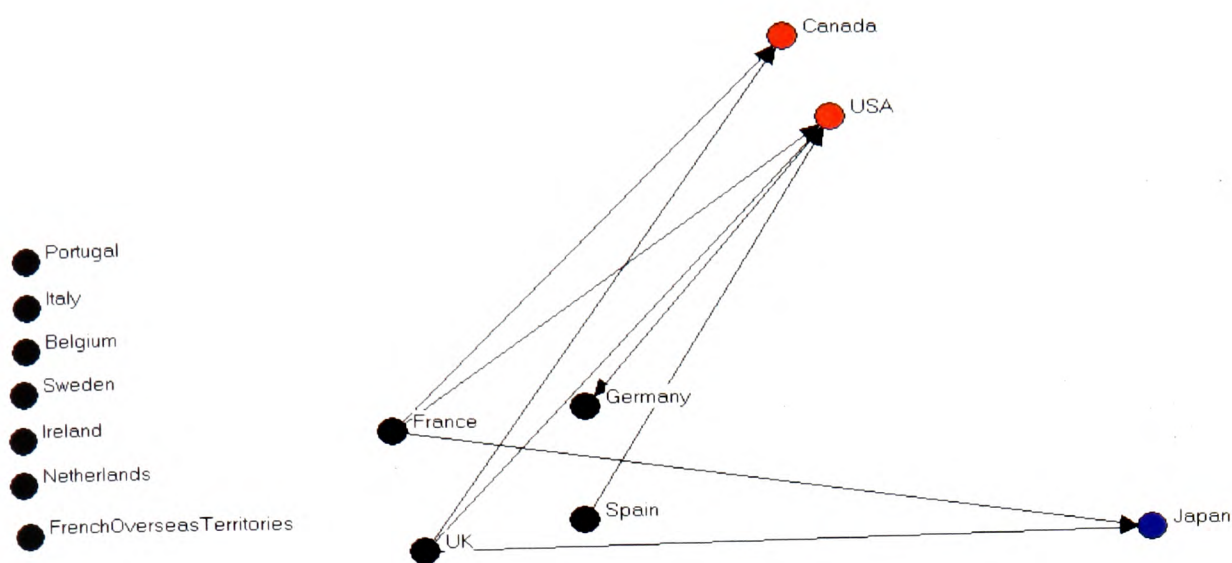


Figure 6.14 Map of ownership acquisitions in the water sector in terms of the Three Polar Model (only between poles ties are included)

This graph shows that only few countries of the European Union are connected with the two other poles while there is no Japan-USA link. In addition, it is evident that only a few European countries, such as Germany, France, the UK and Spain have corporate ownership ties with the countries that belong to other poles, while the other countries of the EU are excluded from this type of interaction. The fact that only four out of 11 countries are involved in international acquisitions in the water sector reflects that European-American acquisitions in this industry are not very common and this may also to some extent invalidates this model. To sum up, it is possible to conclude that the Three Polar Model *in terms of connections* does not particularly fit the ownership network of the water sector and this conclusion does not need to be verified by other SNA techniques, because Figure 6.14 demonstrates this clearly.

However, as far as the Three Polar Model *in terms of concentration* (the Triad thesis) is concerned, the situation is very different. It can be drawn from Table 6.3 (in Section 6.1.3) that 95% of out-degree centrality in the water sector are associated with the countries of the Triad. This shows a very high degree of concentration of ownership (in terms of out-degree centrality) in the blocs of the Triad. Consequently, the Three Polar Model in terms of concentration is valid for the description of the global ownership network in



the water sector, and these findings are consistent with the Triad thesis (Hirst & Thomson, 1996).

Furthermore, it is of interest to check whether there are modifications of the Three Polar Model in terms of connections that are more suitable for describing the ownership network of the water sector. For example, the final part of this subsection tests the appropriateness of the Extended Three Polar Model for this purpose. Figure 6.15 shows acquisitions in the water sector within and between poles used in the ETPM. In this visual image the countries of the European Union are represented by black nodes, North America is depicted in red, and Asian countries are green. Latin America is represented by grey nodes, and African countries are pink.

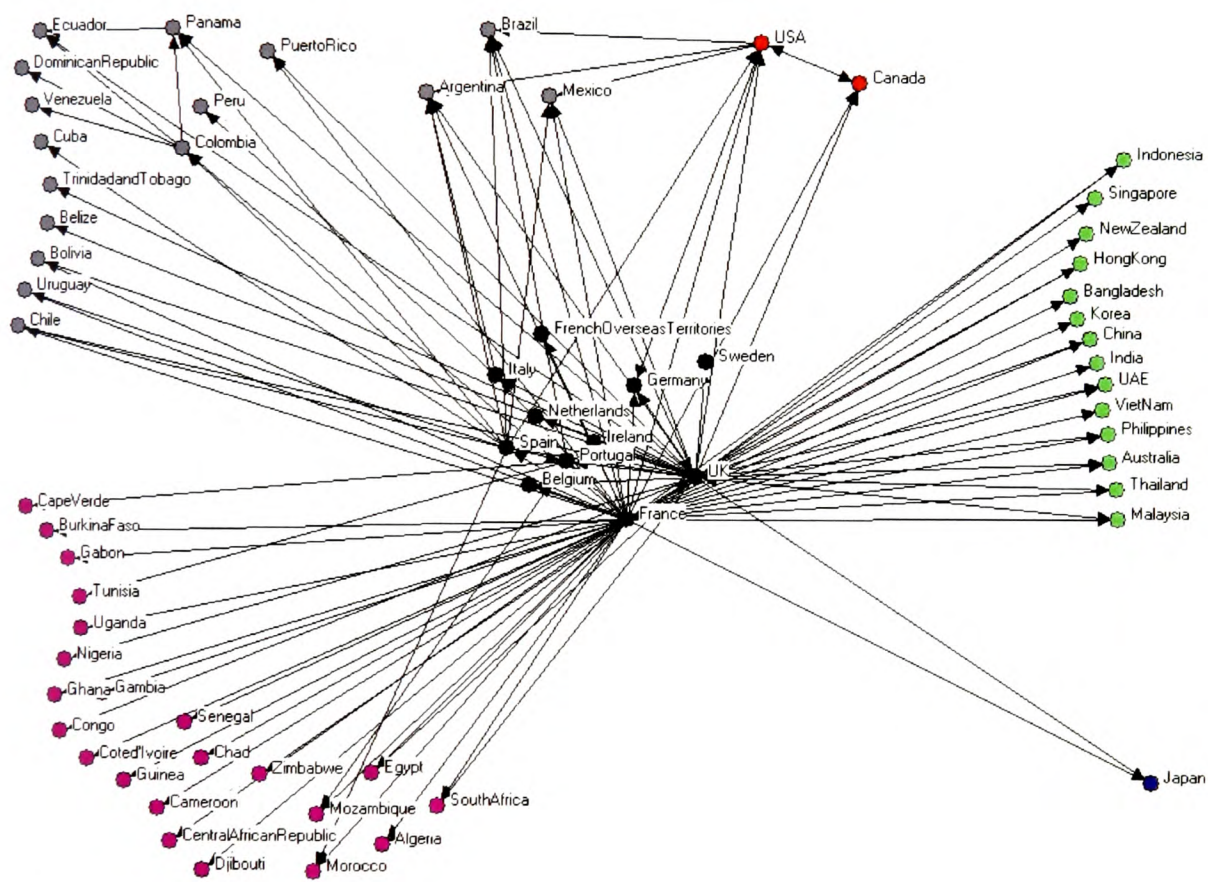


Figure 6.15 Ownership network of the water sector in terms of the Extended Three Polar Model

The graph demonstrates the considerable difference of the ownership structure of the water sector from the Extended Three Polar Model. The difference is so big that an attempt to locate the groups of countries in accordance with the poles of the ETPM would make the image unreadable. In fact, it is possible to find only two similarities between the ownership network of the water sector and the ETPM: the first similarity is the presence of numerous ties between Europe and Africa, and the second resemblance is

the existence of a few ties connecting Latin American countries with North America.

By contrast, dissimilarities between the ETPM and the ownership structure of the water sector far exceed their similarities. For example, the countries of the European Union are connected with all other groups of this diagram, i.e., North America, Japan, Africa, Asia and Latin America. Another difference is the absence of ties between Asia and Japan.

Thus, it is possible to conclude that the Extended Three Polar Model even less suitable for describing the ownership network in the water sector than the Three Polar Model. On the contrary, the ownership structure seems to have only one pole, the European Union. In other words, a one polar model, in which the European Union represents the core of the system, could be much more appropriate.

This conclusion will be even more apparent if all of the ownership ties between the European Union and other regions presented in the ETPM are eliminated. This can be seen in Figure 6.16 which shows the previous graph but does not include ties from the European Union to other groups. The total fragmentation of this network is evident.

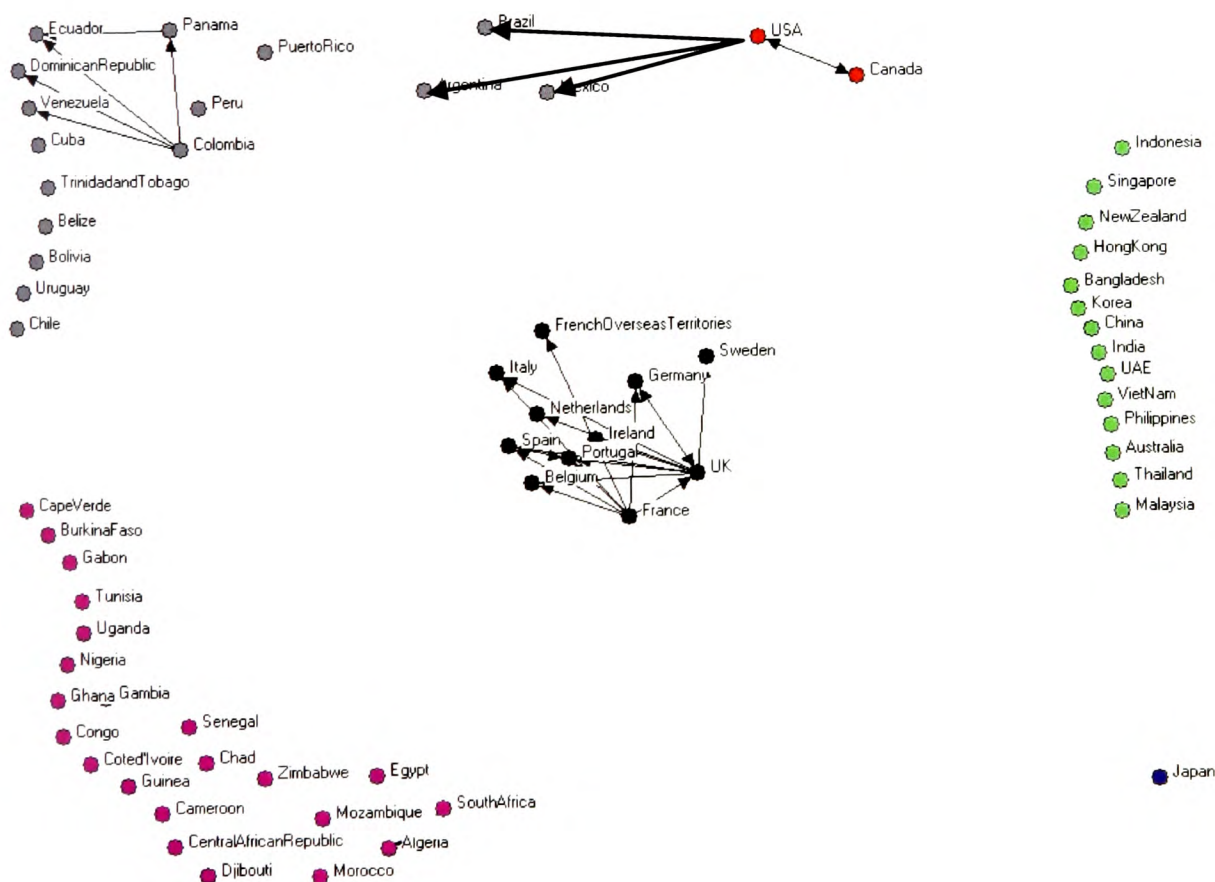


Figure 6.16 Ownership network of the water sector without ties between Europe and other poles



Furthermore, it can be seen in Figure 6.15 that the global interconnectivity of the network is reached via ties of a handful of countries, which can be called as *interconnecting countries*. This is done through ties of a few EU countries, such as UK, France, Germany and Spain. To sum up, findings of this section show that the Three Polar Model and the Extended Three Polar Model are not particularly appropriate for describing the ownership structure of the water sector. Instead, a centre-periphery model seems to be much more relevant for this purpose.

## 6.2. Electricity Sector

This section tests the hypotheses by examining the data set of electricity companies. The structure of this section is similar to the previous one. First, it identifies the number of components in the ownership network of the electricity sector. Then it describes the general pattern of this network, which is done in two ways – by calculating the index of centralization and by using the K-core routine. Finally, the matrix of distances is calculated, and the results of its analysis are presented.

The point and line image of international ownership ties between companies of the electricity sector is presented in Figure 6.17.

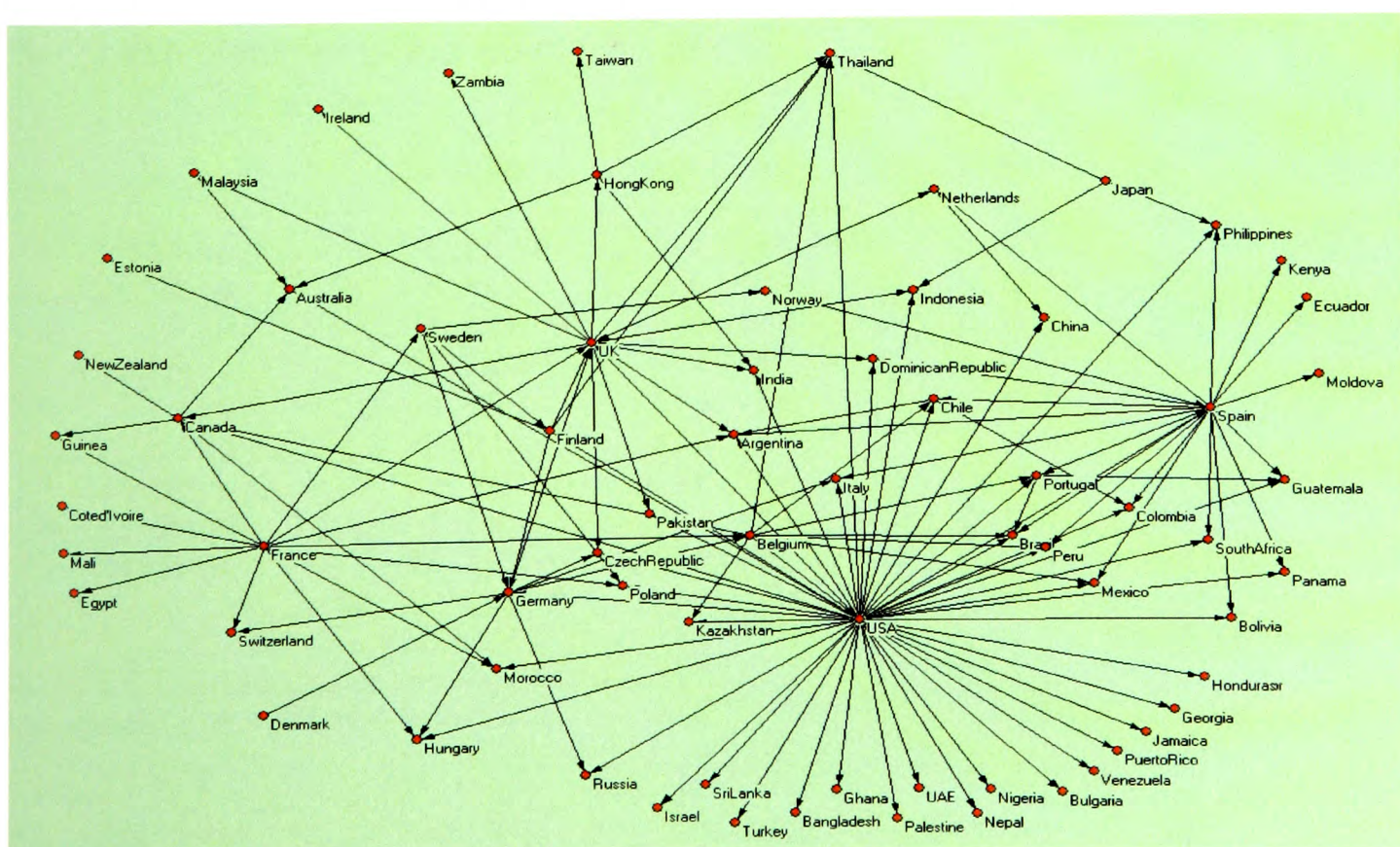


Figure 6.17 Internationalisation of ownership in the electricity sector

It is evident that the network of ownership ties has only one component. It proves Hypothesis 1 regarding the presence of only one component in the ownership network. However, it is difficult to make further conclusions about the pattern of this network without an additional analysis. The analysis is done in the following sections.

### 6.2.1. The Use of Degree Centralization in the Analysis of Ownership Concentration in the Electricity Sector

In order to describe the pattern of ownership in the electricity sector and to test Hypotheses 2.1 and 2.2, the index of degree centralization is calculated. The index of centralization for the electricity sector, calculated by Ucinet 6.0., is equal to 65.9%. It is a bit smaller than the degree centralization of the water industry. Nevertheless, it shows that this network has a star-like pattern. In other words, the value of the index of centralization confirms Hypothesis 2.1. The index of symmetrical degree centralization and some other parameters are presented in Table 6.8.

*Table 6.8 Descriptive Statistics for Symmetrical Centralisation of the Ownership Network of the Electricity Sector*

		1	2	3
		Degree	NrmDegree	Share
1	Mean	3.829	5.549	0.000
2	Std Dev	6.412	9.293	0.000
3	Sum	268.000	388.406	0.000
4	Variance	41.113	86.355	0.000
5	SSQ	3904.000	8199.958	0.000
6	MCSSQ	2877.943	6044.829	0.000
7	Euc Norm	62.482	90.554	0.000
8	Minimum	1.000	1.449	0.000
9	Maximum	48.000	69.565	0.000

Network Centralization = 65.90%  
Homogeneity = 5.44%



The statistic for non symmetrical centralisation is presented in Table 6.9. It does not differ significantly from the statistic for centralisation in the water sector.<sup>53</sup>

*Table 6.9 Descriptive Statistics for Non Symmetrical Centralisation of the Ownership network of the Electricity Sector*

	1	2	3	4
	OutDegree	InDegree	NrmOutDeg	NrmInDeg
1 Mean	1.971	1.971	2.857	2.857
2 Std Dev	6.390	1.242	9.260	1.800
3 Sum	138.000	138.000	200.000	200.000
4 Variance	40.828	1.542	85.755	3.239
5 SSQ	3130.000	380.000	6574.250	798.152
6 MCSSQ	2857.943	107.943	6002.821	226.723
7 Euc Norm	55.946	19.494	81.082	28.252
8 Minimum	0.000	0.000	0.000	0.000
9 Maximum	47.000	6.000	68.116	8.696

Network Centralization (Outdegree) = 66.205%

Network Centralization (Indegree) = 5.923%

Table 6.9 indicates that the ties are mostly directed from the centre to the periphery. This confirms Hypothesis 2.2.

### **6.2.2. The Use of Visualization along with the Core Routine in the Analysis of Ownership Concentration in the Electricity Sector**

The result of testing Hypothesis 2.1 and Hypothesis 2.2 which have been obtained in Section 6.2.1 can be double proved by the use of the point and line format of visualization together with the K-core routine.

<sup>53</sup> It should be noted that when we talk about centralisation indices for different size networks in this dissertation, we do not compare equivalent statistics, but merely state that nominal values of the indices of centralisation for networks under study are slightly different (or similar).

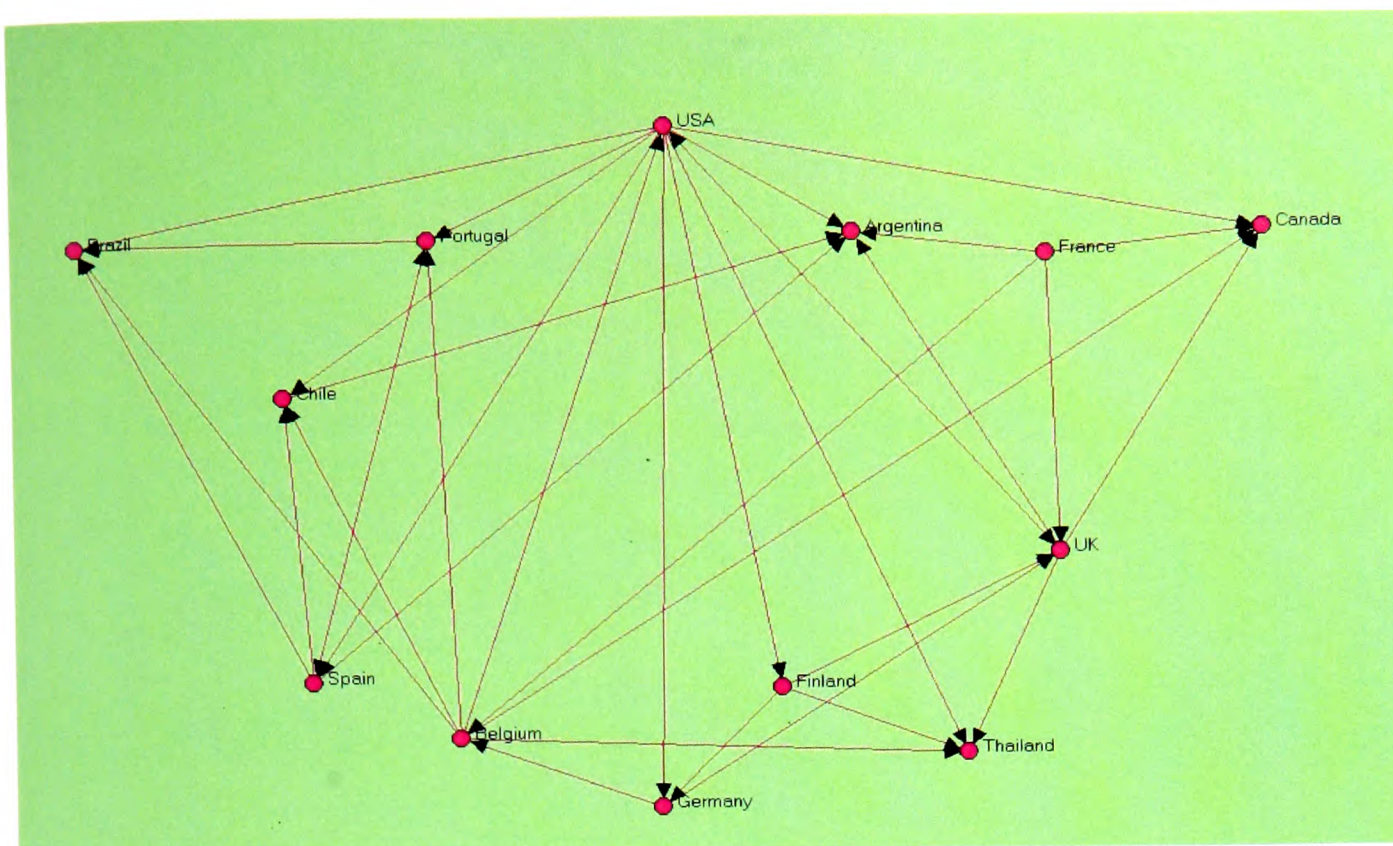


Figure 6.18 Core of the ownership network of the electricity sector

K-core routine has divided the entities of the electricity sector into four groups of countries. It is evident that the core of the electricity sector (shown in Figure 6.18) is more complex than the core of the water industry. It consists of thirteen countries. The United States occupies a special position in this network. However, the further conclusions about the interaction within the core are difficult to make. An in depth analysis of the ties within the core group is required and it is presented later in this section. In the meantime, ties between other groups are to be analyzed.

An analysis of ties reveals that the other three groups have few connections between each other. The image in Figure 6.19 demonstrates this well. Since there are only few ties between the countries of these groups, they can be presented in one diagram, as shown in Figure 6.19. In this Figure, red nodes represent the countries of the periphery. Black and grey nodes depict the countries of the second and the third groups.



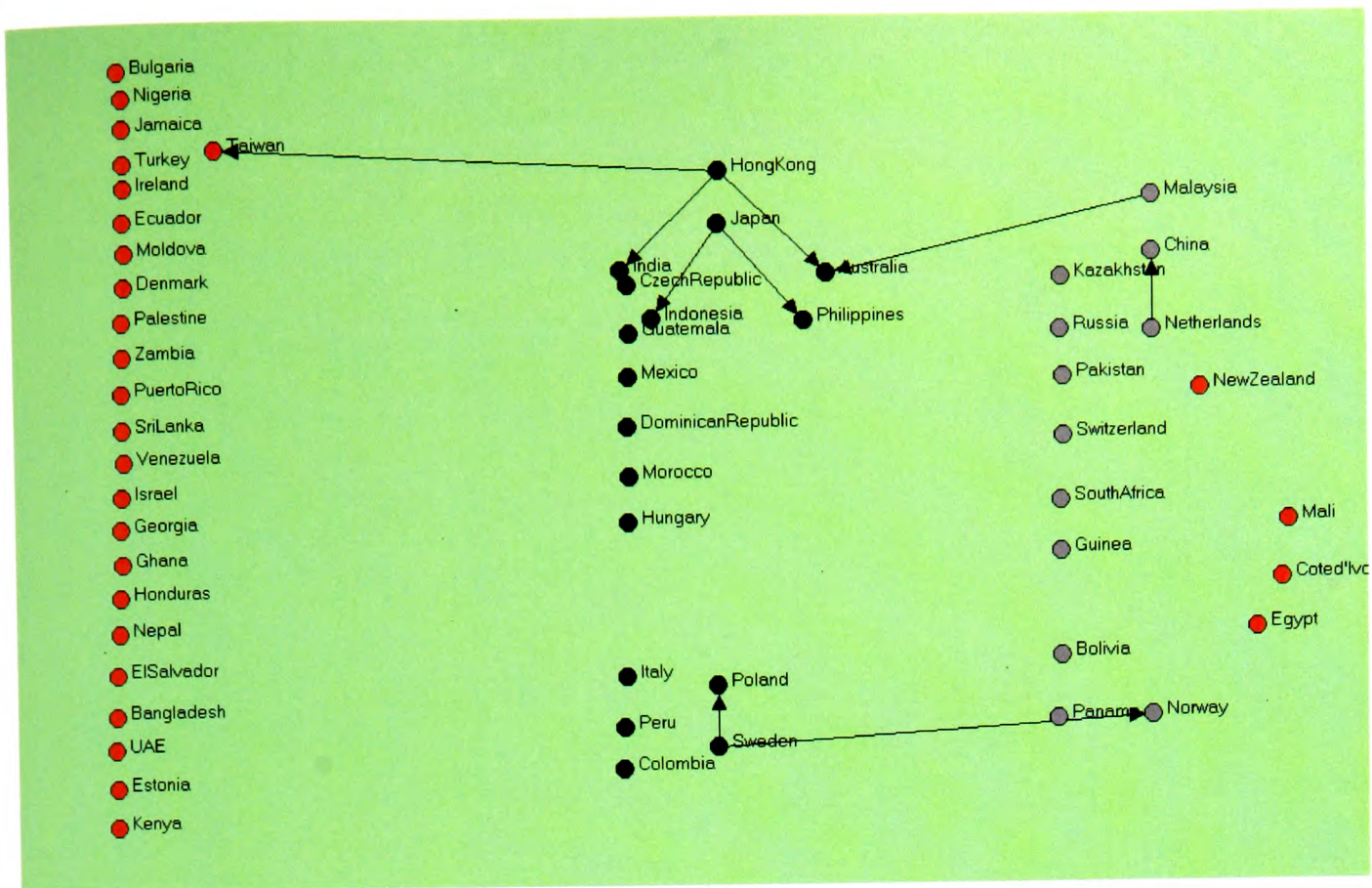


Figure 6.19 Three groups of the electricity sector

It is interesting to notice that the countries of the periphery (the red group) do not have ownership ties between each other. There are five ties within the second group, and only one pair within the third group is connected by an ownership tie. Similarly, these groups are almost disconnected. It is possible to see just one tie between the periphery and the second group (Hong Kong - Taiwan). The second and the third groups are connected by two ties: Malaysia - Australia, and Sweden – Norway. It should be also noted that the ties are mostly directed from the group closest to the core (the second group) towards more peripheral groups.

Although above mentioned groups have almost no ties between one another, they are strongly connected to the core as can be seen in Figure 6.20, 6.21, and 6.22. The diagram in Figure 6.20 shows the ties between the core and the second group, which is the closest to the core in terms of the number of ties. The nodes of the two groups are located on the opposite sides of the diagram in order to make it more readable. The countries of the core are located on the left, while the countries of the second group occupy positions on the right.



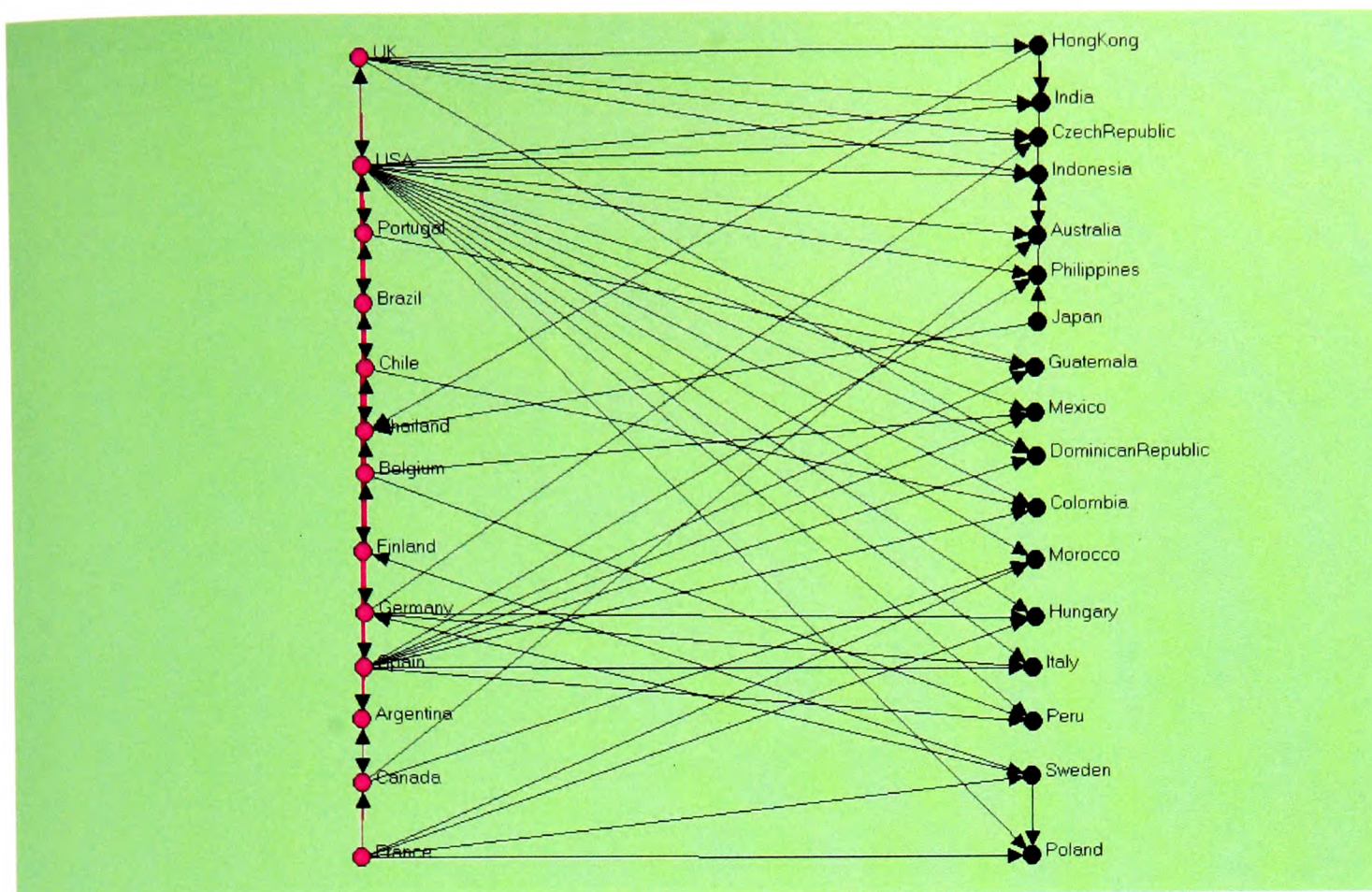


Figure 6.20 Ownership ties between the core and the second group of the electricity sector

It is evident that the number of ties in this Figure is significantly larger than in the previous one. This diagram demonstrates that the direction of ties is from the core towards the countries of the second group. It is easy to see that only three out of eighteen ties are directed towards the core, in particular from Sweden to Finland and Germany, from Japan to Hong Kong, and from Japan to Thailand, whereas the overwhelming majority of the ties go from the left to the right. This indicates that the ownership is concentrated in some countries of the core.

The network of ownership ties between the core and the third group has the similar pattern, as shown in Figure 6.21. In this Figure, pink represents the nodes and the ties within the core, while grey is used for the nodes of the third group. Black lines show ownership ties within the third group and between the core and the third group.



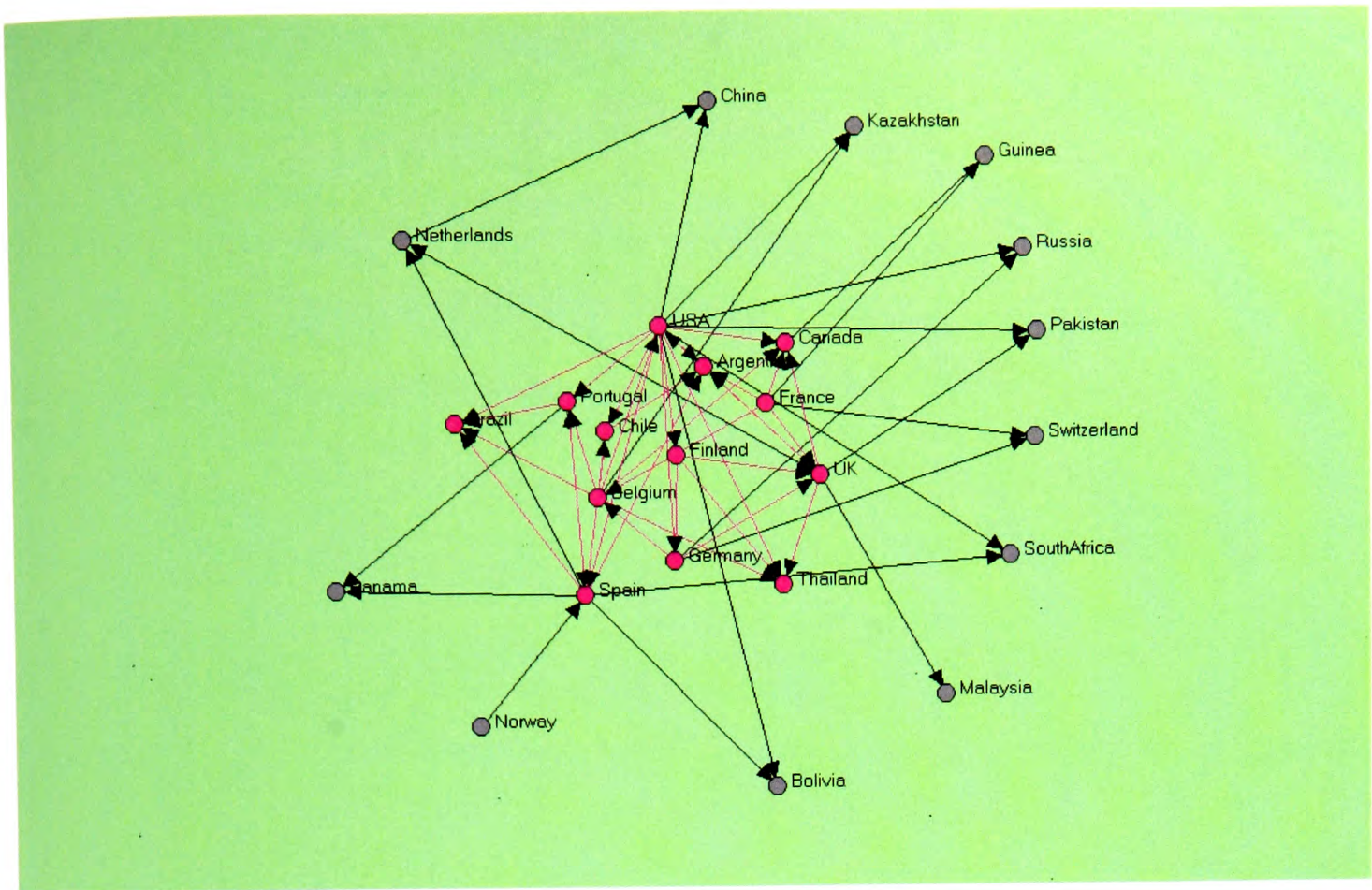


Figure 6.21 The core and the third group of the electricity sector

This visual image shows that the third group is less integrated. However, ownership ties are again directed from the core towards the third group. The only exception is the pair Norway–Spain. Hence, this graph confirms that ownership is concentrated in a few countries of the core.<sup>54</sup>

The analysis of ties between the nodes of the core and the nodes of the periphery (the last group) reveals the same pattern. These ties are presented in Figure 6.22. This Figure hardly needs any comment since it is evident that companies of the core own companies in the countries of the periphery.

<sup>54</sup> Ties of nodes of the core differ in their structural properties, though. It is shown later in this section.



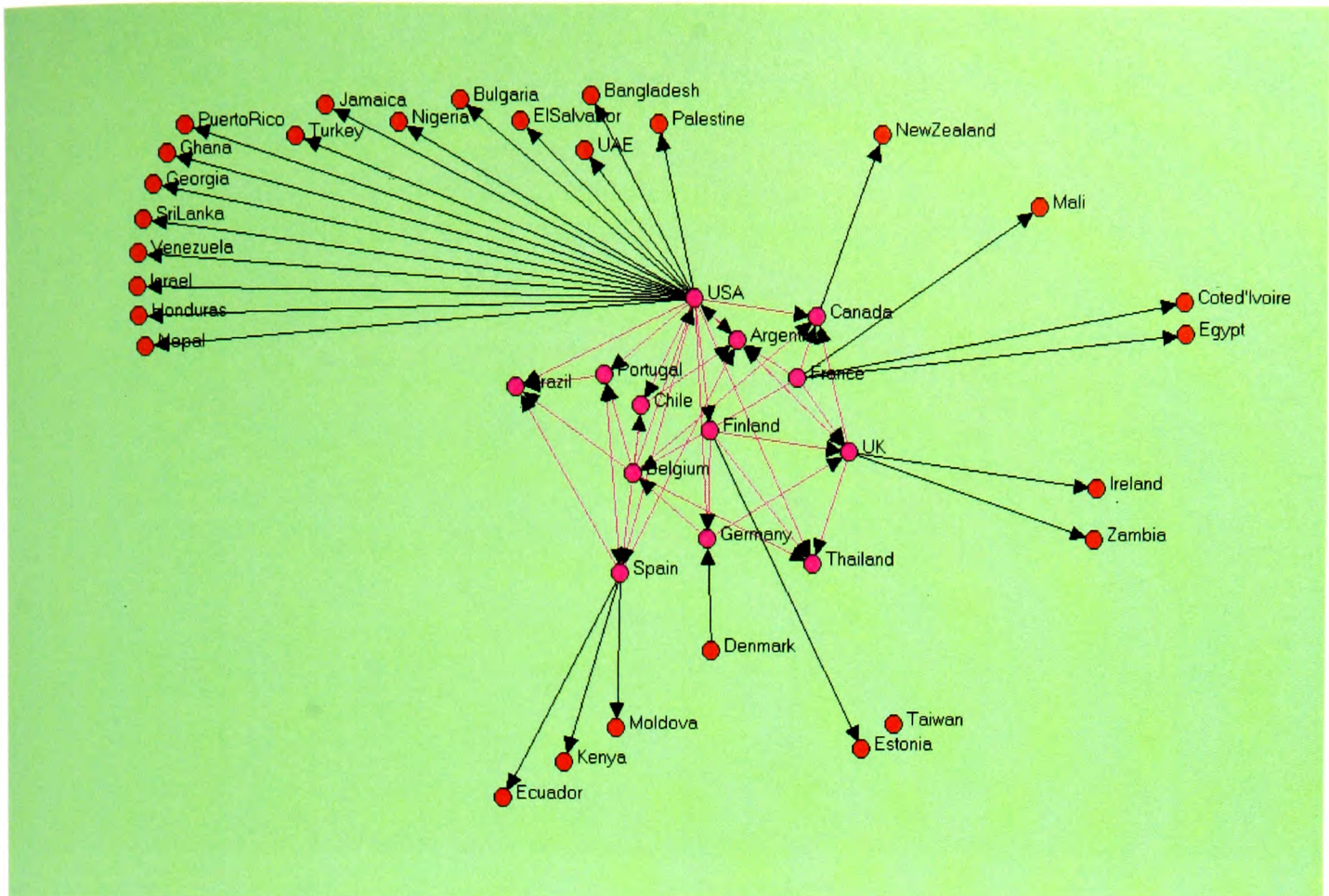


Figure 6.22 Core and periphery of the electricity sector

It should be noted again that if a country belongs to the core, it does not necessarily mean that this country has acquired ownership in other countries as has been explained in detail in Section 6.1.2, Section 6.1.3, and Section 6.1.4. This is also true with regard to the electricity sector as can be seen in Figure 6.23. This graph highlights the complex structure of the core by portraying the ties between the core and the second group.

Five subgroups of the core can be identified in this visual image. The first group consists of the USA, Belgium, the UK and France. This subgroup can be called *the owners*. The second subgroup includes Brazil and Argentina. This is the subgroup of completely *colonised countries*. Another subgroup is the medium between *the owners* and *colonised countries*. It consists of Chile, Portugal and Spain. The last subgroup is the medium between *the owners* and the second group. This subgroup includes Finland, Germany, Thailand and Canada.



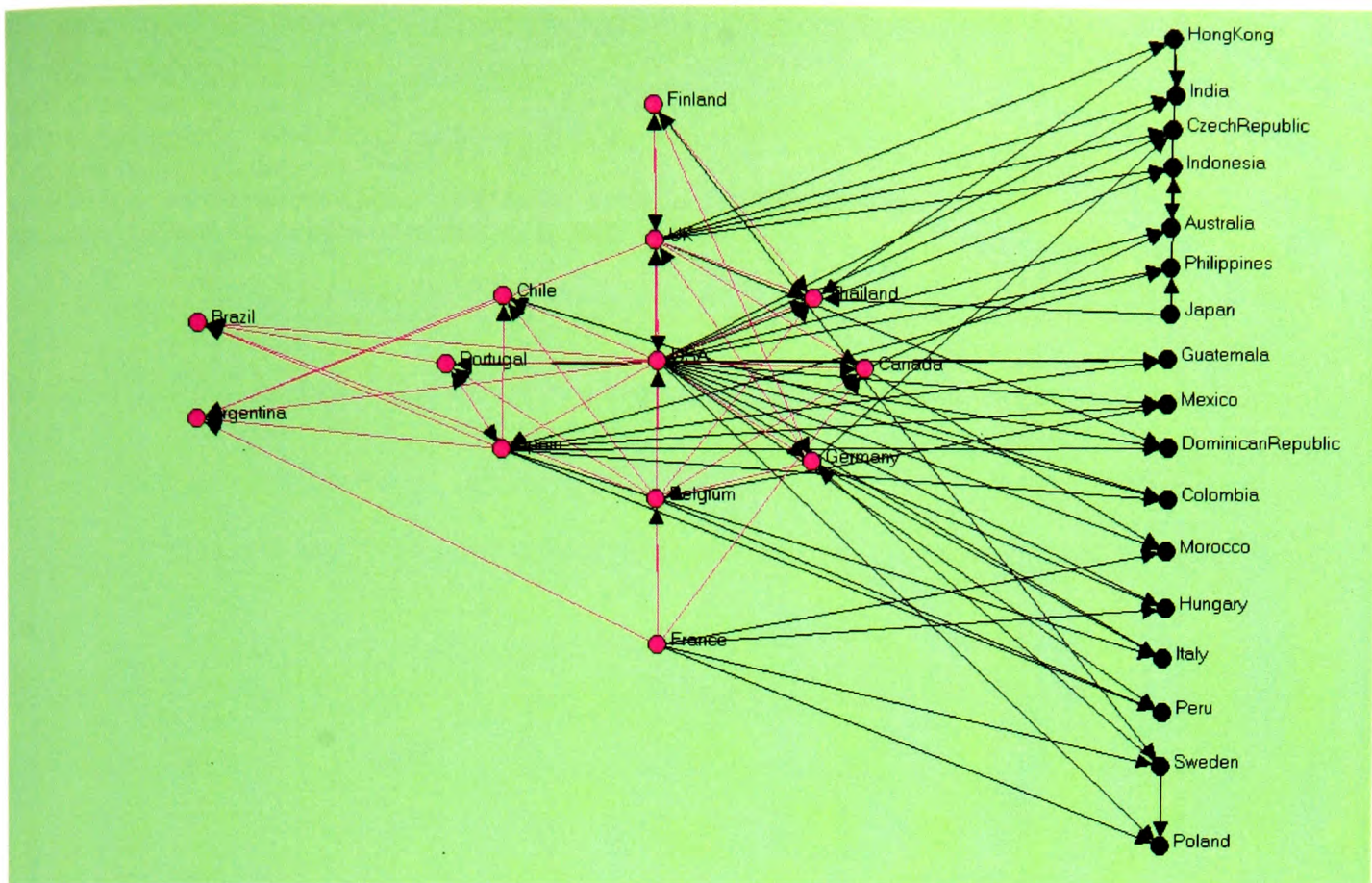


Figure 6.23 Structure of the core of the electricity sector

To sum up, the visual analysis undertaken in this session has shown that the network of ownership ties in the electricity sector has a star-like pattern. The ownership in the electricity sector is concentrated in few countries, namely the USA, the UK, France, Belgium and Finland. Thus, this section has confirmed Hypothesis 2.1 and Hypothesis 2.2 for the electricity industry.

### 6.2.3. The Measure of Distance in the Analysis of Ownership Ties in the Electricity Sector

The findings of the previous section can be confirmed by the use of another concept of social network analysis – distance. Ucinet 6.0 provides an algorithm which finds the number of edges in the shortest path between the nodes. Matrix 6.2 represents the distances between the nodes of the ownership network of the electricity sector. To repeat, distance shows how far companies of each pair of countries are one from another.





Norway, Netherlands, Germany, France, Finland, Denmark and Belgium. It matches the findings of the previous sections.

#### 6.2.4. Analysis of the Relevance of Three Polar Models for Electricity

This section tests Hypothesis 3 and examines the appropriateness of the TPM and ETPM for the description of the ownership network in electricity. The Three Polar Model in terms of ownership ties of electricity companies is shown in Figure 6.24. The red nodes on the top of the graph represent the countries of the first pole, namely Canada and the United States. The group of countries depicted in black on the left represents the second pole (the European Union). Blue is used for Japan, which is located on the right.

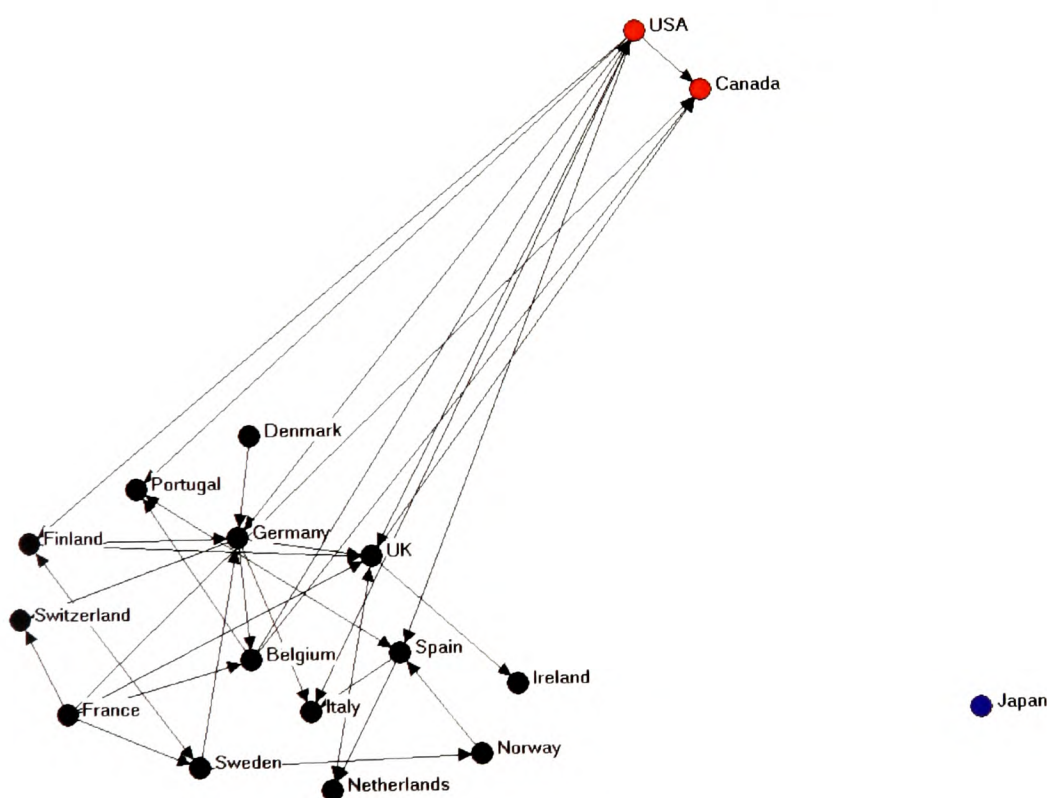


Figure 6.24 Map of ownership in electricity in terms of the Three Polar Model

This Figure shows that the third pole is totally disconnected from the other poles, which considerably invalidates the Three Polar Model expressed in terms of connections. Even one this graph gives us sufficient reason to conclude that the Three Polar Model in terms of connections does not particularly good for the description of the pattern of electricity ownership



network and this conclusion does not need to be verified by other SNA techniques.

The final part of this subsection examines whether the Extended Three Polar Model, a modification of the TPM, is more suitable for describing this ownership network. Figure 6.25 shows acquisitions in electricity within and between poles used in the ETPM. In this visual image the countries of the European Union are represented by black nodes, North America is depicted in red, and Asian countries are yellow. Latin America is represented by pink nodes and African countries are green.

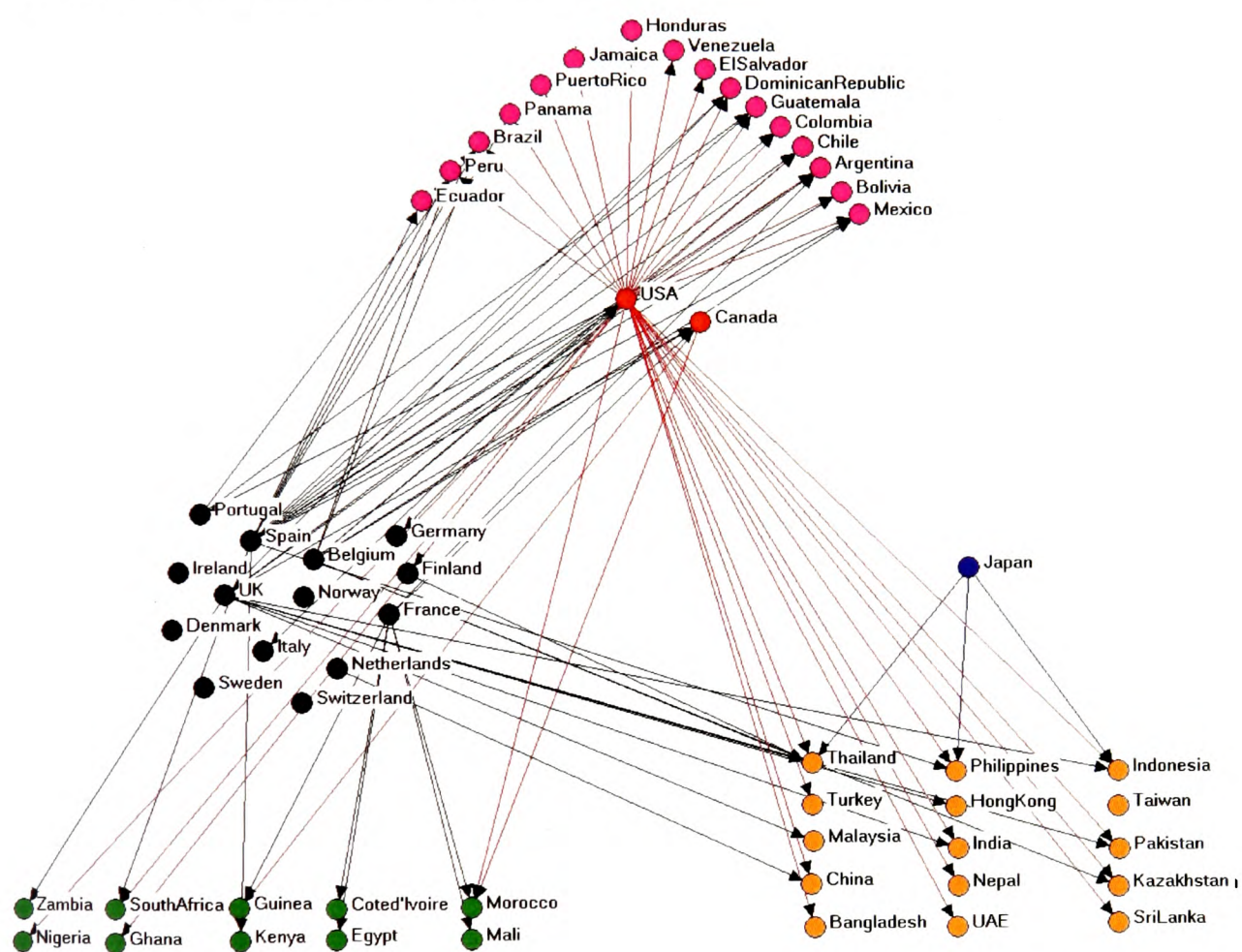


Figure 6.25 Ownership network of the electricity industry in terms of the Extended Three Polar Model

This Figure demonstrates the substantial difference of the electricity ownership network from the Extended Three Polar Model. There are only two similarities between the ETPM and this network. The first similarity is the fact that the poles of the TPM do have a lot of ties with the entities that are added to the main poles in the ETPM. The second similarity is associated with the fact that the removal of the three main poles leads to the removal of almost all ownership ties in this industry, as can be seen in Figure 6.26.



Figure 6.26 Ownership network of the electricity industry in terms of the Extended Three Polar Model (without North America, the European Union and Japan)

On the contrary, there are a great number of dissimilarities between the ETPM and the pattern of this ownership network. In addition to drawbacks mentioned while describing the TPM, it should be noted that the countries of the European Union are connected with almost all other groups in Figure 6.25 (except for Japan), including Latin America, Africa and Asia (these ties are depicted in black). Similarly, electricity companies of the USA have ownership ties with all the groups of the ETPM (these links are red coloured). In other words, the Extended Three Polar Model can be regarded as being even less suitable for the description of the electricity ownership network than the Three Polar Model.

Instead, it is possible to identify only two poles—the United States and the European Union, as can be seen in three subsequent Figures. For example, Figure 6.27 shows the ownership network without ties of the countries-members of the EU. This Figure demonstrates that the USA has a dense network of ownership ties with the countries of Asia, Africa, and Latin America in terms of ownership in the electricity sector.



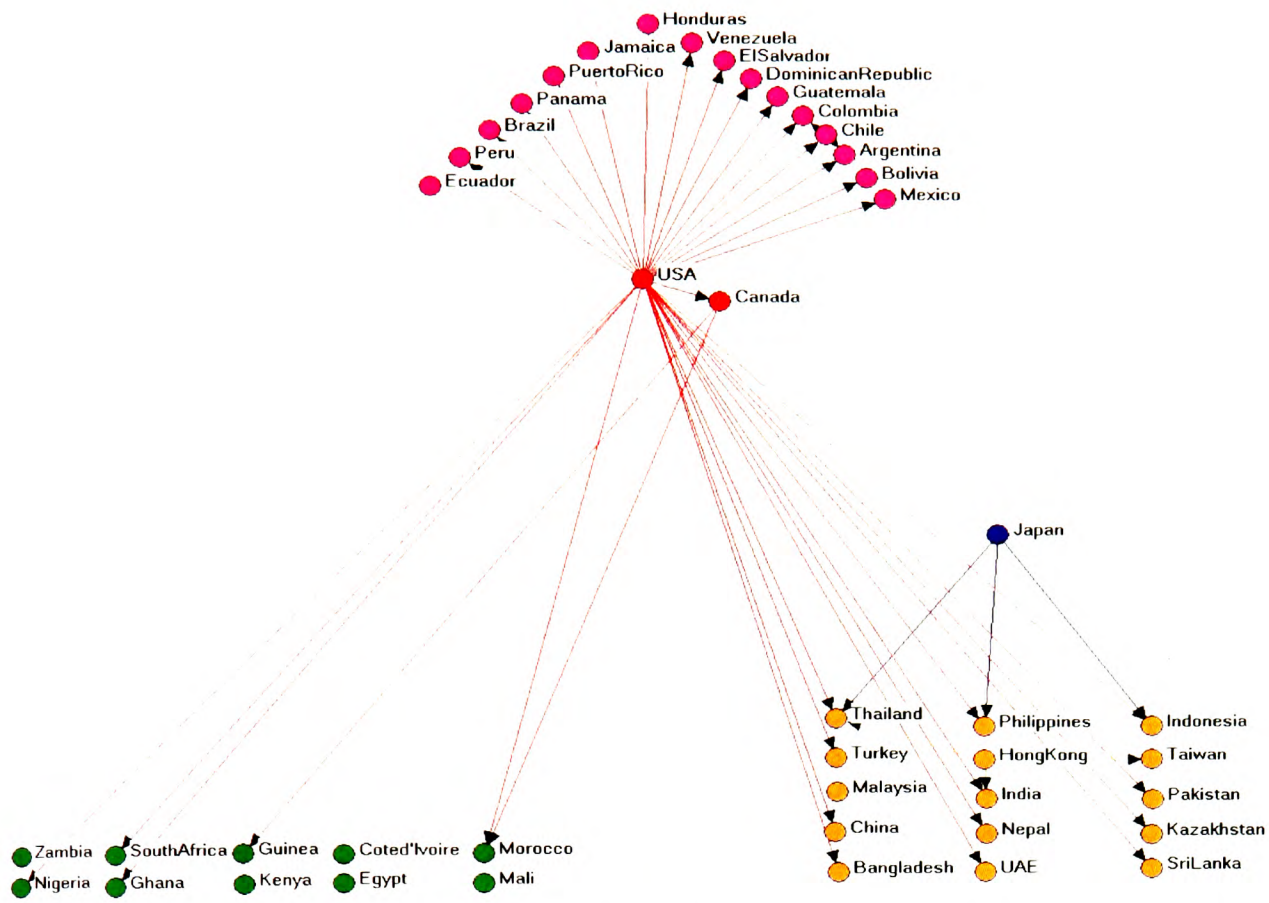


Figure 6.27 Ownership ties of North American electricity companies in terms of the Extended Three Polar Model

Similar picture can be seen for the European Union, if the ownership ties of the US are removed.<sup>55</sup> This situation is illustrated in Figure 6.28.

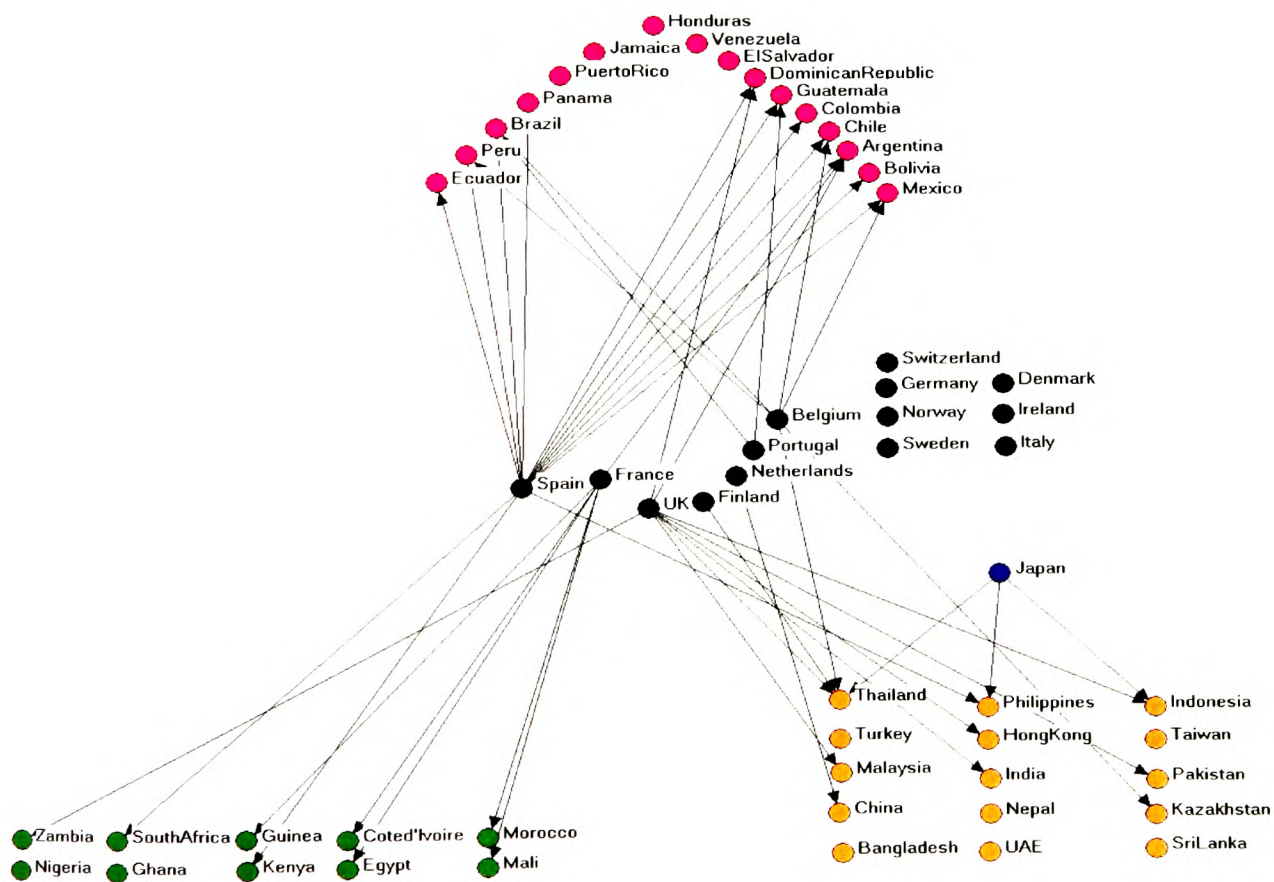


Figure 6.28 Ownership network of the electricity sector in terms of the Extended Three Polar Model without North America (only ties between poles are included)

<sup>55</sup> It should be noted that when we are talking about removal of ties or nodes in Chapter 6 and 7, we mean that these nodes or ties are not shown in some figures in order to make them more readable.



There are a prevalent number of ties involving the countries-members of the EU in this Figure, whereas ties between other groups of countries are almost non-existent (it is possible to find only a couple of ties between Japan and Asia).

It may be interesting to notice at this point that although the countries-members of the EU have a dense network of ownership ties within the European Union (as can be seen in Figure 6.24), only about a half of them are involved in international acquisitions of electricity companies of the other groups belonging to the model. It means that the global interconnectivity of the network is reached via ties of a handful of countries, which can be called as *interconnecting countries*. These countries include the UK, France, Spain, Belgium from the European Union, and the USA, as can be seen in Figure 6.27 and Figure 6.28.

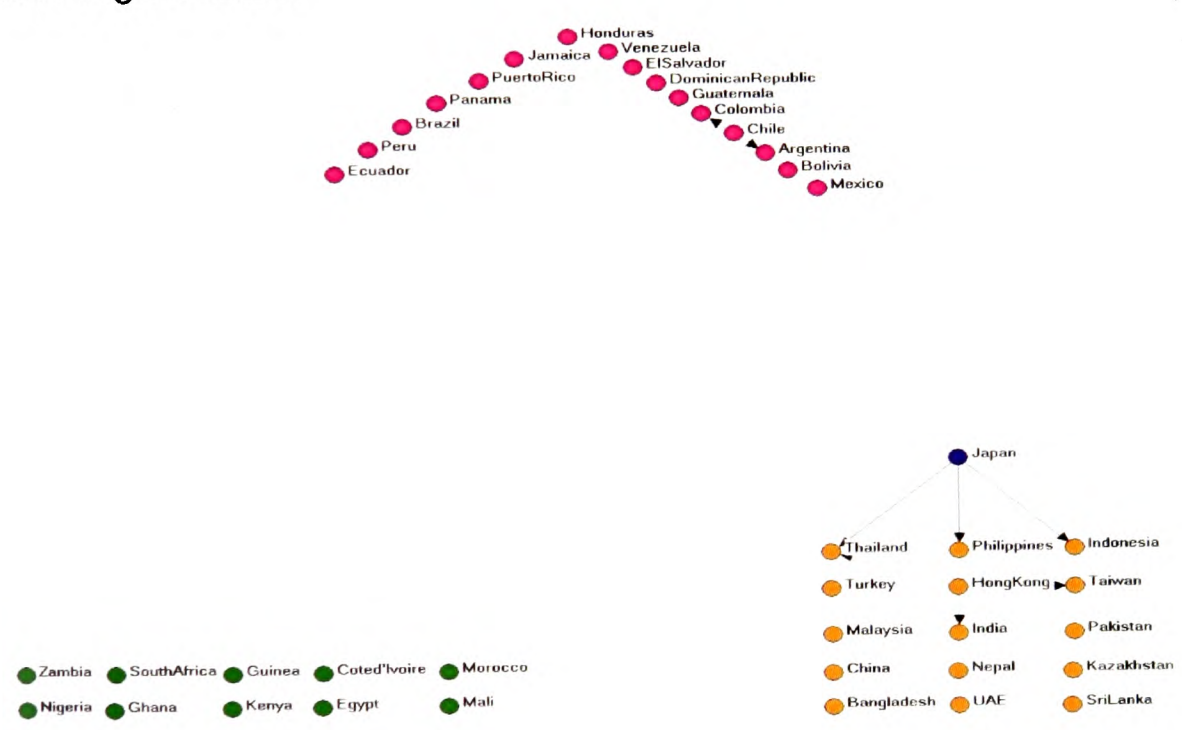


Figure 6.29 Ownership network of the electricity sector in terms of the Extended Three Polar Model without the USA (only ties within the poles are included)

Thus, Figures 5.26-5.28 even give us reason to consider that a centre-periphery model, in which the USA and a few countries of the European Union comprise the centre, could be better than even the model consisting of only two poles. This is not surprising given that several countries of the EU and the USA connect the fragments of the ownership network in the single net. As can be seen in Figure 6.29, the removal of these poles leads to a total fragmentation of the network under study. If only the mentioned countries of the EU and the USA are removed, the result will be the same.

The validity of the centre-periphery model can be strengthened by the visual image shown in Figure 6.30. This Figure shows a graph that has been obtained while the use of a spring embedder. The nodes in this image are located in accordance with squared geodesic distances between them in SNA terms. As it can be seen in this Figure, the USA and countries of the EU mostly occupy the central positions of this network.

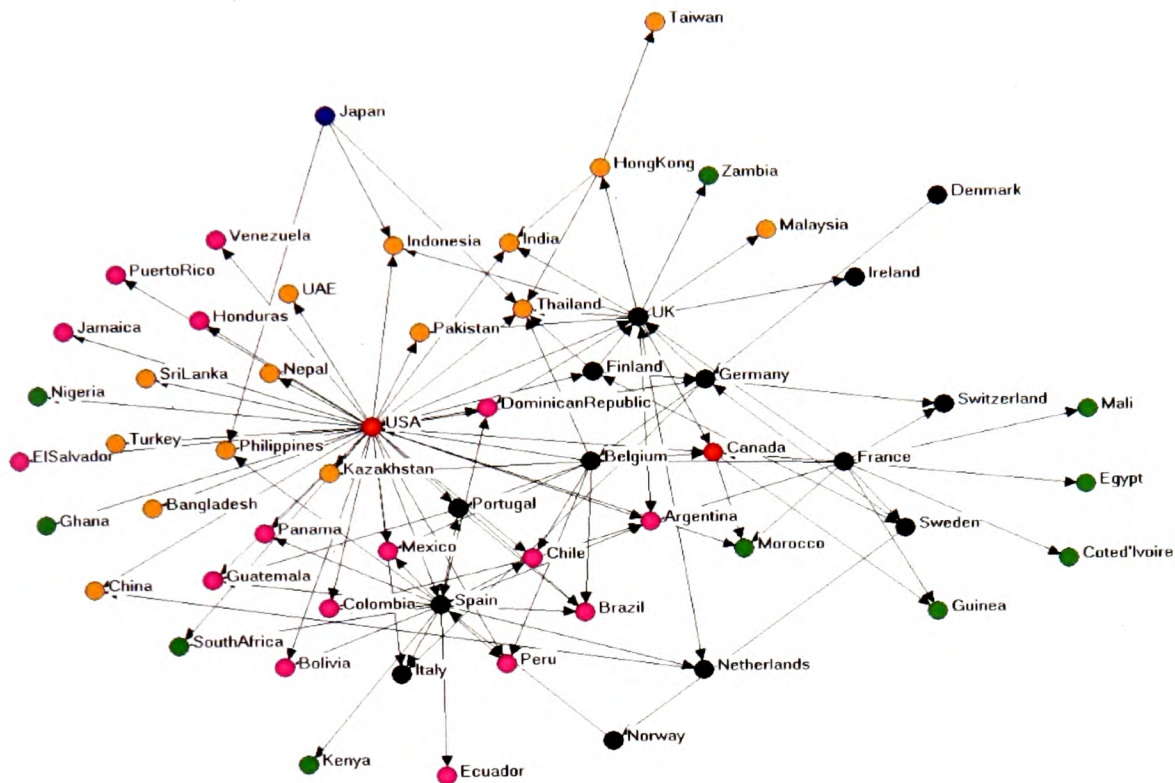


Figure 6.30 Ownership network of the electricity industry (Spring embedder, Distance =5)

To sum up, the findings of this section show that the Three Polar Model and the Extended Three Polar Model are not particularly appropriate for describing the pattern of ownership network in the electricity industry. This result refutes Hypothesis 3. Instead, a centre-periphery model seems to be much more relevant for this purpose.

### 6.3. All Sectors of Public Utilities

The final section of this chapter aims to show that the pattern of ownership network does not alter if the analysis is extended to all sectors of public services. This section presents the findings for the data set that includes all companies kept in the PSIRU data base. Similar techniques are used there but since the main purpose of this section is just to illustrate that

main results for all sectors do not differ from those identified in the previous sections, this analysis outlines only key stages and indicators.

### 6.3.1. Degree Centralization of Global Ownership Network of Public Utilities

The index of centralization for the global ownership network in all sectors of public utilities, calculated by Ucinet 6.0, is equal to 65,79 %. Although it is a bit less than degree centralisations in each of the sectors analysed (see Table 6.11), this figure is still very close to them. This index indicates that the ownership network in all sectors of public services has a star-like pattern and confirms Hypothesis 2.1. The index of degree centralization and some descriptive statistics produced by Ucinet 6.0 are presented in Table 6.10.

*Table 6.10 Descriptive Statistics for Symmetrical Centralisation of the Ownership Network of all Sectors of Public Services*

	1	2	3
	Degree	NrmDegree	Share
1 Mean	7.806	5.869	0.000
2 Std Dev	13.926	10.471	0.000
3 Sum	1046.000	786.466	0.000
4 Variance	193.932	109.635	0.000
5 SSQ	34152.000	19306.914	0.000
6 MCSSQ	25986.955	14691.025	0.000
7 Euc Norm	184.803	138.949	0.000
8 Minimum	1.000	0.752	0.000
9 Maximum	94.000	70.677	0.000

Network Centralization = 65.79% Homogeneity = 3.12%

*Table 6.11 Summary of Degree Centralization in Different Sectors of Public Services and in all Sectors*

	<b>Water Sector</b>	<b>Electricity Sector</b>	<b>All Sectors</b>
<b>Degree Centralisation</b>	68.79	65.90%	65.79%
<b>Out Centralisation</b>	69.995%	66.205%	-
<b>In Centralisation</b>	5.395%	5.923%	-



### 6.3.2. The Use of Visualization along with the Core Routine in the Analysis of Ownership Concentration in Public Services

The ownership network of all sectors is considerably more complex than ownership networks of each individual sector. Core routine has identified twenty-two groups. Since it is impossible to present graphs that describe ties between all of these groups, only the most remarkable visual image is presented in this section. It can be seen in Figure 6.31 which depicts ties between the core and the periphery.

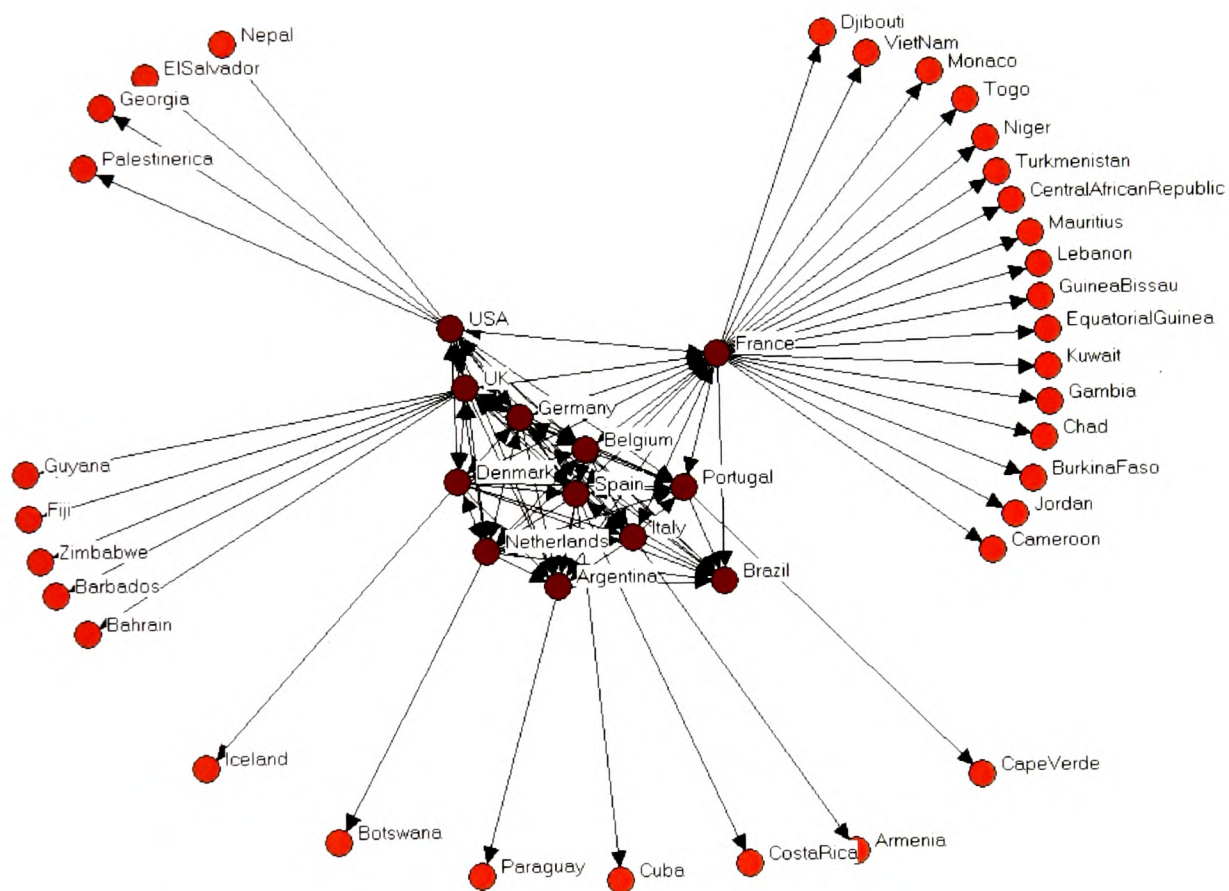


Figure 6.31 Ties between the core and the periphery of the ownership network of global public utilities

Similarly, the core analysis for this case has been simplified by the use of Core/Periphery routine of Ucinet 5.0. This routine has broken the countries into two groups as follows:

**1 (the Core):** Argentina Australia Austria Belgium Bolivia Brazil Canada Chile Czech Republic Denmark Finland France Germany Hungary Italy Malaysia Mexico Netherlands Portugal Russia Spain Sweden UK USA

**2: (the Periphery)** Algeria Angola Armenia Azerbaijan Bahamas Bahrain Bangladesh Barbados Belarus Belize Bosnia Botswana Brunei Bulgaria

BurkinaFaso Cameroon CapeVerde CentralAfricanRepublic Chad China  
 Colombia Congo CostaRica CotedIvoire Croatia Cuba Cyprus Djibouti  
 DominicanRepublic Ecuador Egypt ElSalvador EquatorialGuinea Estonia  
 Fiji Gabon Gambia Georgia Ghana Greece Guatemala Guinea GuineaBissau  
 Guyana Honduras HongKong Iceland India Indonesia Ireland Israel  
 Jamaica Japan Jordan Kazakhstan Kenya Korea Kuwait LatinAmerica  
 Latvia Lebanon Lesotho Lithuania Luxembourg Mali Mauritius Moldova  
 Monaco Morocco Mozambique Nepal NewZealand Niger Nigeria Norway Oman  
 Pakistan Palestine Panama Paraguay Peru Philippines Poland PuertoRico  
 Qatar Romania SaudiArabia Senegal Singapore Slovakia Slovenia  
 SouthAfrica SriLanka Switzerland Taiwan Tanzania Thailand Togo  
 TrinidadandTobago Tunisia Turkey Turkmenistan UAE Uganda Ukraine  
 Uruguay Venezuela VietNam Zambia Zimbabwe

The analysis of these groups adds nothing new to what has been found in the previous sections. The core mainly consists of the same countries that have been identified in the previous sections.

### 6.3.3. Matrix of Distances for Global Ownership Network of Public Utilities

The matrix of distances for all sectors is too large to be placed on one page. That is why only a fragment of this matrix representing the general pattern is shown in Table 6.12. The entire matrix of distances in all sectors can be found in Appendix 7. This pattern matches the patterns of Matrices 6.1 and 6.2. There are a few countries that own public companies in almost all countries with distance 1, 2 or 3. This is the core of this network. At the same time, there is overwhelming majority of countries that do not own any company in other countries. They are represented by rows with 0 distance value in all columns (shown here as empty cells).

Table 6.12 Part of the Matrix of Distance for All Sectors

		1	2	3	4	5	6
Algeria	1	0					
Angola	2		0				
Argentina	3	3	3	0	4	3	3
Armenia	4				0		
Australia	5	2	2	2	3	0	2
Austria	6	3	3	2	3	2	0
Azerbaijan	7						
Bahamas	8	3	3	2	3	2	2
Bahrain	9						
Bangladesh	10						
Barbados	11						
Belarus	12						
Belgium	13	2	2	1	2	2	2



Belize	14						
Bolivia	15						
Bosnia	16						
Botswana	17						
Brazil	18						
Brunei	19						
Bulgaria	20						
Burkina Faso	21						
Cameroon	22						
Canada	23	2	1	1	3	1	2
Cape Verde	24						
Central African Republic	25						
Chad	26						
Chile	27	4	4	1	5	4	4
China	28						
Colombia	29						
Congo	30						
Costa Rica	31						
Cotedlvoire	32						
Croatia	33						
Cuba	34						
Cyprus	35						
Czech Republic	36						
Denmark	37	2	2	1	2	2	1
Djibouti	38						
Dominican Republic	39						
Ecuador	40						
Egypt	41						
El Salvador	42						
Equatorial Guinea	43						
Estonia	44						
Fiji	45						
Finland	46	3	2	2	3	2	2
France	47	1	1	1	2	1	1
French Overseas Territories	48						
Gabon	49						
Gambia	50						
Georgia	51						
Germany	52	2	2	1	2	1	1
Ghana	53						
Greece	54						
Guatemala	55						
Guinea	56						
Guinea Bissau	57						

Consequently, the findings of this section are similar to those obtained in the three previous sections. The three SNA techniques have proved Hypothesis 2.1 and Hypothesis 2.2 for the case in which companies of all sectors were taken into account. The ownership network of all sectors consists of one component, and it has a star-like pattern. The ownership of public services is concentrated in several multinationals that are headquartered in few countries rather than evenly dispersed across the globe.

## 6.4. Summary of Main Findings for Research Question 1

This chapter has presented the results obtained while applying several techniques of social network analysis, in particular, visualisation, k-core routine, degree centrality, indices of centralization and distances. First, the appropriateness of the Three Polar Model and the Extended Three Polar Model for the description of the pattern of ownership network in public services has been checked. It has been found that the Three Polar Models, in terms of interaction among polars, are not particularly convenient for this purpose.<sup>56</sup>

Second, it has been discovered the presence of ownership concentration. It has been revealed in this Chapter that the global ownership networks in public services in each and all sectors have a star-like pattern, which can be best illustrated by Figure 6.32.

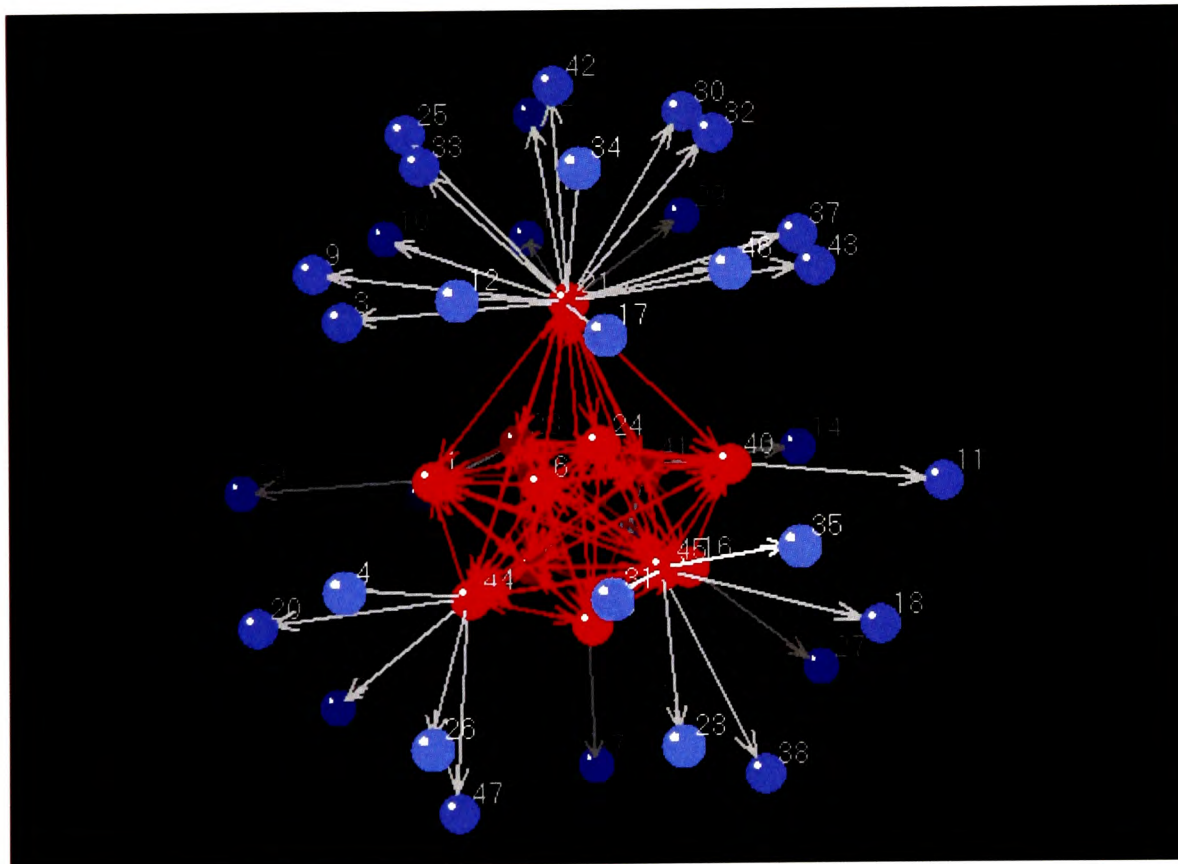


Figure 6.32 Pattern of ownership concentration in public services

In this Figure, the core is represented by red nodes whereas the periphery is identified by blue nodes. This image shows that multinational corporations

---

<sup>56</sup> For the result of the assessment of the Three Polar Model in terms of concentration (the Triad thesis) see the next page.

which are headquartered in the countries of the core own companies of the rest of the world. The extent of ownership concentration can be illustrated by following figures. In the water sector, nearly 90 per cent of global ownership (measured by out degree centrality) is concentrated in just 5 countries. Similar figures for companies show that 90 percent of total out degree centrality is concentrated in just 17 water companies from 303 firms under study.

Third, in terms of ownership concentration, it is of interest and importance to assess the relevance of the Triad thesis for international acquisitions in public services. The findings of this Chapter show that a great proportion of ties are associated with the countries of the Triad. For example, 95 % of out-degree centrality in the water sector are associated with countries of the Triad. Consequently, in terms of ownership concentration the findings of this Chapter are consistent with the Triad thesis.

Finally, the findings of this Chapter show that the core itself has a complex structure. Inside the core the countries-owners should be distinguished from the most colonised countries. In order to identify the real owners, the direction of ties has to be taken into account. Therefore, the ownership network of public utilities that has been shown at the beginning of this chapter (Figure 6.1) can be represented by the scheme shown in Figure 6.33. This scheme outlines the structure of global ownership in public services.

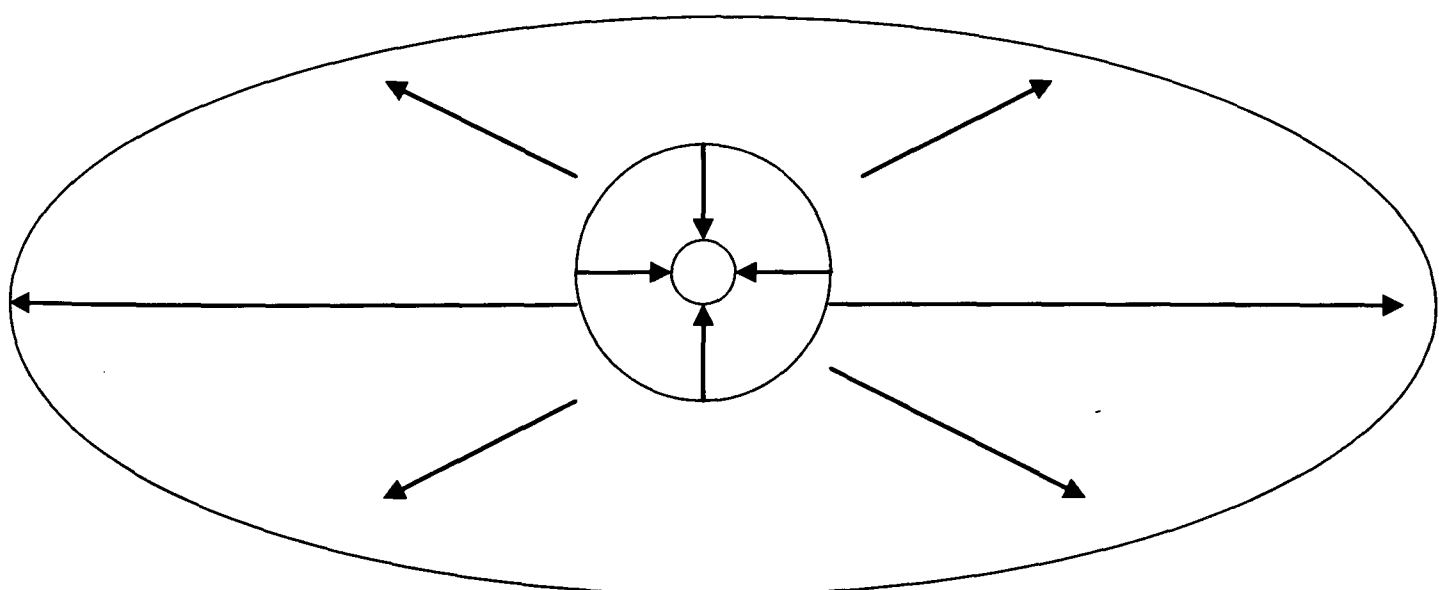


Figure 6.33 Scheme of ownership concentration in public services

In this scheme, there is the core (the circle inside the ellipse) of countries (multinationals) that own public companies in most other countries of the world (represented by the large ellipse). Within the core there is an area with in-directed ties (a smaller circle). This area represents the most colonised countries. In other words, it has been found that there is not only the core of countries-owners, there is also the core of the most owned or colonised countries.

The analysis of these findings and their significance for globalisation and debates and theory is undertaken in Chapter 8. At the moment, it should be noted that the findings of this Chapter are also of special interest in the context of an inquiry into a possible impact of geographical, economic, political and cultural factors on the structural properties of the ownership network under study. This impact is examined in the next chapter.

## **Chapter 7**

### **Impact of Political, Economic, Cultural and Geographical Factors on the Acquisitions and Investment Choice in Public Services**

This chapter aims to expand the findings of the previous chapter by addressing the second line of analytical inquiry of this dissertation. It is concerned with Research Question 2 examining whether the structural properties of the global ownership networks in water and electricity can be explained by an impact of geographical, cultural, economic and political factors (as explained in detail in Section 4.3).

Several routines of social network analysis are used for this purpose. First of all, it is done by visualisation of ownership ties between countries, continents, regions, cultural, economic and political groups. In order to compare the strength of different factors and their significance QAP (Quadratic Assignment Procedure) is used. In a few cases, two supplementary SNA measures, EI - index and density, are used in order to examine structural properties of networks under study.

This chapter is divided into three sections and several subsections. The subsections present an analysis for each of the above mentioned factors, starting with an assessment of the impact of the geographical factor. Analysis is undertaken for two sectors of public services: water and electricity. The first section of the chapter describes findings for the water sector. The second part is concerned with the impact of these factors in the electricity industry, while the final section summarises of the main findings of these section for both these sectors.



## **7.1. Analysis of the Impact of Political, Economic, Cultural and Geographical Factors on the Investment Choice in the Water Sector**

### **7.1.1. Geographic factors in Water**

The geographical factor is known to have a considerable impact on many business transactions (Harvey, 1999 and 2003, Krugman, 1992 and 1998). For example, geographical closeness normally decreases transportation costs and encourage trade between countries. However, since financial flows are less dependent on transportation costs, the impact of the geographical factor is unlikely to be particularly significant when only financial transactions are involved. Thus, it is possible to presume that the geographic factor should not noticeably influence overseas acquisitions in public services, because ownership acquisitions are to a large extent financial transactions, even if the transfer of money is not necessarily involved in this.

The findings of Sections 6.1.5 and 6.2.4, however, do not seem to support this assumption. On the contrary, Figure 6.16 seems to indicate that many acquisitions have been made within continents or regions. This could mean that the geographic factor can make an impact on the ownership ties in the water sector. The next two subsections therefore aim to approach Research subquestion 2.1 by checking the validity of Hypothesis 4.2, which proposes that the impact of the geographical factor on international acquisitions in public utilities is insignificant.

The influence of the geographic factor is examined in two stages. First, the geographic factor is represented by *continents* and its impact is assessed in Section 7.1.1.1. Second, countries can be grouped into *regions* and this may be a more accurate way of taking into account the geographic factor. The impact of the geographic factor associated with regions is researched in Section 7.1.1.2. The placement of countries in regions and continents has been done on the basis of information from the World Atlas<sup>57</sup> and the

---

<sup>57</sup> World Atlas: Maps and Geography of the World, available on URL <http://geography.about.com/library/maps/blindex.htm> (December, 2006)

Regional Classification System of Countries and Areas applied by the United Nations Population Division (UNPD).<sup>58</sup>

#### 7.1.1.1. Continents

This subsection aims to explore the impact of continents on the structure of ownership acquisitions in the water sector. Earth has seven continents, Europe, Asia, North America, South America, Oceania (Australia), Antarctica and Africa. They are shown in Figure 7.1. As Antarctica is not inhabited, only six continents are examined in this study.

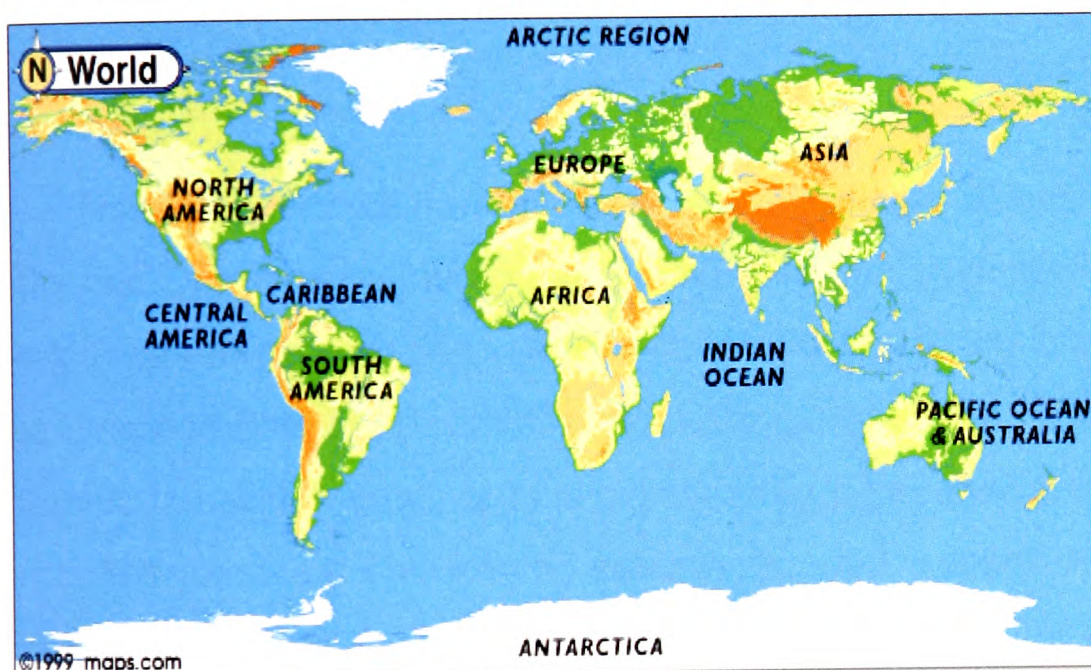


Figure 7.1 Continents of Earth

As far as the water sector is concerned, it can be seen that one continent has a very different pattern of ownership acquisitions than the others. It is Europe. In order to show the special position of this continent, this analysis starts with presenting the map of international ownership ties in the water sector for all continents apart from Europe. This map can be seen in Figure 7.2.

In this Figure, different colour is used in order to distinguish countries of one continent from the countries of the others. Thus, North American countries are blue coloured, black is used for Asian countries, and countries of South America are depicted in grey. African countries are green coloured, and the countries of Oceania are pink.

<sup>58</sup> Available on URL [http://unstats.un.org/pop/Documents/doc0018.htm#\\_ftn1](http://unstats.un.org/pop/Documents/doc0018.htm#_ftn1) (June, 2007)



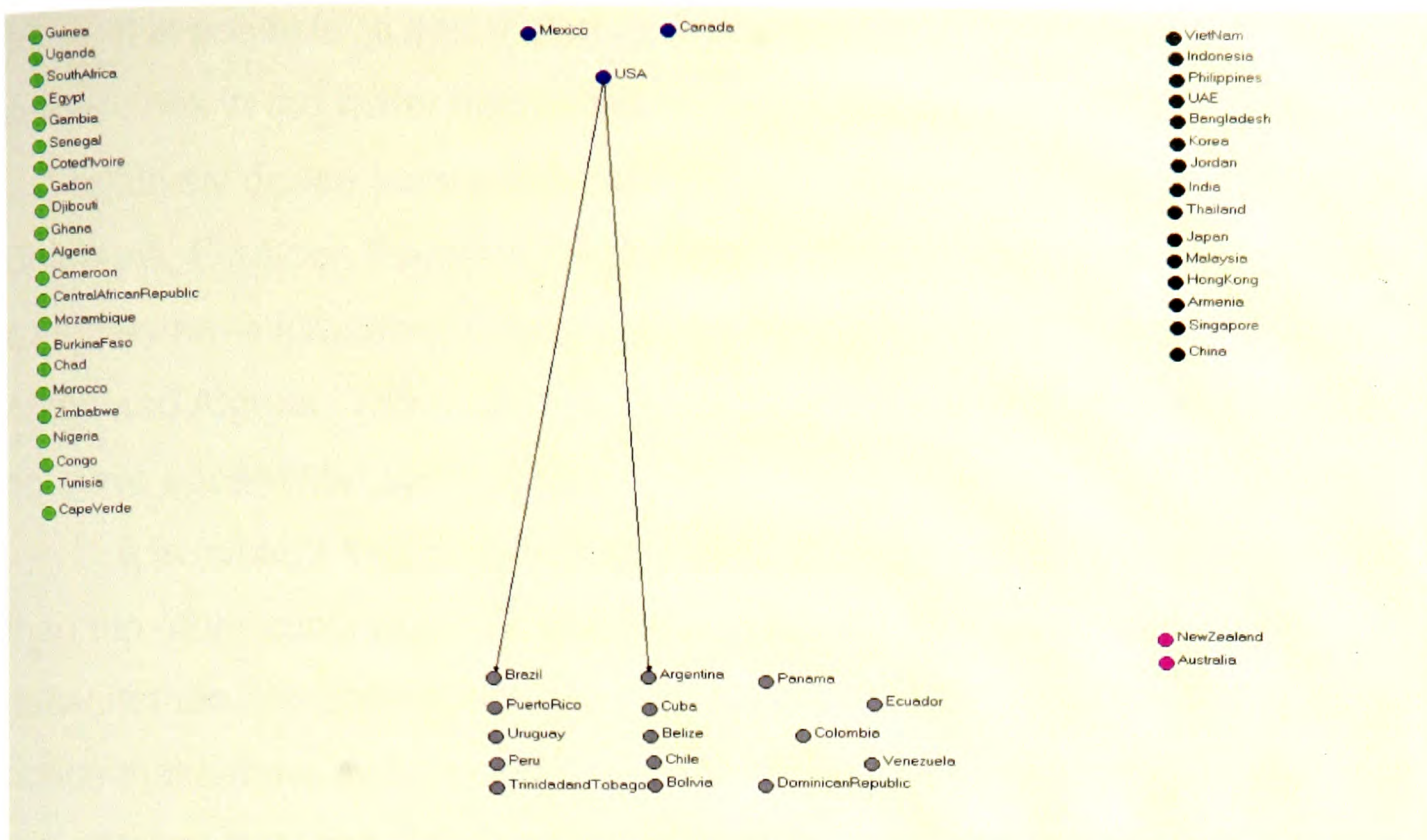


Figure 7.2 International ownership acquisitions between continents (excluding Europe)

This graph shows that there are few ownership acquisitions between continents. Only one country of one of the continents (United States in North America) has ownership ties with two countries of another continent (Argentina and Brazil in South America). By contrast, the number of ownership ties within continents is significantly larger than the number of intercontinental ones. This can be seen in Figure 7.3 which shows only ownership ties within continents, excluding Europe.

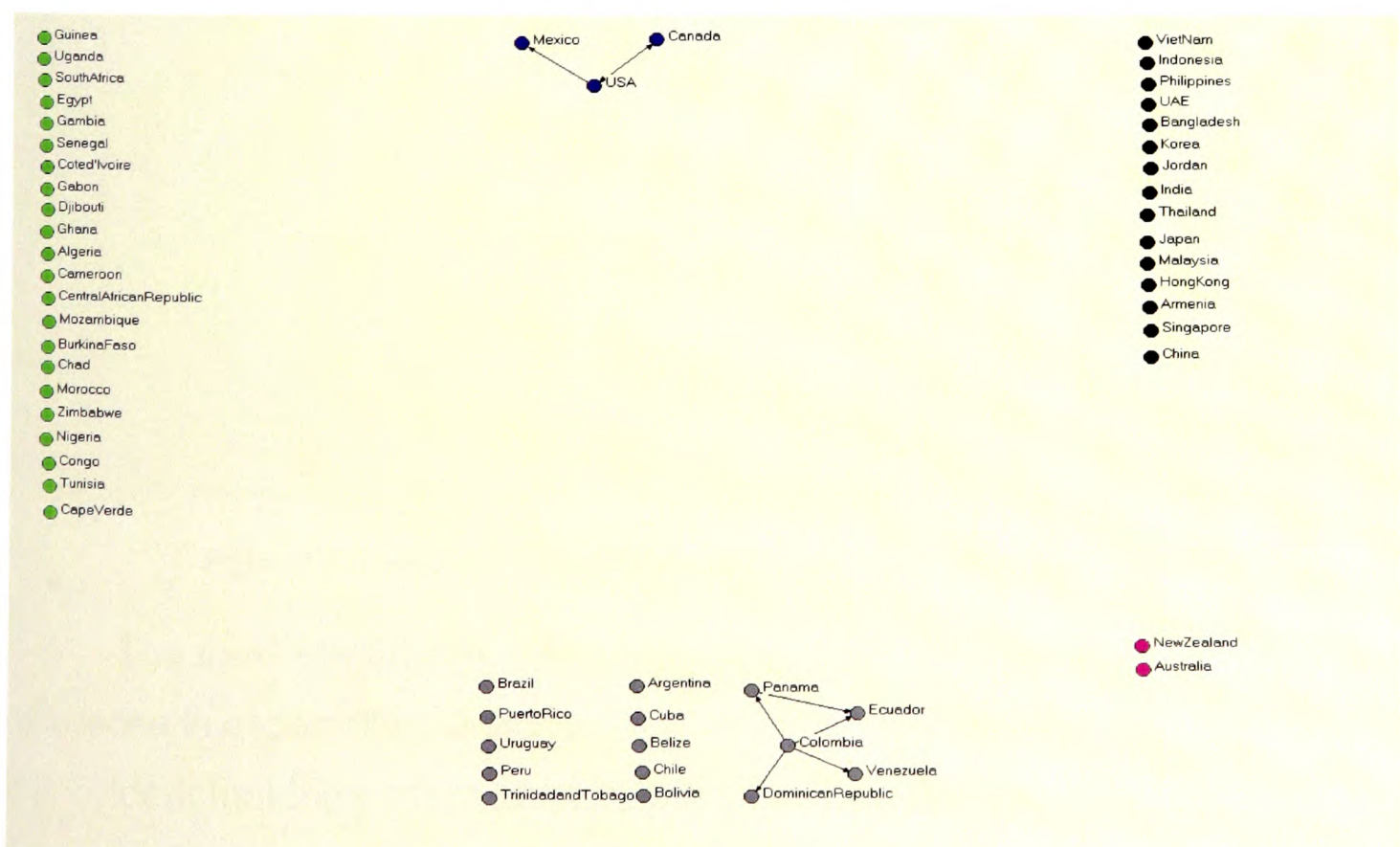


Figure 7.3 International acquisitions in the water sector within continents (excluding Europe)







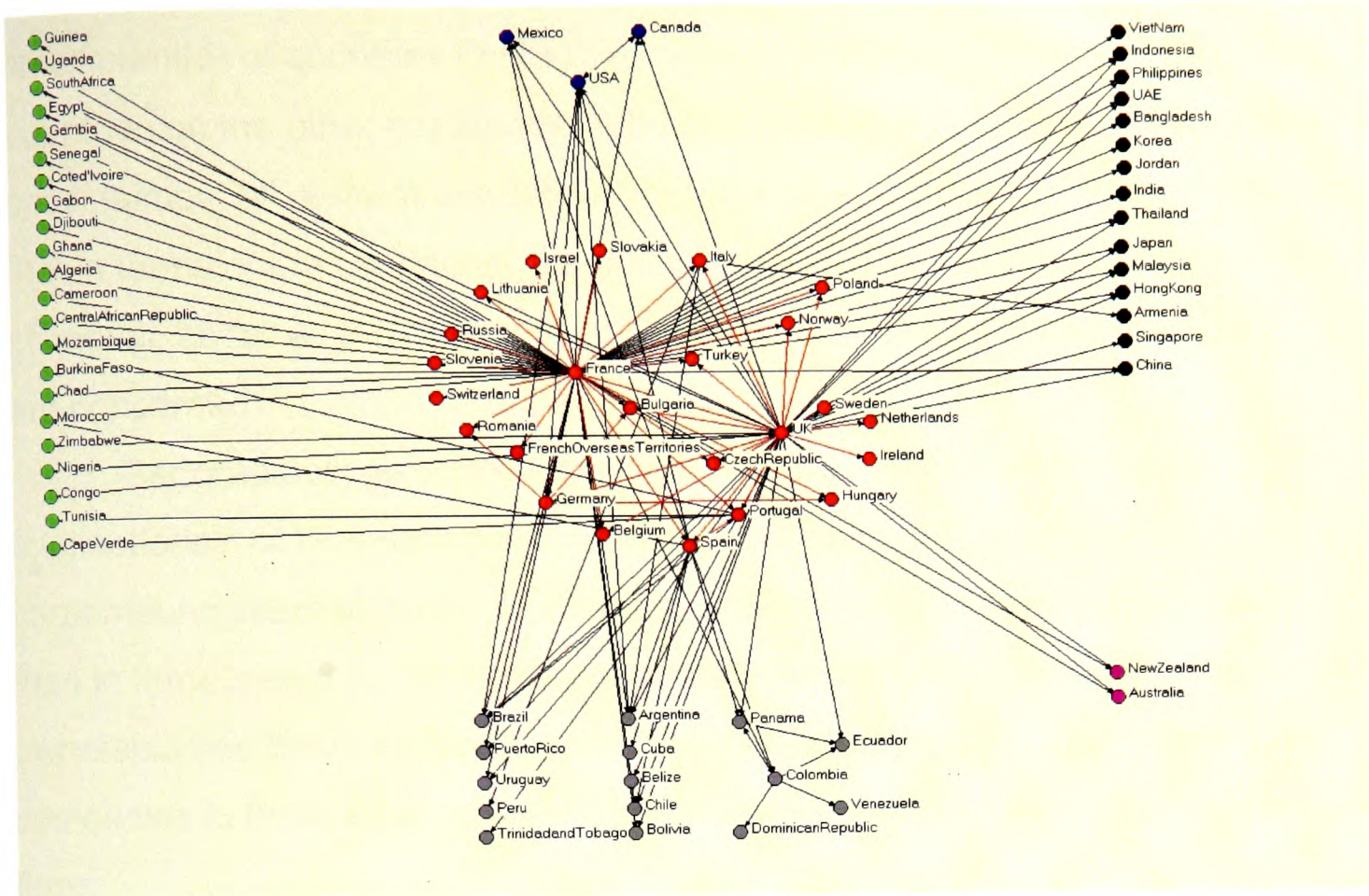


Figure 7.5 Internationalisation of ownership in the water sector

Similarities and dissimilarities in the structure of ownership ties within and between continents can be identified from the table of densities calculated by the Ucinet 6.0. The most remarkable figures of this table are presented in Table 7.1. The whole data is available in Appendix 3.

Table 7.1 Density for Continents (Average Value within Blocks) in Water

	<i>Europe</i>	<i>Asia</i>	<i>North America</i>	<i>South America</i>	<i>Oceania</i>	<i>Africa</i>
<i>Europe</i>	0.0688	0.0639	0.1250	0.0722	0.0833	0.0492
<i>Asia</i>	0.0028	0	0	0	0	0
<i>North America</i>	0.0139	0	0.5000	0.044	0	0
<i>South America</i>	0	0	0	0.0238	0	0
<i>Oceania</i>	0	0	0	0	0	0
<i>Africa</i>	0	0	0	0	0	0

It is evident that the ownership ties of European multinationals are relatively dense, and these corporations do not seem to have special preference for any particular continent except for North America. It is important to note, however, that large density of ownership ties between



Europe and North America may be explained by the fact that there is a very small number of countries in North America compared with the number of countries on the other continents. Although values of densities in this table are small (almost all of them are below 0.1), this table may verify the assumption that in terms of the continents there is no geographical borders for the export of capital, as far as the most influential European countries and companies are concerned.

Geographical proximity can however be an important factor for multinationals of less dominant countries. For example, American corporations seem to prefer to invest in South American companies rather than in firms based on the other continents. Remarkably, the density of ownership ties between North American multinationals and South American companies is three times greater than the density of their ties with European firms.

Table 7.2 is another table that helps examine ties within and between continents. This table does not take into account the directionality of ties. It represents the calculations associated with EI index. The whole data for EI index for continents and the water sector is shown in Appendix 4. (As it has been explained in Section 5.5, EI index assesses the comparative densities of ties within and between groups under study).

*Table 7.2 Group Level E-I Index for Continents in Water*

<b>Continents</b>	<b>Internal Ties</b>	<b>External Ties</b>	<b>Total</b>	<b>E-I</b>
<b>Europe</b>	74	88	162	0.086
<b>Asia</b>	0	23	23	1
<b>North America</b>	4	11	15	0.467
<b>South America</b>	10	28	38	0.474
<b>Oceania</b>	0	4	4	1
<b>Africa</b>	0	26	26	1

It should be noted that Europe has the lowest E-I index. It means that the number of European intercontinental acquisitions in the water sector is nearly as great as the number of acquisitions within Europe. Furthermore, a

very surprising result is that North America and South America have similar values of E-I index. This may illustrate that the countries of these continents share a similar pattern of investment behaviour in terms of external-internal international acquisitions.

To summarize the findings of this subsection, it is possible to say that geographical factor associated with continents seems to describe the internationalisation of ownership quite well as far as ties of European companies with companies on other continents are not taken into account. Europe has a different pattern by being “the heart” of the global ownership structure in the water sector. This means that when European inter-continental links are taken into account, the network has a clear centre-periphery pattern, because the multinationals of this continent connect all the other countries and continents in the global ownership network.

The geographic factor, however, can be represented not only by continents but also by other means. The next subsection examines the assumption that the grouping of the countries in regions (not continents) may be more relevant for understanding the forces that impact on the distribution of ownership in the water sector.

#### *7.1.1.2. Regions*

Regions normally describe the geographical location of countries better than continents. Countries can be divided into regions in several ways. In this study we break all countries of the world into twenty-one regions, including

1. Eastern Africa;
2. Middle Africa;
3. Northern Africa;
4. Southern Africa;
5. Western Africa;
6. Eastern Asia;
7. South-central Asia;
8. South-eastern Asia;
9. Western Asia;
10. Eastern Europe;
11. Northern Europe;
12. Southern Europe;
13. Western Europe;
14. Caribbean;
15. Central America;
16. South America;
17. Northern America;
18. Australia/New Zealand;
19. Melanesia;
20. Micronesia;
21. Polynesia.

The countries have been grouped on the basis of Classification of Countries and Areas in the PRED Bank which is applied by the United Nations Population Division (UNPD).<sup>59</sup> The placement of the countries in regions is shown in Table 7.3

*Table 7.3 Regional Distribution of Countries Involved in International Acquisitions in Water and Electricity*

<b>Regions</b>	<b>Countries</b>
Eastern Africa	Djibouti, Uganda, Kenya, Mozambique, Zimbabwe, Zambia.
Middle Africa	Central African Republic, Congo, Chad, Cameroon, Gabon.
Northern Africa	Algeria, Egypt, Morocco, Tunisia.
Southern Africa	South Africa.
Western Africa	Burkina Faso, Cape Verde, Coted'Ivoire, Gambia, Guinea, Ghana, Mali, Nigeria, Senegal.
Eastern Asia	China, Japan, Korea, Hong Kong.
South-central Asia	Bangladesh, Kazakhstan, Nepal, Pakistan, Sri Lanka.
South-eastern Asia	Indonesia, Malaysia, Philippines, Thailand, Singapore, Vietnam.
Western Asia	Armenia, Israel, Jordan, Turkey, UAE, Georgia, Palestine.
Eastern Europe	Bulgaria, Czech Republic, Hungary, Poland, Romania, Russia, Slovakia, Moldova.
Northern Europe	Estonia, Denmark, Finland, Lithuania, Ireland, UK, Norway, Sweden.
Southern Europe	Italy, Portugal, Slovenia, Spain.
Western Europe	Belgium, France, French Overseas Territories, Germany, Netherlands, Switzerland.
Caribbean	Cuba, Dominican Republic, Jamaica, Puerto Rico, Trinidad and Tobago.
Central America	Belize, Guatemala, Honduras, Mexico, Panama, El Salvador.
South America	Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Peru, Uruguay, Venezuela.
Northern America	Canada, USA.
Australia New Zealand	Australia, New Zeland.
Melanesia	
Micronesia	
Polynesia	

<sup>59</sup> Available on URL [http://unstats.un.org/pop/Documents/doc0018.htm#\\_ftn1](http://unstats.un.org/pop/Documents/doc0018.htm#_ftn1) (June, 2007)

The following analysis shows that the use of the category of regions does not yield more valuable results than the case of continents. The visual image in Figure 7.6 represents ownership ties within and between regions for all countries apart from Europe. It is possible to notice that ownership ties between regions are almost non-existent.

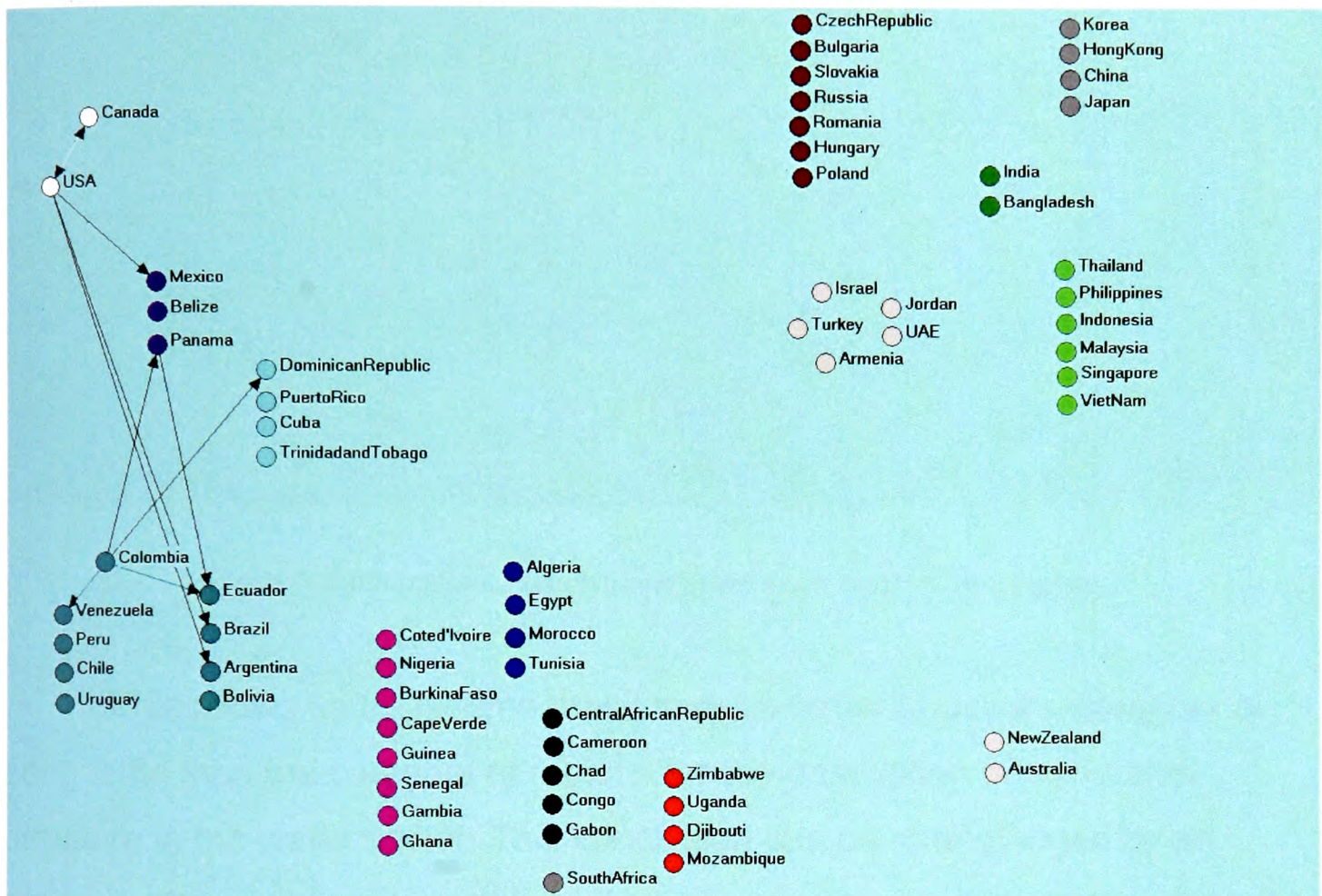


Figure 7.6 International acquisitions in the water sector between regions (excluding Northern Europe, Western Europe and South Europe)

Importantly, the ties that do exist between regions are mostly between the regions that belong to the same continents. For example, there are three ties among countries of South America, Central America and Caribbean Islands.



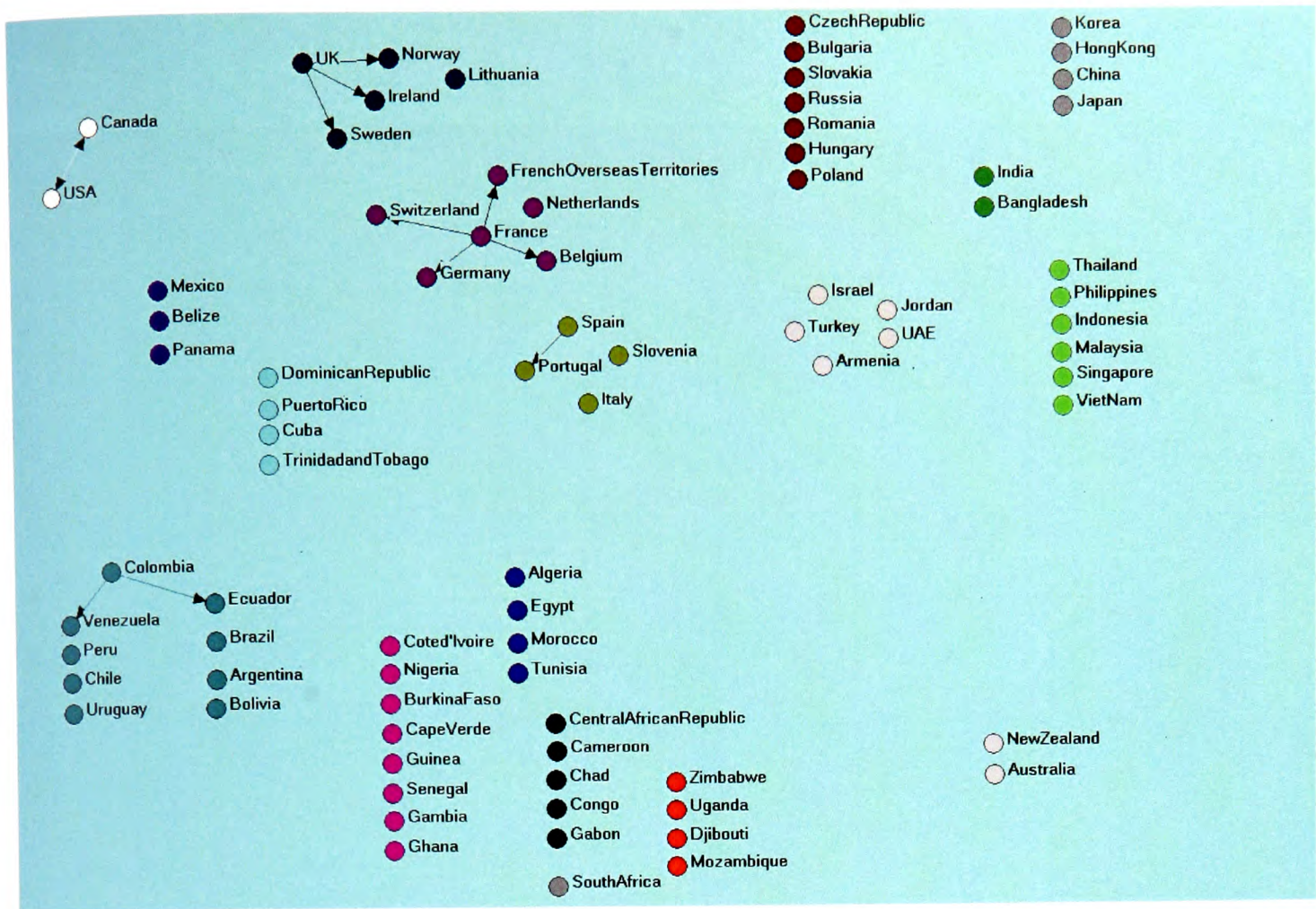


Figure 7.7 International acquisitions in the water sector within regions

This allows us to assume that it may be better to use the category of continents than the category of regions for the description of ownership structure in the water sector. This conclusion can be strengthened by an analysis of ownership ties within regions. These ties are presented in Figure 7.7. Comparison of Figures 7.2, 7.4, 7.6 and Figure 7.7 shows that the regional mapping increases the number of external ties and decreases the number of internal ties.<sup>60</sup>

It should be noted that European regions (especially Northern Europe, Western Europe and South Europe) play a very special role in distribution of ownership in the water sector. First, they have a great number of ties between each other, as can be seen in Figure 7.8.

<sup>60</sup> *External* ties are ties between groups (for example, between regions or continents), while *internal* ties are ties within the groups.



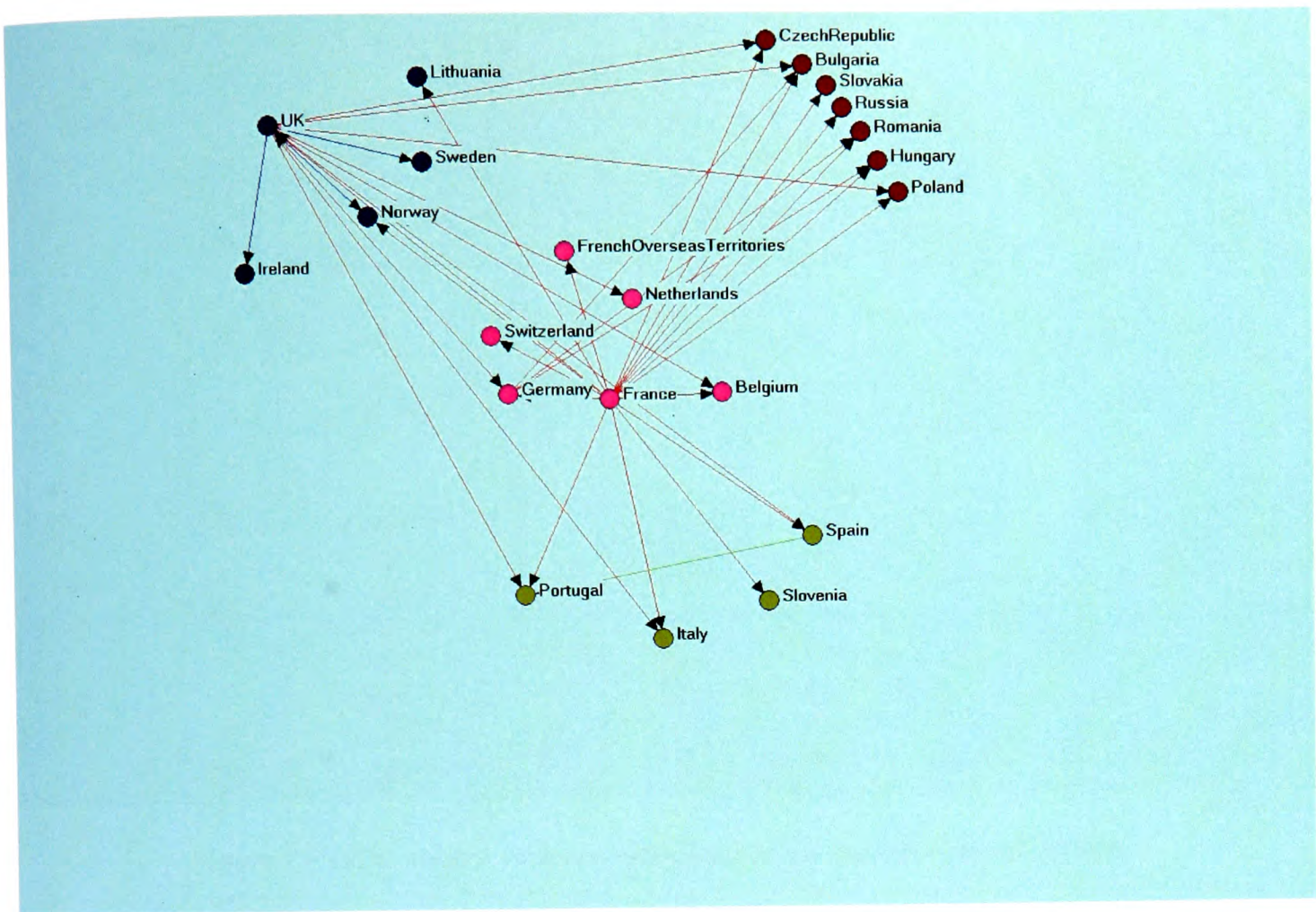


Figure 7.8 Between and within ties of all European regions

Second, the dominance of companies headquartered in Northern Europe, Western Europe and South Europe in the global ownership network is evident in Figure 7.9.<sup>61</sup> This graph demonstrates that these three regions have quite a few ownership ties with the other regions in addition to their dense net of internal ties. Comparison of Figures 7.6 and 7.9 is particularly remarkable in illustrating this point.

<sup>61</sup> Separate graphs for the ties of each of these European regions are shown in Appendix 6.



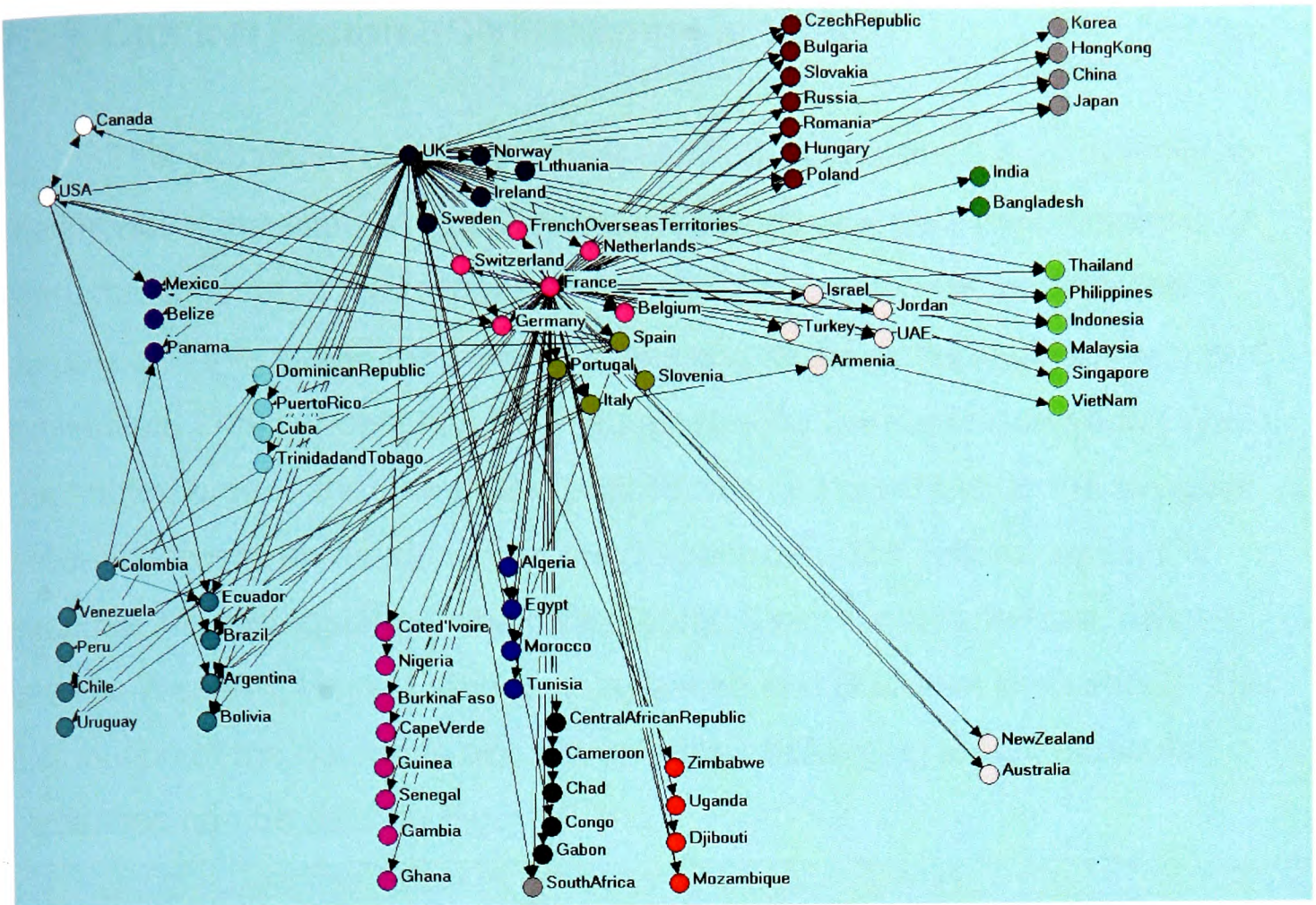


Figure 7.9 International water acquisitions within and between all regions

In principle, it is also possible to calculate density of ties between and within regions in order to confirm the findings. However, it does not seem essential in this case. The important point is that the Figures above have shown that the analyses using continental and regional groupings reach similar conclusions. Another important conclusion is that the continental model is slightly better for description of the ownership network of the water sector than the regional model.

Consequently, in the further analysis of comparative strength of different types of factors, only the continental model of the influence of the geographical factor on international ownership is taken into account. This analysis is presented in Section 7.1.5 that follows Sections 7.1.2, 7.1.3 and 7.1.4, which outline some results of the use of visualisation techniques for the analysis of the impact of the cultural, economic, and political factors on ownership acquisitions in the water sector.



## 7.1.2. Cultural Factors (Civilizations) in Water

This subsection addresses Research Subquestion 2.4 by examining the impact of the cultural factor. Although culture is a very multidimensional term, the concept of *civilisations* is arguably best suited (at least for the purposes of this study) for the encompassing global cultural differences and similarities. This concept has been suggested by Samuel Huntington (1993). Huntington argues that the global politics can be presented as the struggle between several civilisations that encompass different cultural types. For example, he distinguishes nine civilizations: Sinic, Latin American, African, Islamic, Western, Hindi, Orthodox, Japanese and Buddhist civilisations. The distribution of the countries according to their belonging to any particular civilisation can be seen in Figure 6.10.

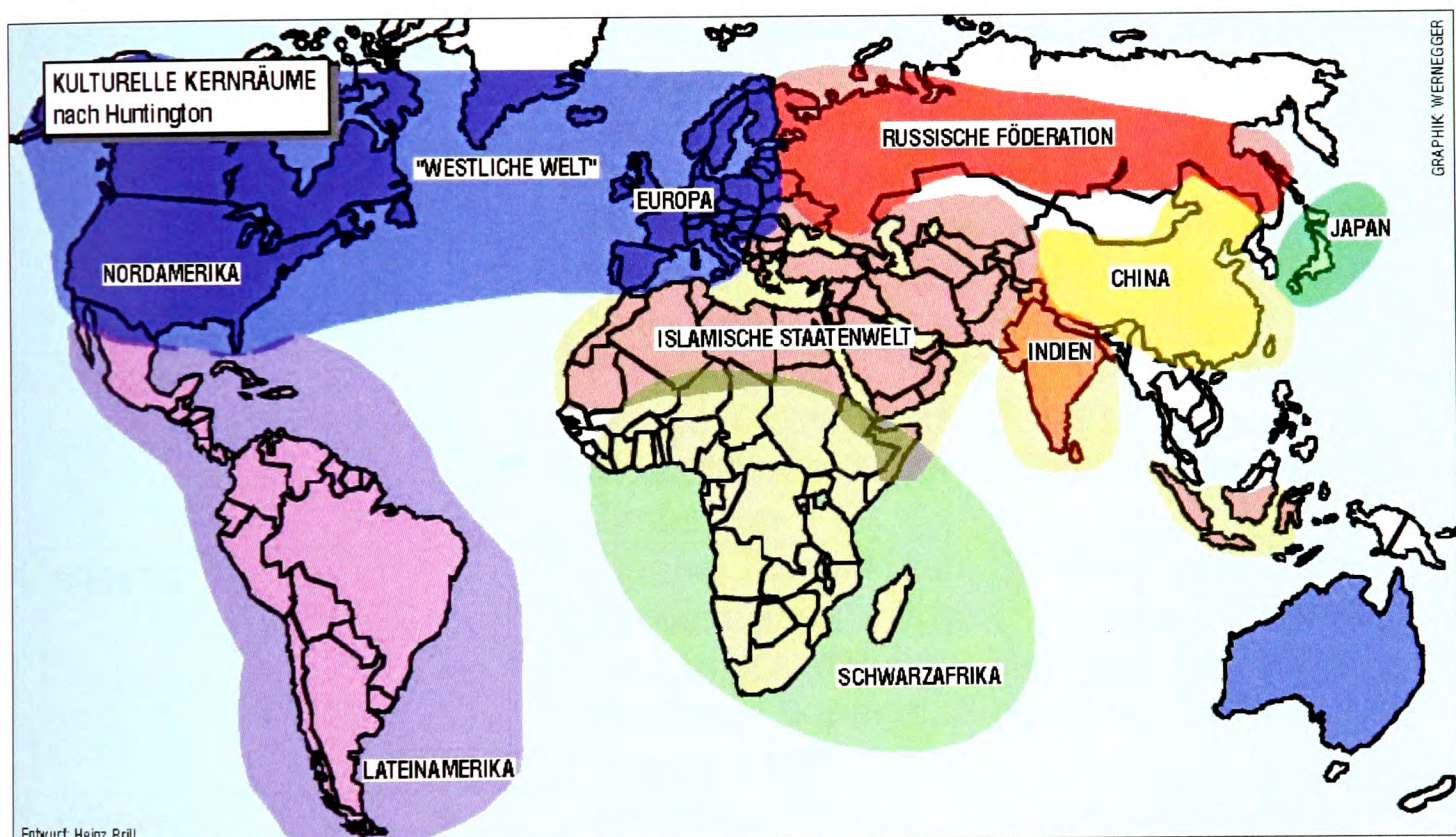


Figure 6.10 Civilisations of Earth in the 1990s<sup>62</sup>

It should be noted that the concept of civilisations have been criticized by many thinkers (especially in the American Academia), and a number of its inconsistencies have been revealed. For example, it was claimed that Huntington's approach is not empirically proven, essentialist and arbitrary, and that it ignores the current trend of universalisation of western values

<sup>62</sup> URL [www.net4you.com/jandl/clash.html](http://www.net4you.com/jandl/clash.html) (October, 2006)

(Sherman, 2003: 160), and has a great deal of other controversies, as explained in Section 4.3.

In spite of the above mentioned (and other) drawbacks, Huntington's classification has been selected for this study because it is relatively simple, it adequately addresses some aspects of culture and it is suitable for SNA. The detailed explanation for the selection of this variable has been provided in Section 4.3. Thus, all countries which are involved in international acquisitions in the water sector have been divided into nine groups. Table 7.4 presents the list of countries grouped in terms of their belonging to one or another of the above mentioned civilizations.

*Table 7.4 Civilisations and Countries*

<b>Civilizations</b>	<b>Countries</b>
<b>1. Sinic</b>	China, Hong Kong, Korea, Philippines, Taiwan, Vietnam.
<b>2. Latin America</b>	Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Cuba, Dominican Republic, Ecuador, Guatemala, Mexico, Panama, Peru, Puerto Rico, Trinidad and Tobago, Uruguay, Venezuela.
<b>3. African</b>	Cameroon, Central African Republic, Chad, Congo, Coted'Ivoire, Gabon, Ghana, Guinea, Mozambique, Nigeria, South Africa, Uganda, Zimbabwe.
<b>4. Islamic</b>	Algeria, Bangladesh, Burkina Faso, Cape Verde, Djibouti, Egypt, Gambia, Indonesia, Jordan, Kazakhstan, Malaysia, Morocco, Pakistan, Senegal, Singapore, Tunisia, Turkey, UAE.
<b>5. Western</b>	Australia, Belgium, Canada, Czech Republic, France, French Overseas Territories, Germany, Hungary, Ireland, Italy, Israel, Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, UK, USA.
<b>6. Hindi</b>	India, Nepal, Sri-Lanka.
<b>7. Orthodox</b>	Armenia, Bulgaria, Estonia, Georgia, Lithuania, Romania, Russia, Slovenia.
<b>8. Buddhist</b>	Thailand.
<b>9. Japanese</b>	Japan.

Note: Hong Kong is taken as belonging to the Sinic civilization (although Hong Kong is used to be a British colony, it is unlikely that the cultural values and traditions of this country were deeply affected by a short period of the British rule)



Our analysis starts with Figure 7.11, which presents ownership ties of all civilisations except for the Western civilization (reasons for this elimination will be understood from the subsequent discussion). This Figure shows that there are no ownership ties between the above-mentioned civilisations.

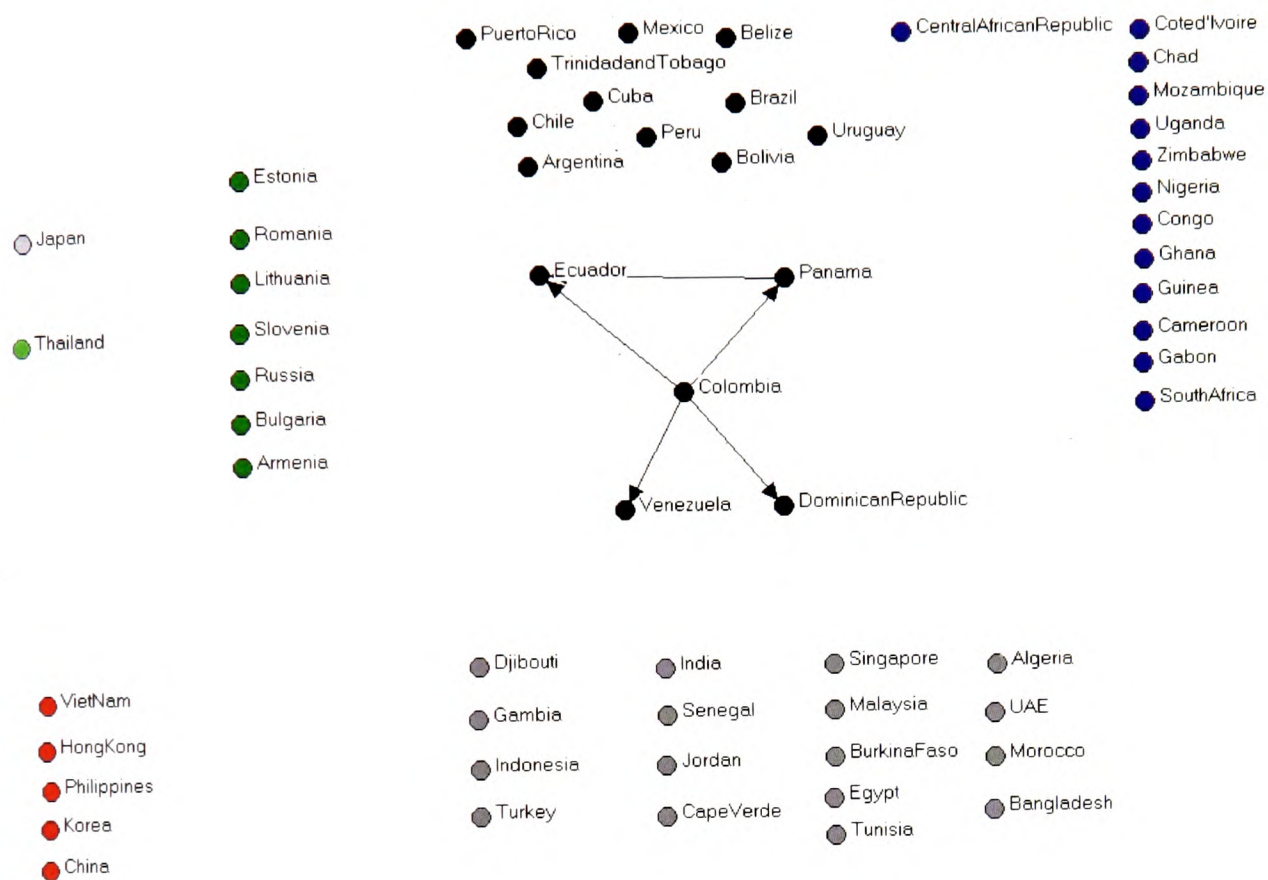


Figure 7.11 Within and between ownership ties between civilisations (apart from the Western civilisation)

The map of the internationalisation of ownership in the water sector changes significantly when the countries of the Western civilisation are taken into account, as can be seen in Figure 7.12. This Figure shows that the countries of the Western civilisation own water companies in the countries of other civilisations, while the ties between other civilisations are almost non-existent.



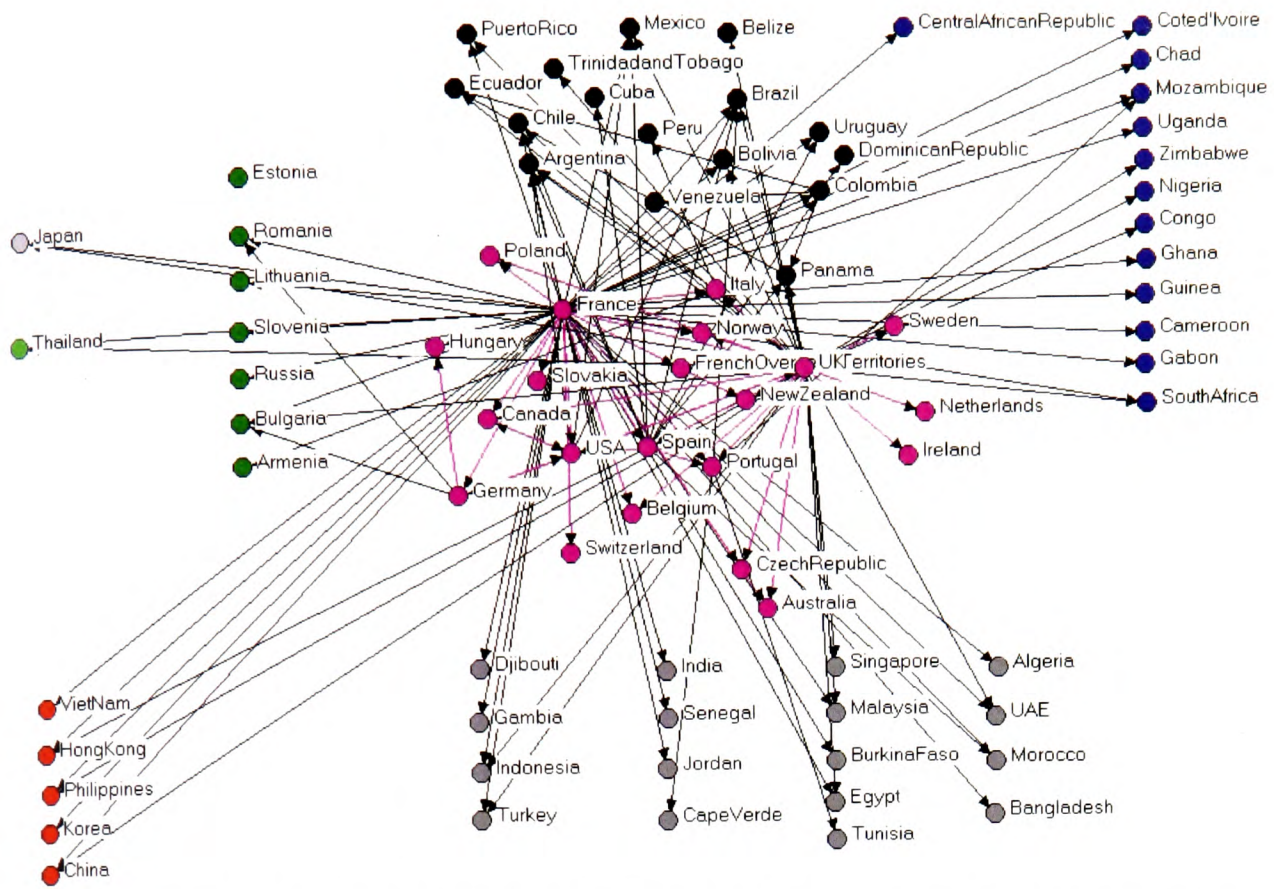


Figure 7.12 Map of ownership ties between all civilisations in the water sector

In order to draw further conclusions this graph needs to be simplified. Consequently, the following analysis focuses on its parts. First, the ownership ties within the western civilisation are analysed. They are presented in Figure 7.13.

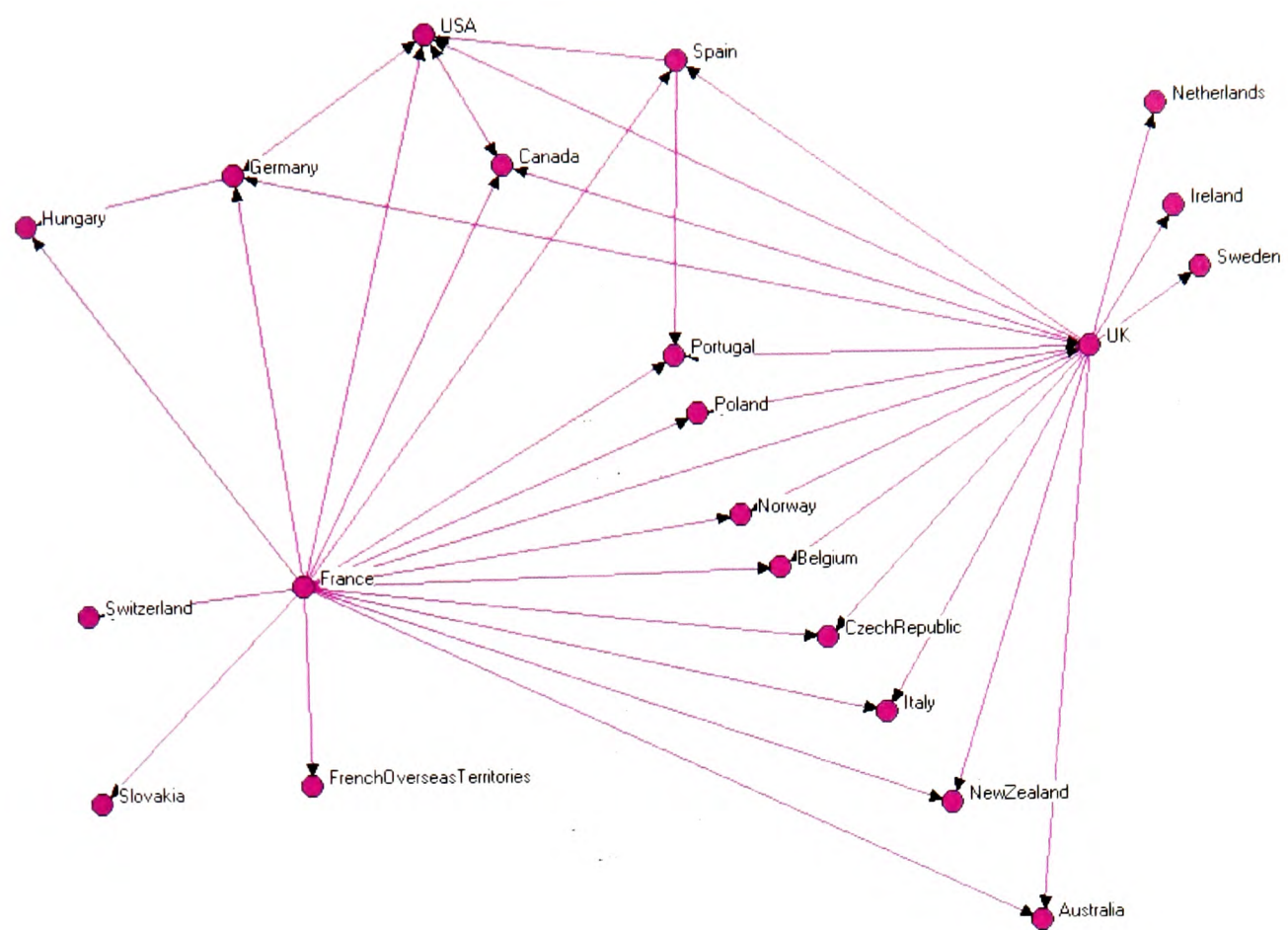


Figure 7.13 International ownership acquisitions within the Western civilization

This Figure does not differ significantly from Figure 7.8 which presents ownership ties within Europe. There are three dominant nodes in this network - the USA, Britain and France. The multinationals of these countries jointly, or individually, own public companies in other countries.

The next Figure (Figure 7.14) shows ownership ties between the Western civilization and the Latin American civilisation. It presents both internal and external ownership ties. The ties within the Western civilisation are pink, the ties within the Latin American civilisation are blue, and the colour black indicates ties between these two civilisations.



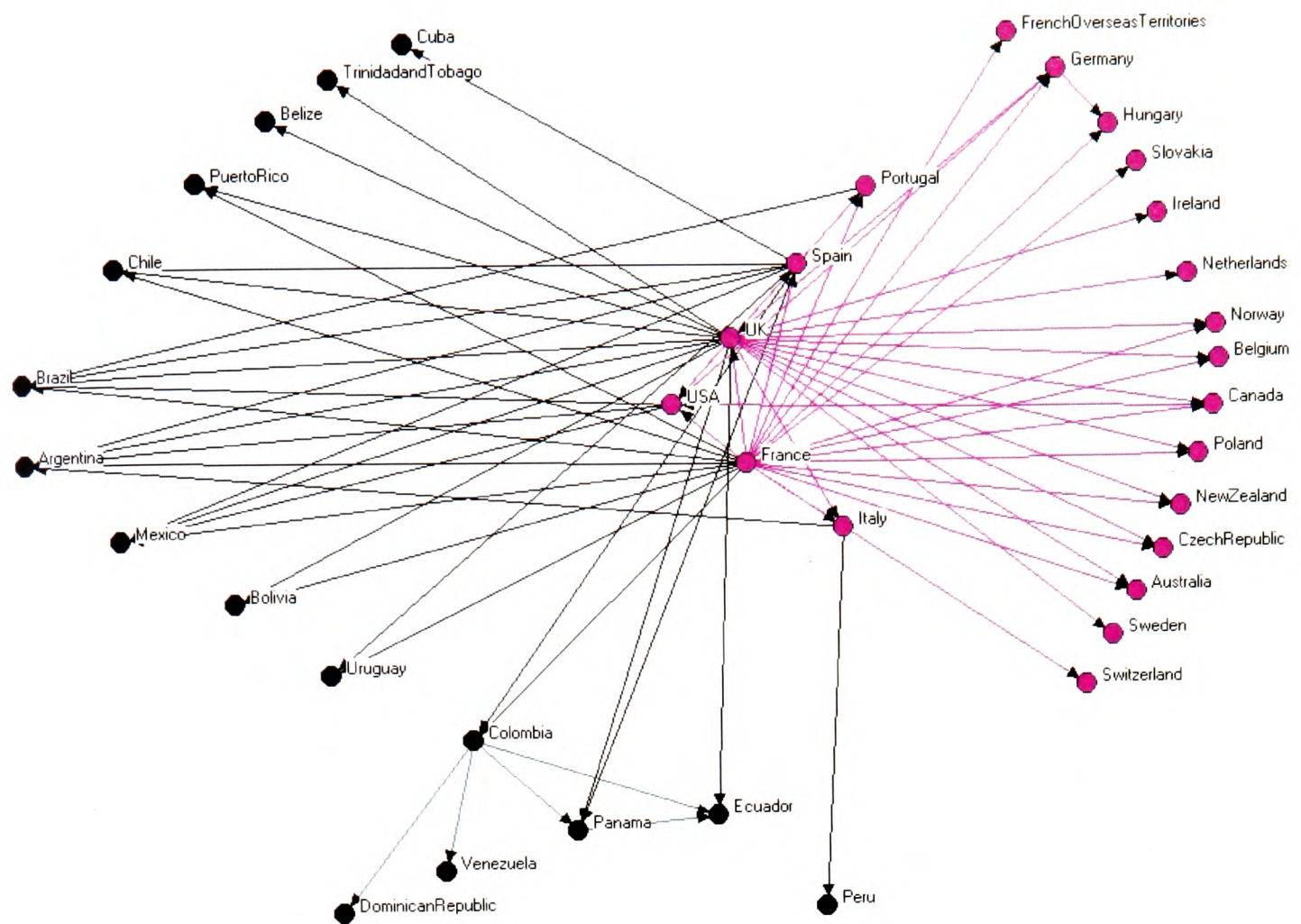


Figure 7.14 Ownership ties in the water sector: the Western civilisation versus the Latin American civilization

The analysis of this Figure reveals that the Western civilization owns public companies in the countries of the Latin American civilisation. All the ties between the civilisations are directed from the countries of the Western civilisation towards the countries of the Latin American civilisation. Brazil, Argentina, Mexico and Chile are the countries of the Latin American civilisation that are the most attractive for western countries. A possible reason for that is a relatively high level of development of these countries in comparison to the other countries of the Latin American civilisation, and consequently, a much more stable return of investment.

Another important point of this diagram is the observation that the Western civilisation has a great number of ownership ties between its own countries. Significantly, the ties within the Western civilisation are mediated through a relatively small subset of the countries. These countries are located in the central part of Figure 7.14. This group includes the USA, France and the UK. It should be noted that this subset of countries (apart from the USA) also mediates the external ties, i.e. the ties between the Western civilisation and the Latin American civilisation. If these countries are to be removed from



the analysis, the diagram would be broken into several disconnected fragments.

The next subsection of this chapter analyses the structure of ownership ties between the Western civilisation and the African civilisation. The ownership network for this case can be seen in Figure 7.15.

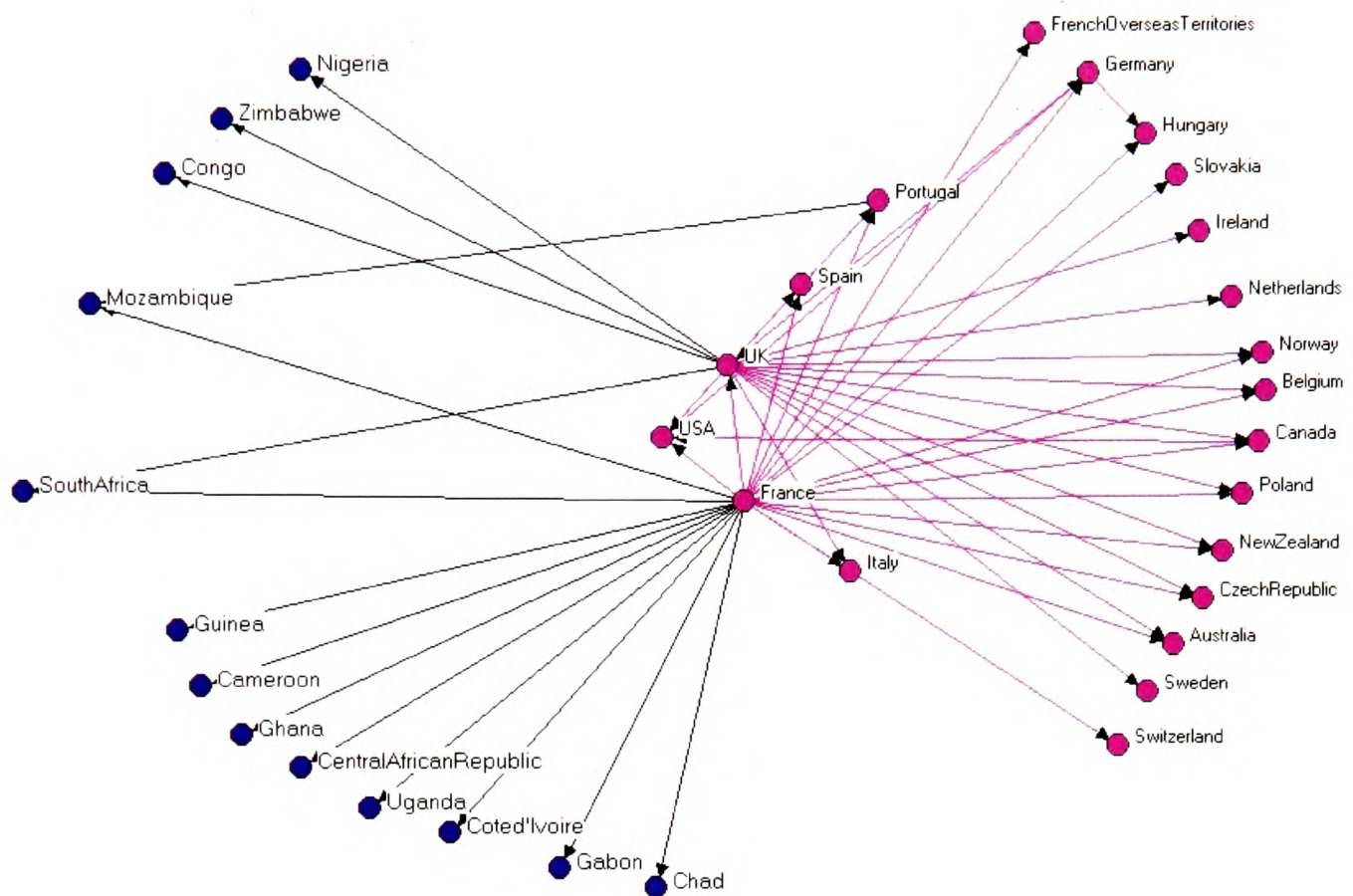


Figure 7.15 Ownership ties in the water sector: the Western civilisation versus the African civilization. It is easy to notice that the structure of ties is similar to that shown in Figure 7.14. The Western civilisation owns water companies in the countries of the African civilisation and there is no company of the African civilisation that has any stake in the public companies of the Western civilisation.

However, there are a number of important differences. For example, the number of ties between the Western civilisation and the African civilisation is not as big as it is in the case of the Latin American civilisation. Another important point is that there are no ownership ties within the African civilisation at all. It is interesting to note that the USA does not have shares in the water public companies of the African civilisation.

The pattern of ownership ties between the Islamic civilisation and the Western civilisation is very much the same. Figure 7.16 can prove this. The

dominance of the Western civilisation in terms of ownership in the water sector is evident. Almost all ties (with only one exception) are directed from the countries of the Western civilisation towards the countries of the Islamic civilisation.



Figure 7.16 Ownership ties in the water sector: the Western civilisation versus the Islamic civilization

Egypt, Indonesia, Morocco, UAE, Turkey and Malaysia are the countries water companies of which are owned not by one but by several countries of the Western civilisation. Again, it is the United Kingdom and France that own most public companies in the countries of the Islamic civilization.

The similar pattern of ownership ties exists between the Western civilisation and the Orthodox civilisation, as can be seen in Figure 7.17. Again, the directionality of ties is from the countries of the Western civilisation towards the countries of the Orthodox civilisation.



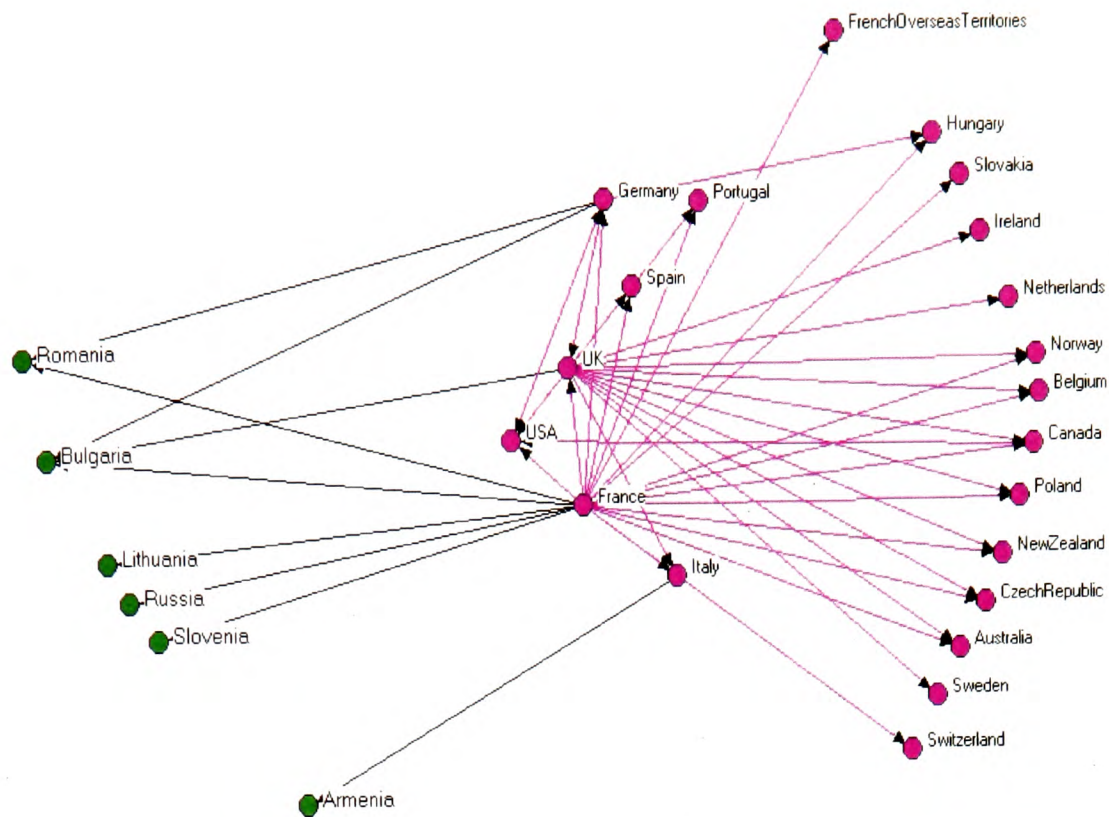


Figure 7.17 Ownership ties in the water sector: the Western civilisation versus the Orthodox civilization

It is also possible to note that Romania and Bulgaria are the countries which have got most attention from multinational corporations headquartered in countries of the Western civilization. France continues playing the dominant role in the ties between these two civilisations.

However, there are a number of important dissimilarities. The corporations of the United Kingdom seem not to be as interested in the acquisition of ownership in the countries of the Orthodox civilisation as they are in countries of African and Latin American civilisations. Remarkably, in transactions with the countries of the Orthodox civilisation, the place of the United Kingdom is occupied by Germany. German multinationals have stakes in Bulgarian and Romanian public companies.

Finally, this Figure indicates a smaller number of ownership ties between the Western civilisation and the Orthodox civilisation than it has been found in the previous cases. It is a very surprising result given that countries of the Orthodox civilisation are located in Eastern or Central Europe and are very close to Western Europe, the core of the Western civilisation.

There is not much difference in the pattern of ownership ties of the Western civilisation with the countries of the other four civilisations. Because there are few ownership ties between them, they can be portrayed in one Figure (Figure 7.18). This pattern of ownership ties is completely similar to the considered in the previous figures, and does not need to be explained in detail. The multinationals headquartered in the Western civilisation own public companies in the countries of the other civilisations. France and the United Kingdom are the countries which mediate this interaction. Importantly, both France and the United Kingdom have jointly acquired ownership in the water companies of the Japanese, Buddhist and Sinic civilisations.

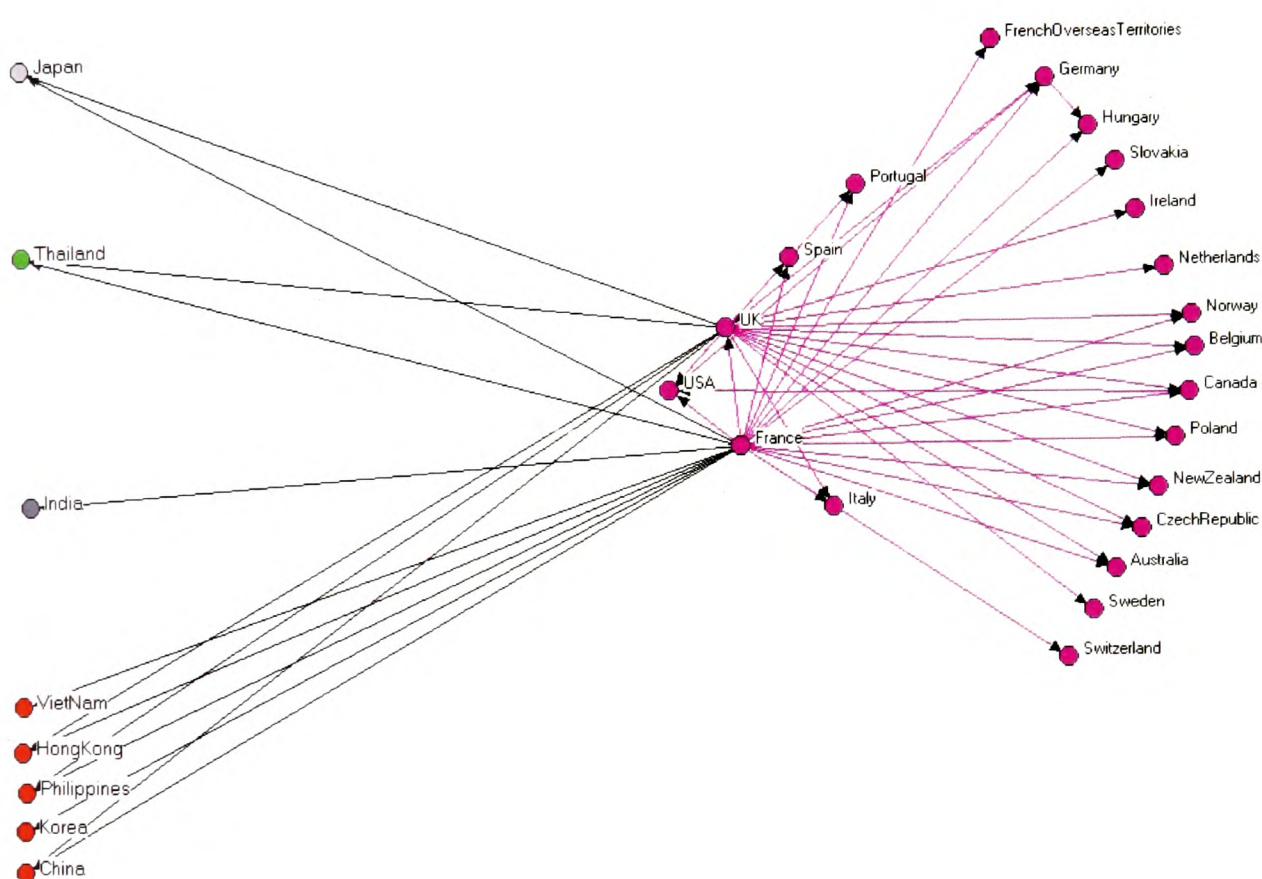


Figure 7.18 Ownership ties between the Western civilisation and the Sinic, Hindi, Buddhist, and Japanese civilisations

Table 7.5 summarises densities of ownership ties between civilisations. Rows of this table show the acquisitions made by some of the civilisations in the countries of other civilisations. The figures in the columns of this table estimate density of acquisitions made by the countries of other civilisations in any particular civilisation.

Table 7.5 Average Density of Ownership Ties between Civilisations in Water

	Sinic	Latin American	African	Islamic	Western	Hindi	Orthodox	Buddhist	Japanese	Jewish
Sinic Civilisation	0	0	0	0	0	0	0	0	0	0
Latin American Civilisation	0	0.0208	0	0	0	0	0	0	0	0
African Civilisation	0	0	0	0	0	0	0	0	0	0
Islamic Civilisation	0	0	0	0	0.0030	0	0	0	0	0
Western Civilisation	0.0762	0.0952	0.0549	0.0655	0.0952	0.0476	0.0714	0.0952	0.0952	0.0476
Hindi Civilisation	0	0	0	0	0	0	0	0	0	0
Orthodox Civilisation	0	0	0	0	0	0	0	0	0	0
Buddhist Civilisation	0	0	0	0	0	0	0	0	0	0
Japanese Civilisation	0	0	0	0	0	0	0	0	0	0
Jewish Civilisation	0	0	0	0	0	0	0	0	0	0

This table summarises what has been indicated earlier. The row that is associated with the Western civilisation proves the existence of relatively dense ties of this civilisation with the other civilisations. Because the number of countries within each of the considered civilisations is different, the figures of this table give us a rather blurred picture. However, it is possible to notice that only the Islamic civilisation owns some water companies belonging to the Western civilisation.

Also, it is interesting to note that only the Western and Latin American civilisations have internal ownership ties (the diagonal of this table). It might indicate that the cultural factor does not make a significant impact on the ownership structure of the global water sector. However, this data are not sufficient to make this conclusion and it needs to be checked with the use of other techniques. One of such attempts is done in Section 7.1.5.2.

To sum up the findings of this subsection, a few multinationals of the Western civilisation own water companies in the countries of the other civilisations. There are a lot of ties within the Western civilisation and there are few ownership ties outside of it.

### 7.1.3. Economic Factors in Water

The previous subsection has assessed the influence of the cultural factor. Another group of factors that may impact on the distribution of ownership in public services is economic factors. These factors are frequently regarded among the most important determinants of many processes of globalisation. An attempt to examine their effect for international acquisitions in the water sector (Research Subquestion 2.2) is undertaken in this subsection.

In this study the economic factors are associated with income per person, according to classification of the World Bank. In this classification countries are divided into four groups including countries with high income per person, upper middle income per person, lower middle income per person, and low income per person. How the countries under study are placed in these groups is summarised in Table 7.6.

*Table 7.6 Groups of Countries on the Basis of Income per Person*

<b>Income per Person</b>	<b>High</b>	<b>Upper Middle</b>	<b>Lower Middle</b>	<b>Low</b>
<b>Countries</b>	Australia Belgium Canada Denmark Finland France French Overseas Territories Germany Hong Kong Ireland Israel Italy Japan Korea Netherlands New Zealand Norway Portugal Puerto Rico Singapore Slovenia Spain Sweden Switzerland UAE UK USA	Argentina Belize Chile Czech Republic Gabon Estonia Hungary Malaysia Mexico Panama Poland Romania Russia Slovakia South Africa Trinidad and Tobago Lithuania Turkey Uruguay Venezuela	Algeria Armenia Bolivia Brazil Bulgaria Cameroon Cape Verde Colombia Congo Cuba Djibouti Dominican Republic Ecuador El Salvador Georgia Guatemala China Honduras Egypt Indonesia Jordan Jamaica Kazakhstan Moldova Morocco Peru Philippines Thailand Tunisia	Bangladesh Burkina Faso Central African Republic Chad Coted'Ivoire Gambia Ghana Guinea India Mozambique Nigeria Senegal Uganda Vietnam Zimbabwe



International water acquisitions of these countries are shown in Figure 7.19. At first glance there are a lot of ties between the countries and it is difficult to identify any particular pattern. However, it is possible to simplify this graph by visualising ties between selected groups of countries.

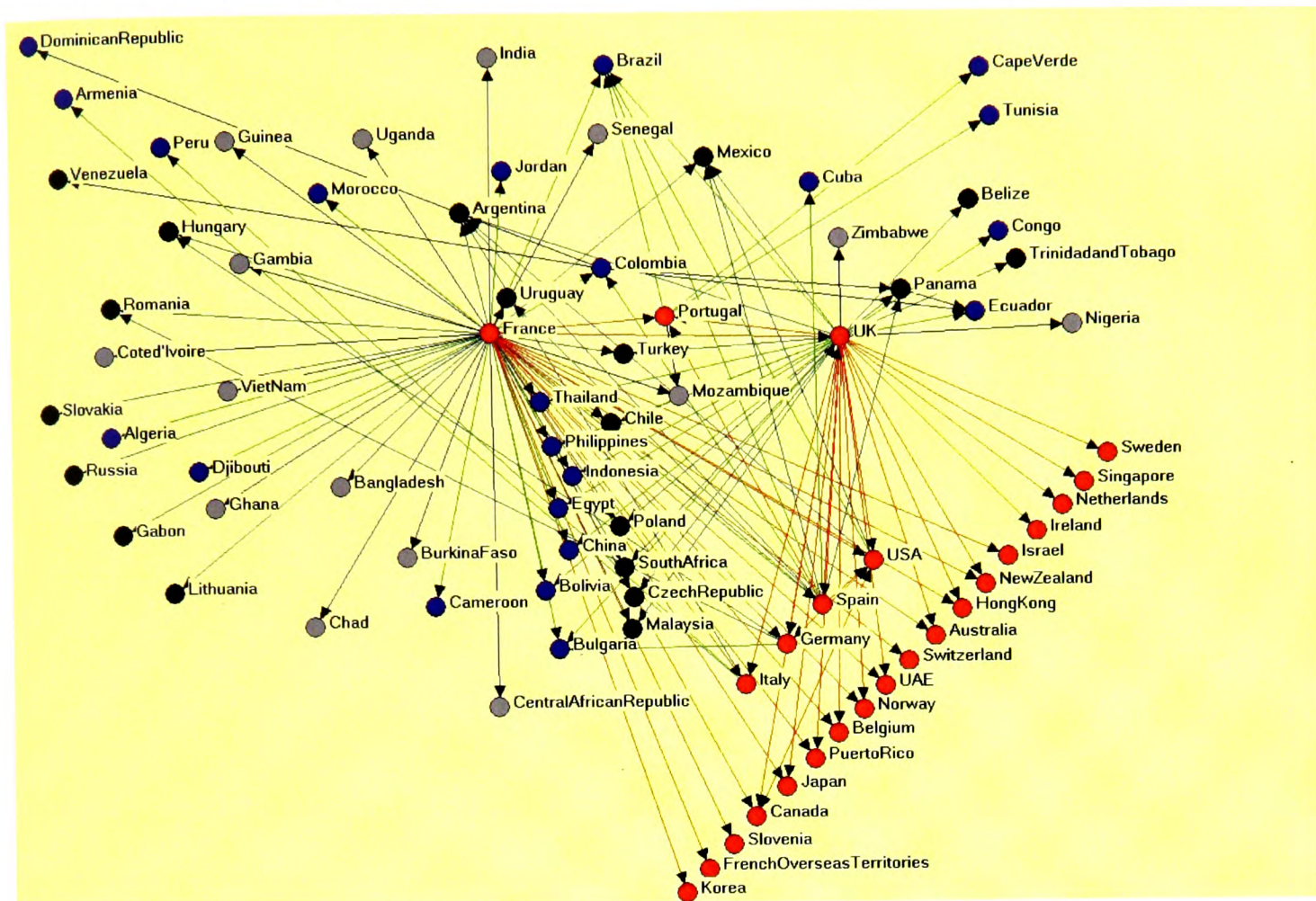


Figure 7.19 Ownership ties in the water sector within and between countries with different income per person

For example, Figure 7.20 presents ties within and between countries with upper middle income per person, lower middle income per person and low income per person. This visual image shows that there are only few acquisitions between and within countries that do not have high income per person. In this Figure, countries with upper middle income are black, countries with lower middle income are blue, and countries with low income are grey. It can be seen in this Figure that there are only five ties between all these countries.



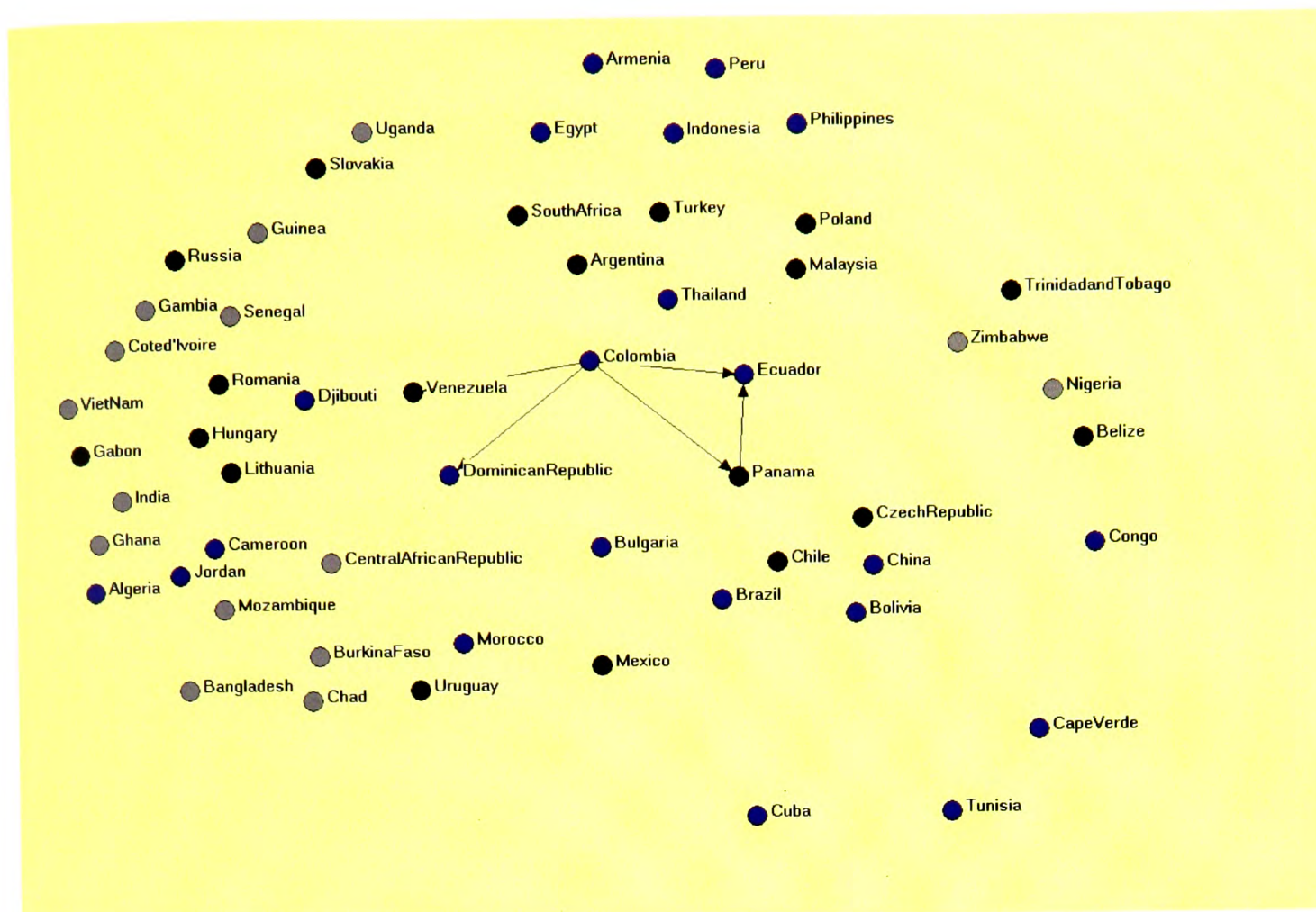


Figure 7.20 Ownership ties of water companies in countries with UMI, LMI and LI

However, the pattern of ties between countries with high income per person is different. It can be seen in Figure 7.21 that there is a very dense net of ties between these countries.

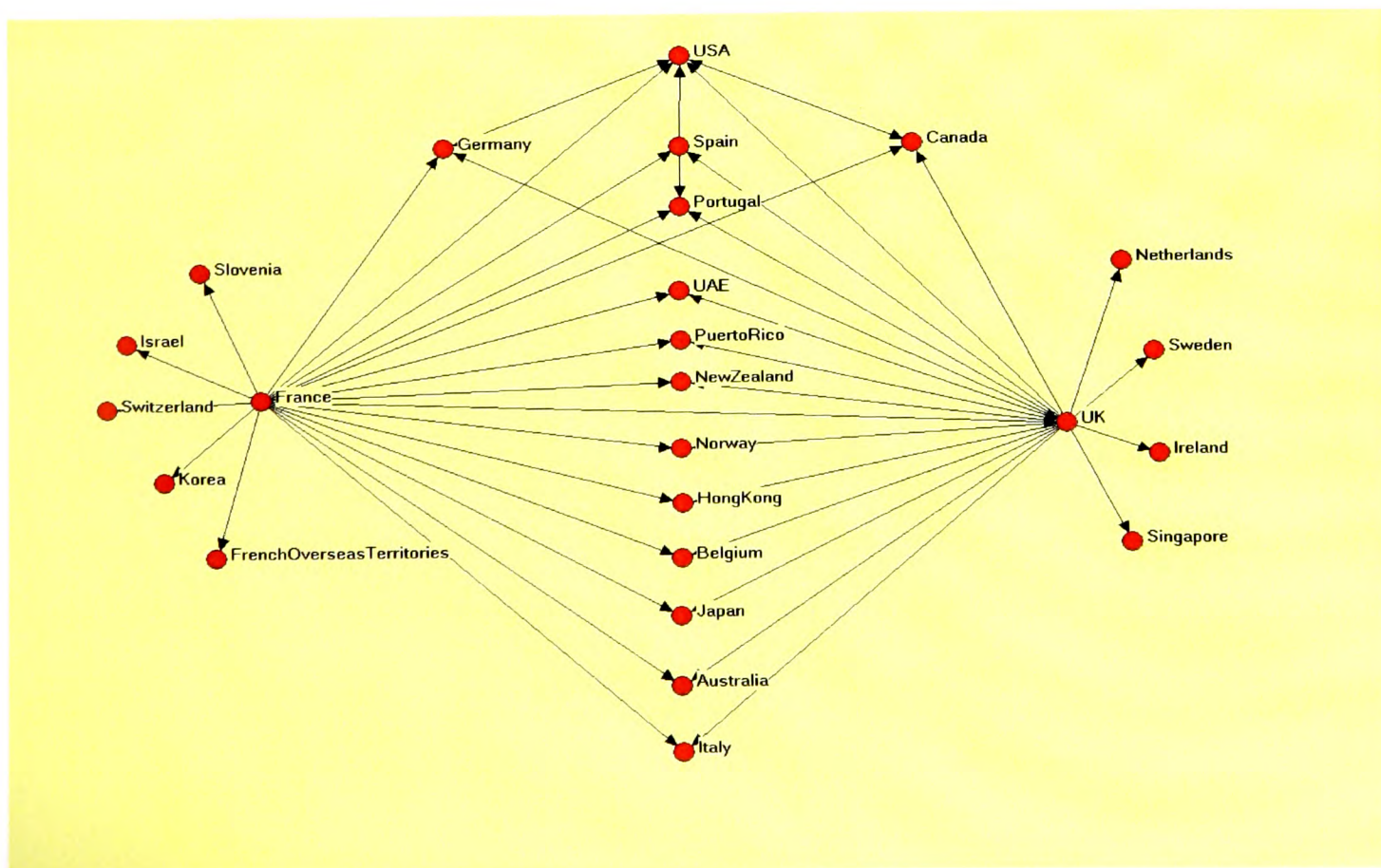


Figure 7.21 Ownership ties of water companies between countries with high income per person



The countries with high income also have a great number of ties with countries with upper middle income, as presented in Figure 7.22. In this Figure, countries with high income are red coloured whereas countries with upper middle income are black.

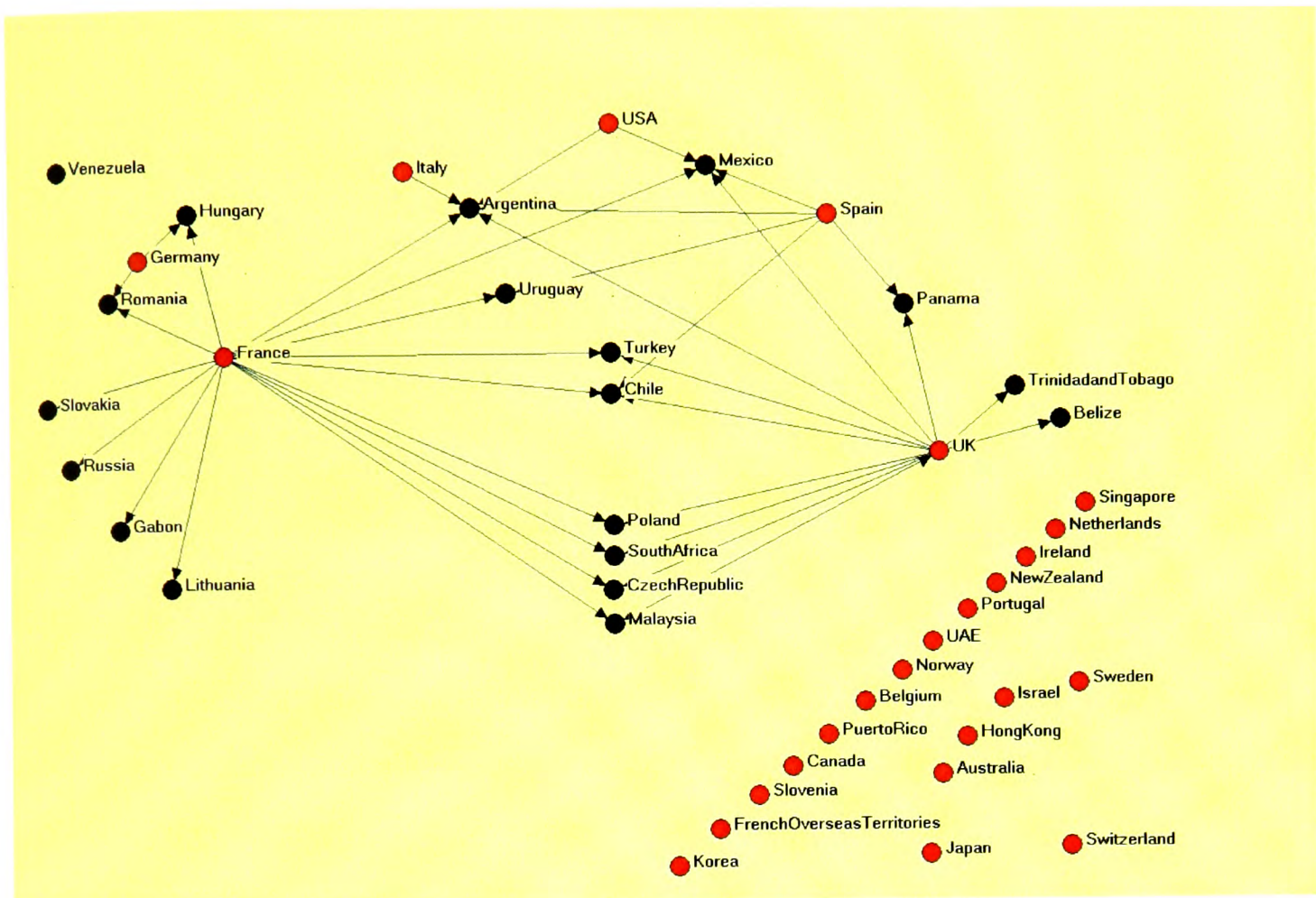


Figure 7.22 Ownership ties between countries with high income per person and upper middle income per person

This Figure also shows that only a few high income countries have ownership ties with countries with upper middle income. These countries include the USA, Italy, Spain, Germany, France and the UK. The others countries, which occupy the right lower corner of this graph, do not have such ties.

The pattern of ties does not change considerably if the ties of high income countries with lower middle income countries are examined. This is shown in Figure 7.23. Countries with high income are red and countries with lower middle income are blue. The only noteworthy difference between this Figure and Figure 7.22 is that the number of ties is slightly decreased.



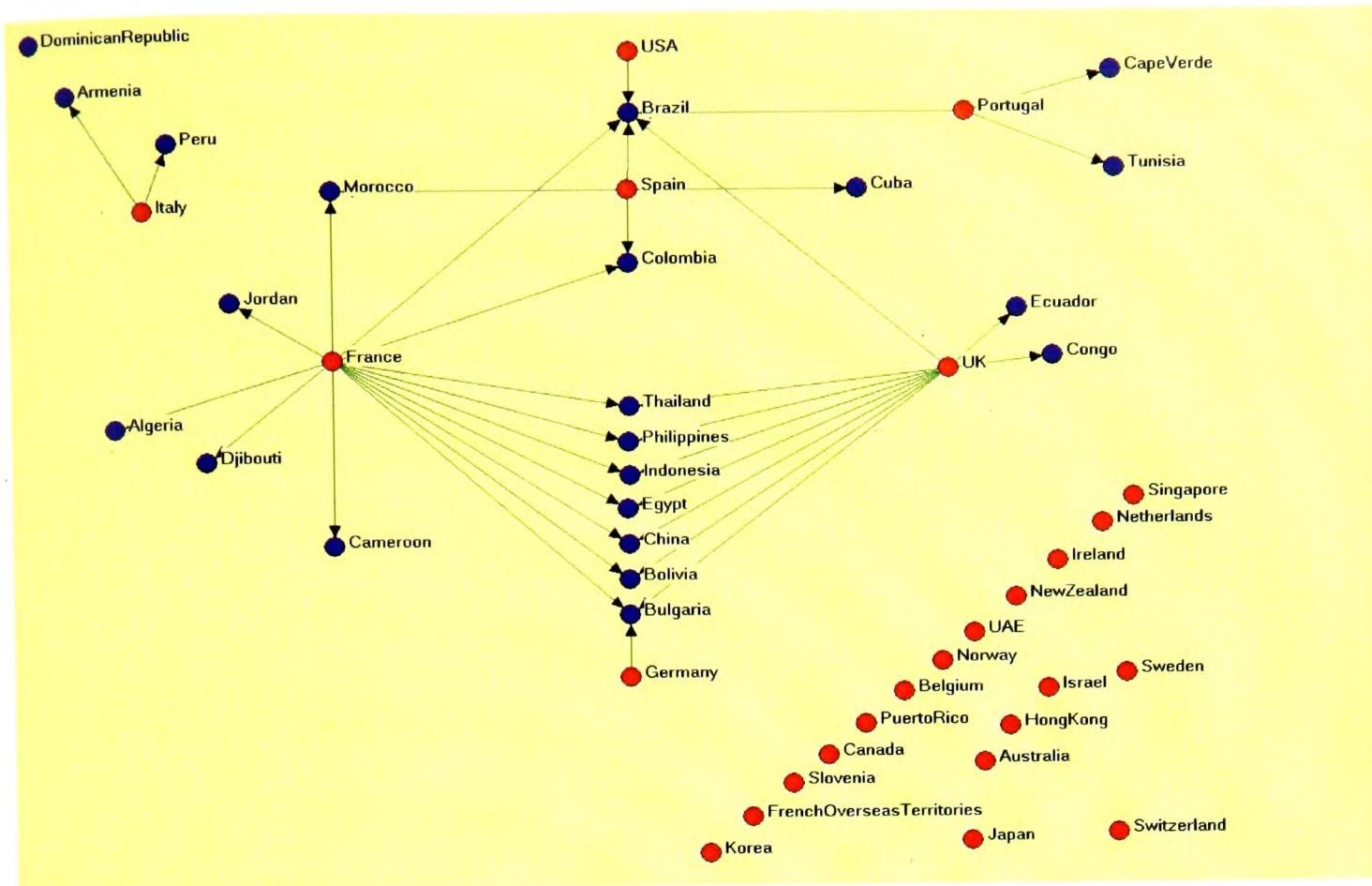


Figure 7.23 Ownership ties between countries with high income per person and lower middle income per person in the water sector

The drop in the quantity of ties is much more visible on the graph in which ownership ties between high income countries with countries of low income are presented. This case is shown in Figure 7.24. It is worth mentioning that there are only three countries with high income per person that have ownership ties with low income countries.

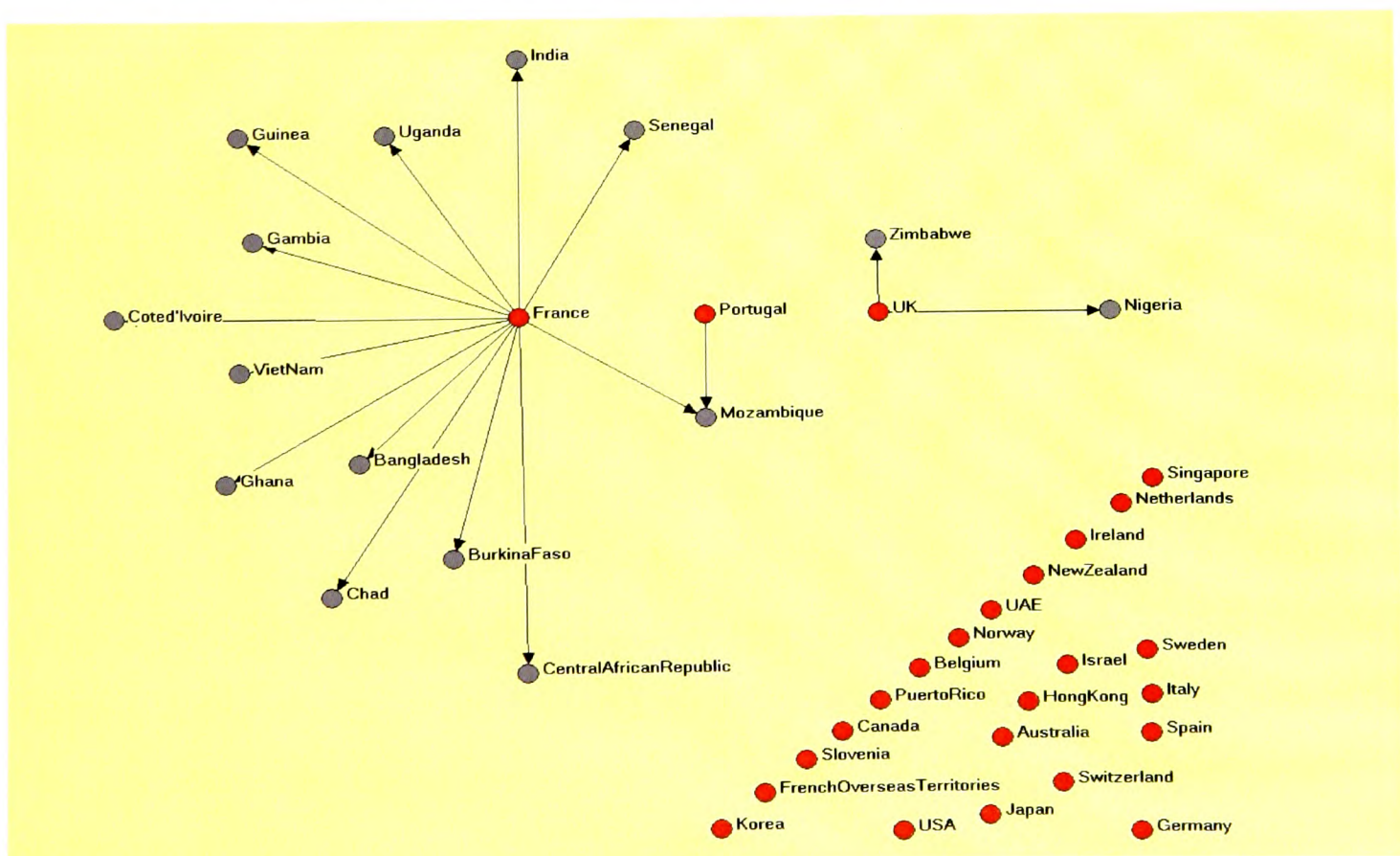


Figure 7.24 Ownership ties between countries with high income and low income in the water sector

The visual analysis can be supplemented by density analysis. Key densities of ties within and between income groups are summarised in Table 7.7. These statistics also show that most ownership ties in the water sector are associated with countries with high income per person or upper middle income per person.

*Table 7.7 Average Density of Ties between Countries with Different Income per Person (Water)*

	<b>High Income per Person</b>	<b>Upper Middle Income per Person</b>	<b>Lower Middle Income per Person</b>	<b>Low Income per Person</b>
<b>High Income per Person</b>	0.0750	0.0758	0.0636	0.0427
<b>Upper Middle Income per Person</b>	0.0021	0	0.0024	0
<b>Lower Middle Income per Person</b>	0	0.0048	0.0043	0
<b>Low Income per Person</b>	0	0	0	0

To sum up, the findings of this subsection show that the category of income per person seems to be important for making international acquisitions in the water sector. Multinational water companies that are headquartered in high income countries prefer to invest in high or middle income countries. This finding is important in terms of the policy of hoping that MNCs will invest in low income countries to help them get more water supplies. Our findings demonstrate that if it was the target of this initiative of IFIs, this policy has failed. (A broader discussion of the findings of this and other subsections of this chapter is undertaken in Chapter 8).

#### 7.1.4. Political Factors in Water

This subsection concerns with Research Subquestion 2.3. There are many political aspects which may influence the distribution of ownership in the water sector. It is impossible to take into account all of them. That is why only one aspect of political issues is taken into account in this thesis – the membership in the Organisation for Economic Cooperation and Development (OECD).<sup>63</sup> The reason for this is the fact that some political aspects play a certain role in deciding which country would be allowed to join this elite organisation. At present the OECD has thirty country-members. The countries which are the members of the OECD are presented in Table 7.8.

*Table 7.8 Countries-Members of the OECD*

1	Australia		16	Korea
2	Austria		17	Luxembourg
3	Belgium		18	Mexico
4	Canada		19	Netherlands
5	Czech Republic		20	New Zealand
6	Denmark		21	Norway
7	Finland		22	Poland
8	France		23	Portugal
9	Germany		24	Slovak Republic
10	Greece		25	Spain
11	Hungary		26	Sweden
12	Iceland		27	Switzerland
13	Ireland		28	Turkey
14	Italy		29	United Kingdom
15	Japan		30	United States

<sup>63</sup> The choice of this variable is explained in more detail in Section 4.3.5.



Not all OECD countries, which are summarised in Table 7.8, are involved in international acquisitions in the water sector. The data of PSIRU shows that only water companies of Australia, Belgium, Canada, Czech Republic, France, Germany, Hungary, Ireland, Italy, Japan, Korea, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, Turkey, the UK, and the US have ownership ties there

Ownership ties between OECD countries are shown in Figure 7.25. It should be noticed that OECD countries differ in their positions within this network. It is evident that France and the UK occupy similar structural positions. These countries own public subsidiaries in all other OECD countries included in this analysis.

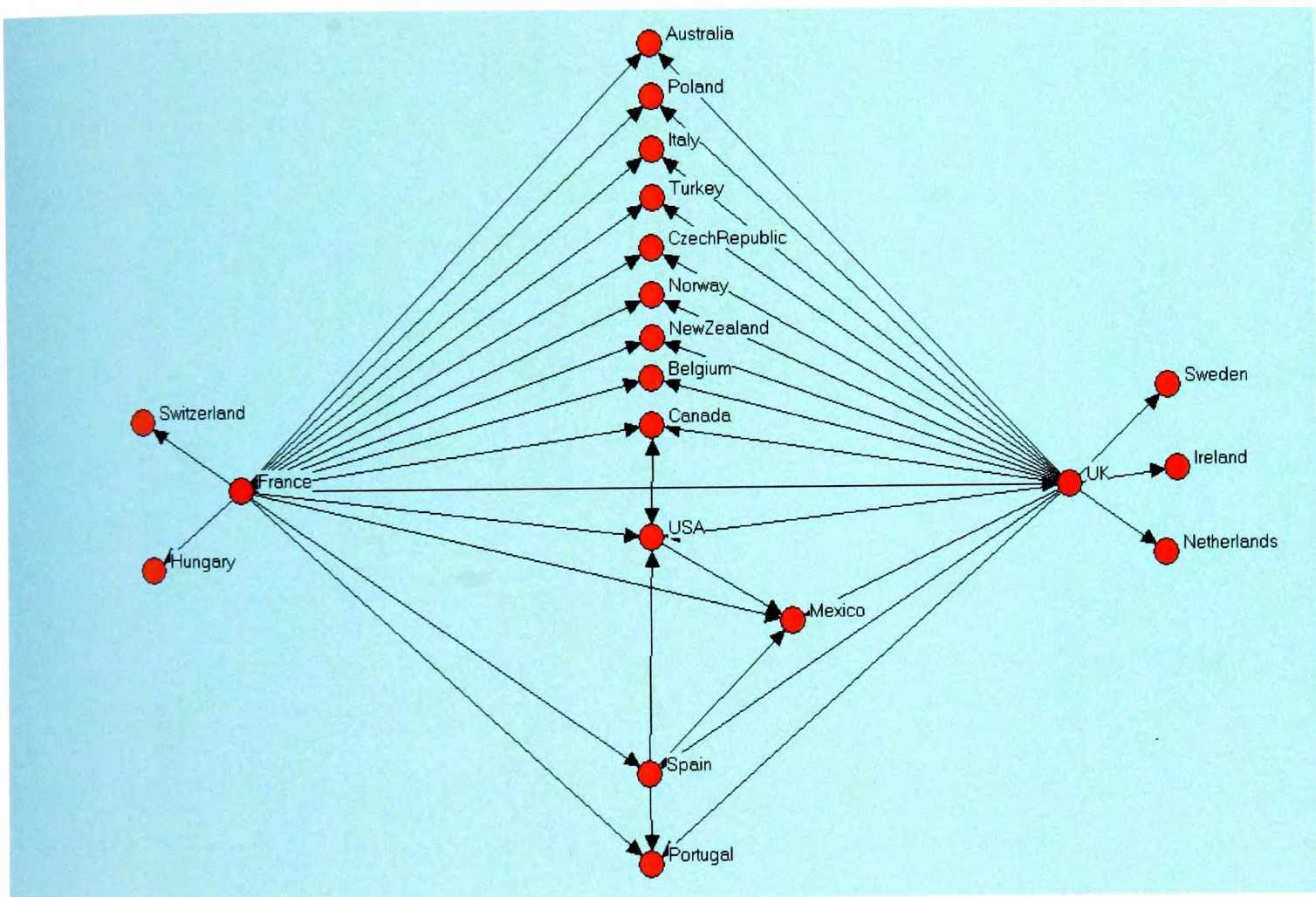


Figure 7.25 International ownership ties between OECD countries

At the same time, many OECD countries do not own subsidiaries in the other OECD countries. This list of countries includes Poland, Italy, Belgium, Australia and some other countries. Especially exploited in this respect is Mexico, the public companies of which are owned by corporations from four OECD countries. Another interesting point to notice is the tandem the US–Canada. They have ownership ties between each other and their public companies are owned by British and French multinational corporations.





of the Matrix shows a significantly greater number of ties than the right column of the top half of the Matrix.

Both of the above mentioned observations can be verified by the figures of average distances, which are presented in Table 7.9.

*Table 7.9 Average Density of Ownership Ties of OECD and Non OECD Countries in Water*

	Non OECD	OECD
Non OECD	0.0016	0.0007
OECD	0.0593	0.0817

\* Standard Deviations within blocks:

	1	2
	0	1
-----		
1 0	0.0403	0.0267
2 1	0.2362	0.2739

Although values of densities are small, the figures of this table indicate that the greatest density of ownership ties (0.0817) is within OECD countries. Furthermore, they confirm that there is no difference for OECD countries where to acquire ownership in the water sector. The coefficients 0.0593 and 0.0817 are close to each other. By contrast, coefficient 0.0016 in the first row of this table is significantly greater than coefficient 0.0007. This shows that the choice of the investments in the water sector for non OECD countries is normally within their own group.

To summarise the findings it is possible to say that the political factor, in terms of the membership in the OECD, may have an impact on the distribution of ownership in the water sector, because the structural properties of the network for each of these two groups are quite different. However, this conclusion is likely to be changed if the analysis is undertaken with the aim of establishing whether these

ownership acquisitions take place only within the borders of the specified groups, because it is evident that OECD countries have a lot of acquisitions in the other group (this result shows though that the ownership is concentrated in countries-members of the OECD). It is also noteworthy that there is a dense net of ownership acquisitions within the group of OECD members.

The analysis so far has allowed us to make some important observation about the impact of different factors on the ownership network of water companies. However, it has not contributed much towards an understanding of which factor is the strongest and whether these factors are statistically significant. This is the purpose of the next subsection.

#### **7.1.5. Comparative Analysis of the Impact of Geographical, Cultural, Economic, and Political Factors on the Structure of Ownership in the Water Sector**

This subsection addresses Research Subquestion 2.5. It aims to compare the impact of different factors (geographical, cultural, economic and political) on ownership distribution in the water sector. The comparative impact of the geographical, cultural, economic, and political factors is assessed through the using of QAP routine (Quadratic Assignment Procedure).

Quadratic Assignment Procedure compares two matrixes as it was explained in Section 5.5. In order to compare the impact of geographical, cultural, economic, and political factors on the ownership network, these variables transformed in the matrix format. The fact of two countries belonging to one geographical (cultural, economic, or political) group is represented by 1. If a dyad of countries does not belong to one group, the value of the matrix cell which represents this dyad is 0. It is evident from this description that these matrixes are symmetrical.

In this study we successively use QAP to compare the non symmetrical similarity matrix of ownership with symmetrical similarity matrixes which reflect geographical, cultural, economic, and political variables.



### 7.1.5.1. The Assessment of the Impact of the Geographical Factor (Continents)

The figures produced by the QAP routine for continents (the geographical factor) are presented below.

```
QAP MATRIX CORRELATION
Observed matrix:      inpwaterandw2007
Structure matrix:    NewAffiliationContinents
# of Permutations:    2500
Random seed:         441
Univariate statistics
```

		1	2
		inpwater	NewAffil
		-----	-----
1	Mean	0.021	0.217
2	Std Dev	0.144	0.412
3	Sum	138.000	1408.000
4	Variance	0.021	0.170
5	SSQ	138.000	1408.000
6	MCSSQ	135.061	1102.064
7	Euc Norm	11.747	37.523
8	Minimum	0.000	0.000
9	Maximum	1.000	1.000
10	N of Obs	6480.000	6480.000

Hubert's gamma: 47.000

Bivariate Statistics

		1	2	3	4	5	6	7
		Value	Signif	Avg	SD	P(Large)	P(Small)	NPerm
		-----	-----	-----	-----	-----	-----	-----
1	Pearson Correlation:	0.044	0.004	0.000	0.019	0.004	0.997	2500.000
2	Simple Matching:	0.776	0.004	0.770	0.016	0.004	0.997	2500.000
3	Jaccard Coefficient:	0.031	0.004	0.020	0.005	0.004	0.997	2500.000
4	Goodman-Kruskal Gamma:	0.308	0.004	-0.011	0.166	0.004	0.997	2500.000
5	Hamming Distance:	1452.000	0.004	1485.122	33.061	0.997	0.004	2500.000

The interval for p value can be calculated as Avg $\pm$ 2SD. In this case, the interval is [-0,038; +0,038].

These figures show that there is evidence of correlation at 0.05 significance. In fact, in this case there is evidence of correlation even at 0.004 significance. In other words, it gives strong evidence that the geographic factor is highly significant and it makes a substantial impact on ownership distribution in the water sector. This result is in agreement with our previous conclusions. It shows that a lot of acquisitions in water have been undertaken within continents. Although geographic borders are no bar to the expansion of capital as far as multinationals of the most influential (or central) countries are concerned, the majority of the investments in

water continue to be undertaken within the continents. Therefore, the finding contradicts to Hypothesis 4.2 which states that impact of the geographic factor on international acquisitions in public services is insignificant.

### 7.1.5.2. The Assessment of the Impact of the Cultural Factor (Civilisations)

The figures obtained during the use of QAP routine for the cultural factor (civilisations) are presented below.

#### QAP MATRIX CORRELATION

---

Observed matrix: inpwaterandw2007  
 Structure matrix: NewAffiliationsCivilisations  
 # of Permutations: 2500  
 Random seed: 236

#### Univariate statistics

	1	2
	inpwater	NewAffil
1 Mean	0.021	0.171
2 Std Dev	0.144	0.376
3 Sum	138.000	1106.000
4 Variance	0.021	0.142
5 SSQ	138.000	1106.000
6 MCSSQ	135.061	917.229
7 Euc Norm	11.747	33.257
8 Minimum	0.000	0.000
9 Maximum	1.000	1.000
10 N of Obs	6480.000	6480.000

Hubert's gamma: 45.000

#### Bivariate Statistics

	1	2	3	4	5	6	7
	Value	Signif	Avg	SD	P(Large)	P(Small)	NPerm
1 Pearson Correlation:	0.061	0.000	-0.000	0.017	0.000	0.999	2500.000
2 Simple Matching:	0.822	0.000	0.815	0.016	0.000	0.999	2500.000
3 Jaccard Coefficient:	0.038	0.000	0.019	0.005	0.000	0.999	2500.000
4 Goodman-Kruskal Gamma:	0.413	0.000	-0.019	0.168	0.000	0.999	2500.000
5 Hamming Distance:	1154.000	0.000	1196.602	26.815	0.999	0.000	2500.000

---

Running time: 00:00:01

Output generated: 07 Jul 07 11:47:14

Copyright (c) 1999-2000 Analytic Technologies

These figures show that there is evidence of correlation at 0.05 significance. There is evidence of correlation even at 0.001 significance (0.1% significance). It shows that a lot of acquisitions in water have been undertaken within civilisations. Similar to the finding in Section 7.1.5.1, it is possible to conclude that the cultural factor (civilisations) makes a very significant impact on ownership distribution in the water sector. The impact of the cultural factor is even greater than the impact of the geographical factor. Although multinationals of the most influential (or central) countries are involved in acquisitions with other civilisations, the majority of the investments in water continue to be undertaken within civilisations. This finding contradicts to Hypothesis 4.1 which states that impact of the cultural factor on international acquisitions in public services is insignificant.

### 7.1.5.3. The Impact of the Economic Factor (Income per Person) on Ownership Distribution in the Water Sector

The figures obtained during the use of QAP routine for the cultural factor (civilisations) are presented below.

#### QAP MATRIX CORRELATION

```
-----
Observed matrix:      inpwaterandw2007
Structure matrix:     AffiliIncome
# of Permutations:    2500
Random seed:          902
```

#### Univariate statistics

	1	2
	inpwater	AffiliIn
	-----	-----
1 Mean	0.021	0.249
2 Std Dev	0.144	0.432
3 Sum	138.000	1614.000
4 Variance	0.021	0.187
5 SSQ	138.000	1614.000
6 MCSSQ	135.061	1211.994
7 Euc Norm	11.747	40.175
8 Minimum	0.000	0.000
9 Maximum	1.000	1.000
10 N of Obs	6480.000	6480.000

Hubert's gamma: 47.000

## Bivariate Statistics

	1	2	3	4	5	6	7
	Value	Signif	Avg	SD	P(Large)	P(Small)	NPerm
1 Pearson Correlation:	0.031	0.007	-0.000	0.012	0.007	0.996	2500.000
2 Simple Matching:	0.744	0.007	0.740	0.015	0.007	0.996	2500.000
3 Jaccard Coefficient:	0.028	0.007	0.020	0.003	0.007	0.996	2500.000
4 Goodman-Kruskal Gamma:	0.223	0.007	-0.006	0.098	0.007	0.996	2500.000
5 Hamming Distance:	1658.000	0.007	1682.723	35.077	0.996	0.007	2500.000

These figures show that there is evidence of correlation at 0.05 significance. There is evidence of correlation even at 0.01 significance and 0.007 significance (0.7% significance). This finding shows that the economic factor is very significant and it makes a great impact on the ownership network in the water sector. It means that a great part of international acquisitions has been made in groups with similar income per person. This result proves Hypothesis 5.1.

### 7.1.5.4. The Impact of the Political Factor (OECD) on Ownership Distribution in the Water Sector

The figures of QAP correlation for the impact of the political factor (the membership in the OECD) are outlined below.

#### QAP MATRIX CORRELATION

```
-----
Observed matrix:      inpwaterandw2007
Structure matrix:     NewAffiliationsOECD
# of Permutations:    2500
Random seed:          51
```

#### Univariate statistics

	1	2
	inpwater	NewAffil
1 Mean	0.021	0.568
2 Std Dev	0.144	0.495
3 Sum	138.000	3680.000
4 Variance	0.021	0.245
5 SSQ	138.000	3680.000
6 MCSSQ	135.061	1590.123
7 Euc Norm	11.747	60.663
8 Minimum	0.000	0.000
9 Maximum	1.000	1.000
10 N of Obs	6480.000	6480.000

Hubert's gamma: 54.000



## Bivariate Statistics

	1	2	3	4	5	6	7
	Value	Signif	Avg	SD	P(Large)	P(Small)	NPerm
1 Pearson Correlation:	-0.053	0.086	-0.001	0.031	0.918	0.086	2500.000
2 Simple Matching:	0.427	0.918	0.435	0.010	0.918	0.086	2500.000
3 Jaccard Coefficient:	0.014	0.918	0.021	0.004	0.918	0.086	2500.000
4 Goodman-Kruskal Gamma:	-0.350	0.086	-0.001	0.212	0.918	0.086	2500.000
5 Hamming Distance:	3710.000	0.918	3660.746	78.605	0.086	0.918	2500.000

Significance for this case equals to 0,086. This means that although there is evidence of correlation at 10 % significance, there is no correlation at 5% significance. These figures show that the impact of the political factor on the distribution of ownership in the water sector is less significant than the impact of the cultural, economic, and geographical factors.

### 7.1.6. Summary of Section 7.1.

This part of the chapter has examined the impact of geographical, economic, political and cultural factors on ownership ties in the water sector. As far as the geographical factors are concerned, it has been shown that the analyses using continental and regional groupings reach similar conclusions, but the category of continents is slightly more convenient for the description of ownership structure in the water sector than the category of regions. Also, it has been found that companies headquartered in Europe (especially in Northern Europe, Western Europe and South Europe) play a dominant role in the ownership network under study.

The analysis of the cultural factor (in terms of civilisations) has demonstrated the special place of the Western civilisation. The water companies headquartered in countries of this civilisation are associated with the highest proportion of ties of the global ownership network in the water sector. They are also responsible for the overall connectivity of the entire network, while the ties between other civilisations are limited. In addition, it is possible to identify three dominant countries of the Western civilisation - the USA, Britain and France. The multinationals of these countries jointly, or individually, own water companies in other countries.

An analytical inquiry into the role of economic factors has shown that the category of income per person seems to be important for making international acquisitions in the water sector. For example, it has been found in this part that

multinational water companies headquartered in high income countries prefer to invest in high or middle income countries. Finally, the assessment of the political factor in terms of the membership in the OECD has revealed the concentration of ownership in the countries-members of the OECD. The companies headquartered in these countries own water companies both within and outside this group. It is also noteworthy that there is a dense net of ownership acquisitions within the group of OECD members.

Furthermore, QAP techniques have helped to calculate the key indicators for each of the factors and they are summarised in Table 7.10.

*Table 7.10 Figures of QAP Correlation for All Factors in Water*

	<b>Geographical Factor</b>	<b>Cultural Factor</b>	<b>Economic Factor</b>	<b>Political Factor</b>
	<i>Continents</i>	<i>Civilisations</i>	<i>Income Per Person</i>	<i>(OECD Membership)</i>
<b>Pearson Correlation</b>	0.044	0.061	0.031	- 0.053
<b>Significance</b>	0.004	0	0.007	0.086
<b>P value interval</b>	[-0,038;0,038]	[-0,034;0,034]	[-0,024;0,024]	[-0,063;0,061]

The figures of this table show that the geographical (in terms of continents) and cultural factors (in terms of civilisations) make a great impact on ownership distribution in the global water sector. In other words, this study has discovered a trend for the countries under study to invest (acquire public water companies) in the countries with similar culture. The second most important factor is geographical (continents). The economic and political factors (measured in Income per Person and OECD membership) make a smaller impact on acquisitions in the water industry (although the impact of the economic factor is still significant).

These results contradict Hypothesis 5 and could be interpreted as refuting the Marxist theory (which states that there are no geographical, cultural and political borders for the expansion of capital), and confirming the regionalisation theory for the water sector (both in terms of geographic and cultural regionalisation). However,

QAP results should be interpreted cautiously because it is very easy to overlook behind the statistical measures the existence of contra-directed processes. For example, it can be seen in the figures presented in this part that a considerable slice of regionalisation trends is associated with the dominant countries (civilisations, continents, and political unions).

Similarly, as far as the Marxist theory is concerned, it can be argued that the findings of this part demonstrate the existence of two contra-directed processes associated with the development of capital - expansion and involution of capital - the processes identified and discussed in the framework of Marxism (Harvey, 2005; Hoogvelt, 2001). However, it is not the purpose of this chapter to provide an analytical interpretation of the results. This task in much detail is undertaken in Chapter 8, while the next part presents the findings of the analysis of the impact of geographic, economic, political and cultural factors on the electricity industry.

## ***7.2. Analysis of the Impact of Political, Economic, Cultural, and Geographical Factors on the Investment Choice in Electricity***

The findings for the impact of political, economic, cultural, and geographical factors on international acquisitions in the water sector that have been obtained in the previous section can be compared with findings for other industries of public services. For example, this section aims to examine the impact of a variety of factors on the investment choice in another sector of public services, electricity. Similar to Section 7.1, Section 7.2 aims to examine the impact of geographical, cultural, economic, and political factors on investment choice in the electricity industry.

### **7.2.1. Geographic Factor in Electricity**

The first section of this chapter has shown that the geographic factor impacts on acquisitions in the water sector. This finding contradicts Hypothesis 4.2 and it is of particular interest to check if it is also the case for electricity. Therefore, the next two subsections aim to check the validity of Hypothesis 4.2, which proposes that the

impact of the geographical factor on international acquisitions in public utilities is insignificant for the electricity industry.

The impact of the geographic factor is examined in two stages. Similar to the first part, the geographic factor is initially associated with continents and its impact is assessed in Section 7.2.1.1. Then, countries are grouped into regions and the impact of the geographic factor associated with regions is examined in Section 7.2.1.2. The placement of countries in regions and continents has been done on the basis of information from the World Atlas<sup>64</sup> and of the Regional Classification System of Countries and Areas applied by the United Nations Population Division (UNPD).

#### *7.2.1.1. Continents*

The ownership network in electricity is somewhat different from the water ownership network. There are two continents that have a distinctive pattern of ownership acquisitions: Europe and North America. In order to show the special position of these two continents, this analysis starts with a presentation of the map of international ownership ties in electricity for all continents apart from Europe and North America. This map is shown in Figure 7.26.

---

<sup>64</sup> World Atlas: Maps and Geography of the World, available on URL <http://geography.about.com/library/maps/blindex.htm> (December, 2006)



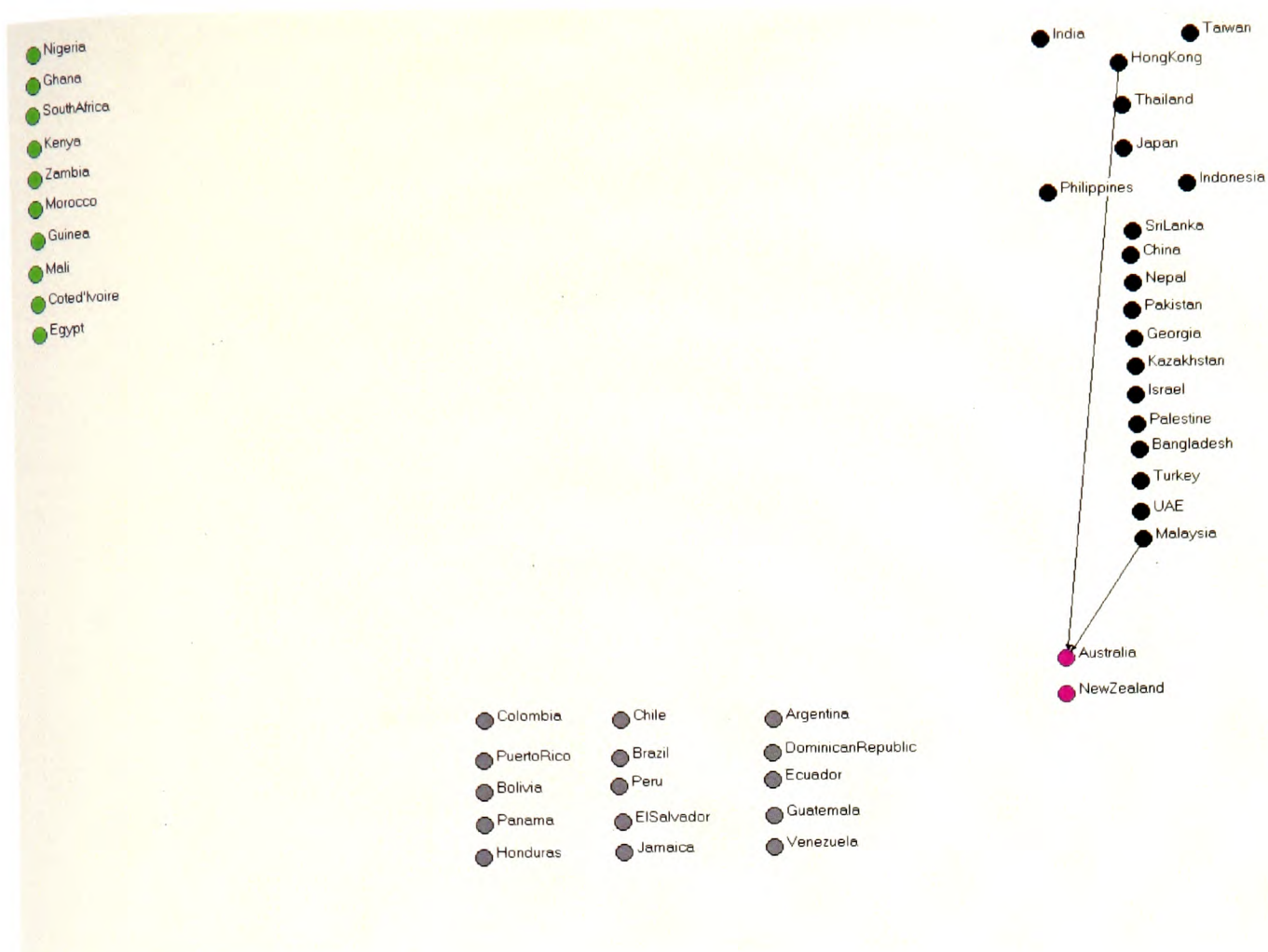


Figure 7.26 Ownership ties between continents (excluding North America and Europe)

In this Figure, black is used for Asian countries, countries of South America are depicted in grey, African countries are green coloured, and the countries of Oceania are pink. This graph shows that there are few ownership acquisitions between continents when North America and Europe are excluded from analysis. There are only two ties between the continents presented in this Figure (from Asia to Australia).

It should be noted that the quantity of ownership ties within continents is larger than the number of ties between the continents. This can be seen in Figure 7.27 which portrays ownership ties within continents, excluding Europe and North America.

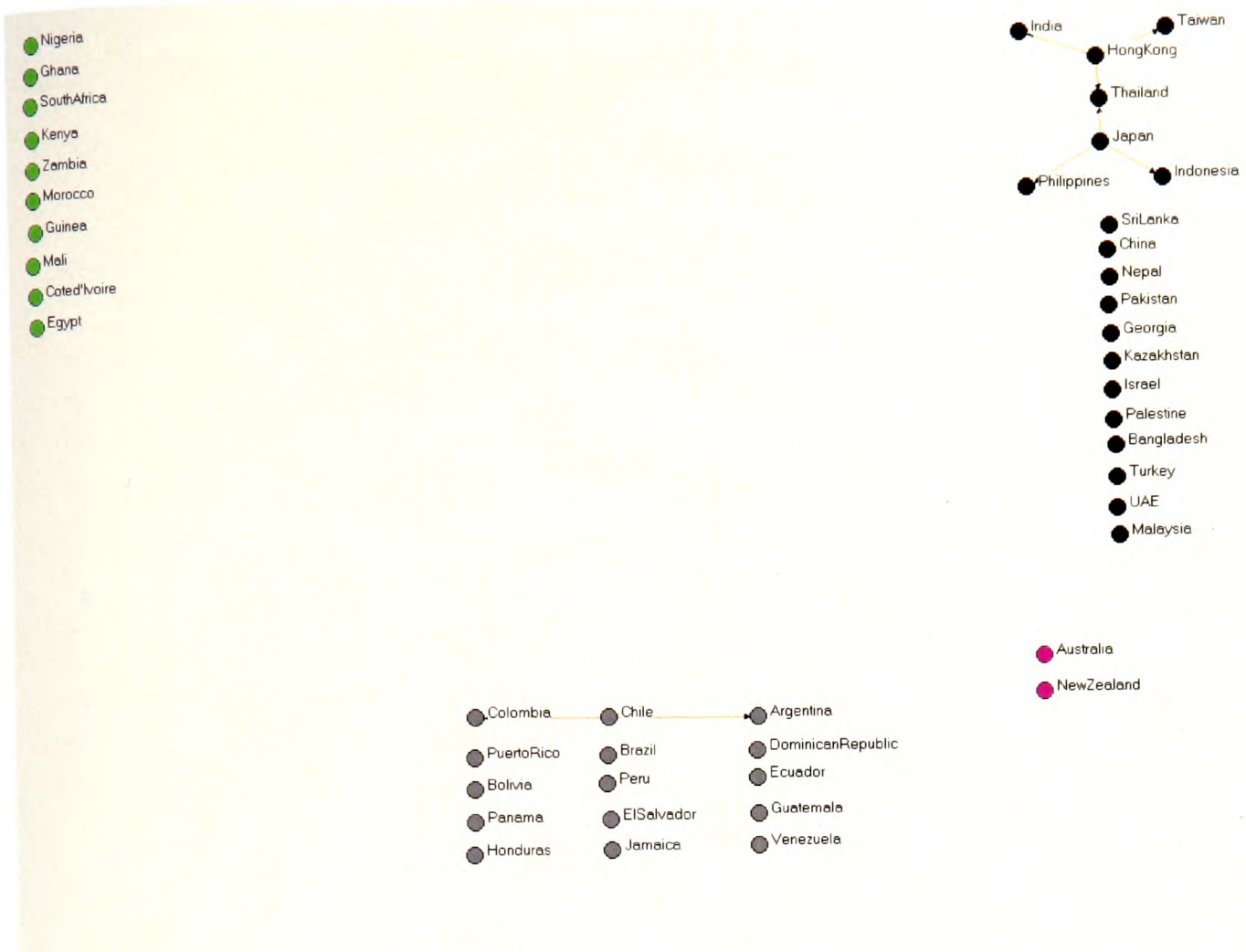


Figure 7.27 Ownership ties within continents (excluding North America and Europe)

It is possible to see on this graph that there are several ownership ties between a few Asian countries, including ties between Hong Kong and Taiwan, Hong Kong and India, Hong Kong and Thailand, Thailand and Japan. Japan also has ties with the Philippines and Indonesia. There are also two ties between countries of South America (Chile-Colombia and Chile-Argentina). The countries of the other continents (Oceania and Africa) do not have continental subsidiaries.

Europe and North America have a different pattern of ownership ties than the other four continents. First, their ownership networks are denser than ownership networks of the other continents. It can be seen in Figure 7.28 that almost all European countries which have foreign subsidiaries in electricity are interconnected. North American countries also have a similar pattern of ownership ties between each other.



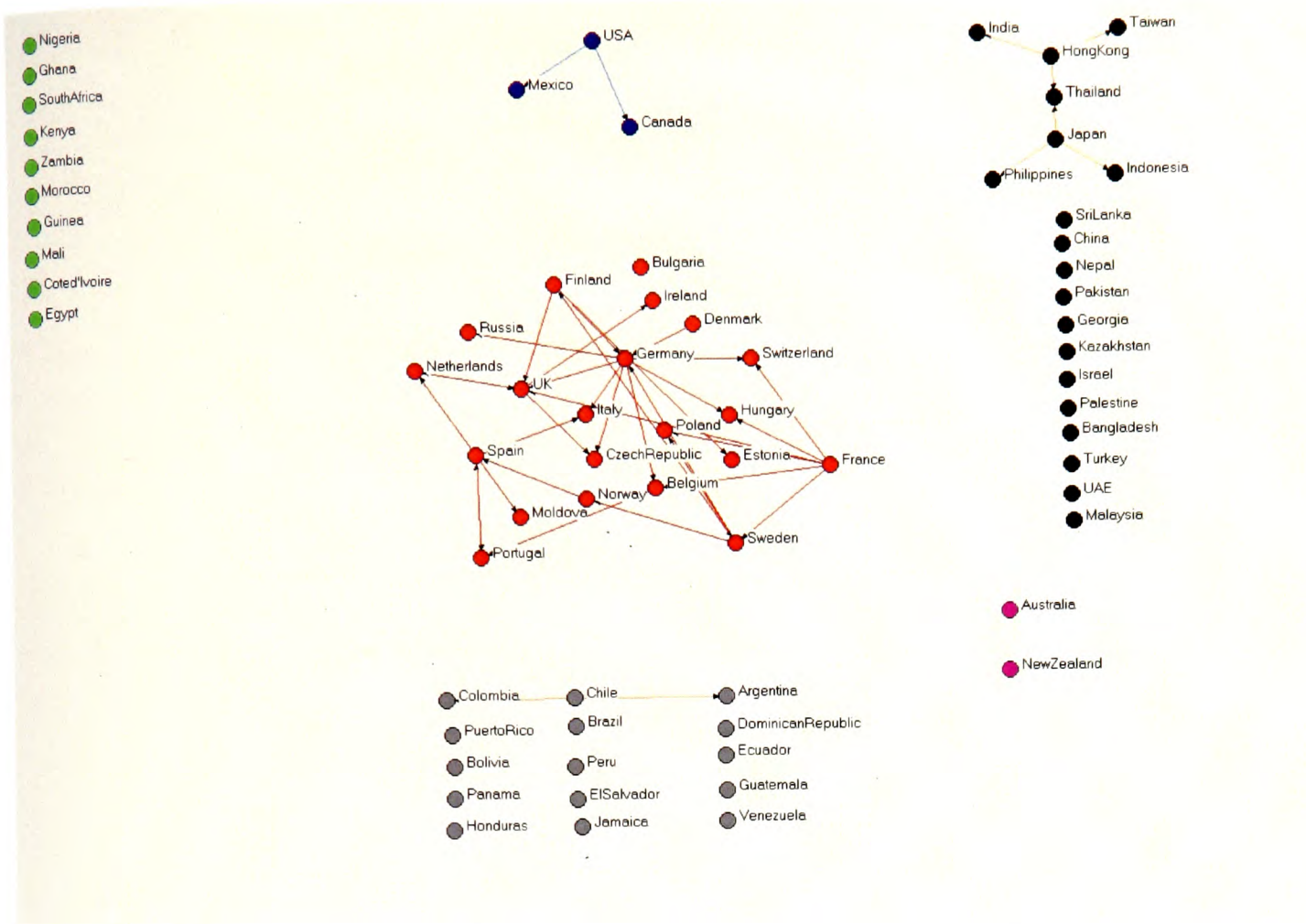


Figure 7.28 International acquisitions in electricity within continents

Second, these two continents have a great number of external ties (ties between continents). This can be seen in Figure 7.29 and Figure 7.30. Figure 7.29 shows ownership ties within and between all the continents, except for North America, whereas the graph presented in Figure 7.30 shows the ownership network consisting of ownership ties between all continents apart from Europe. In Figure 7.29, red is used for ties within Europe and orange is used for ties within other continents. It is evident that each of these Figures has a much greater quantity of ties than Figures 7.26 and 7.27, which show ownership ties without North America and Europe.

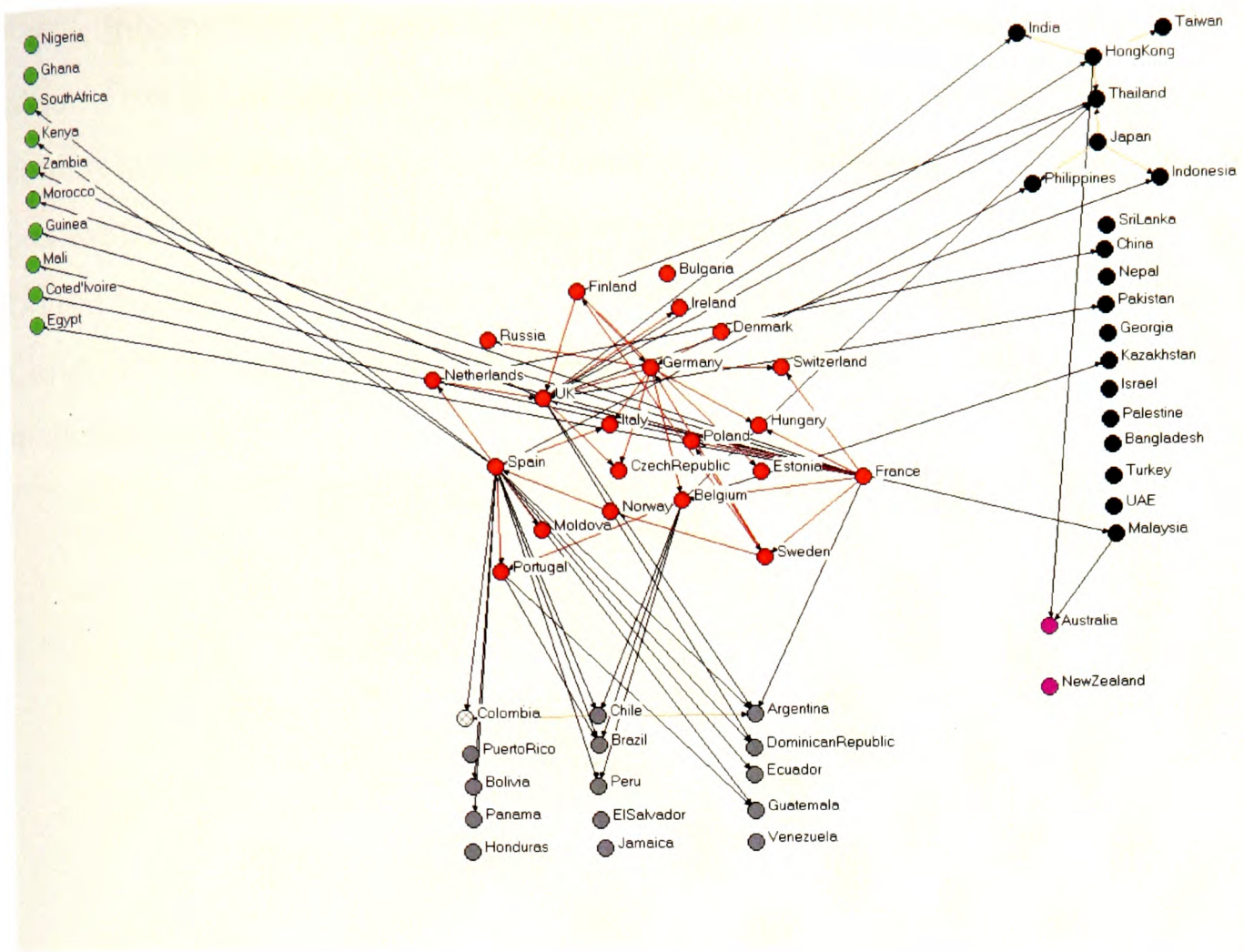


Figure 7.29 International acquisitions in electricity (excluding North America)

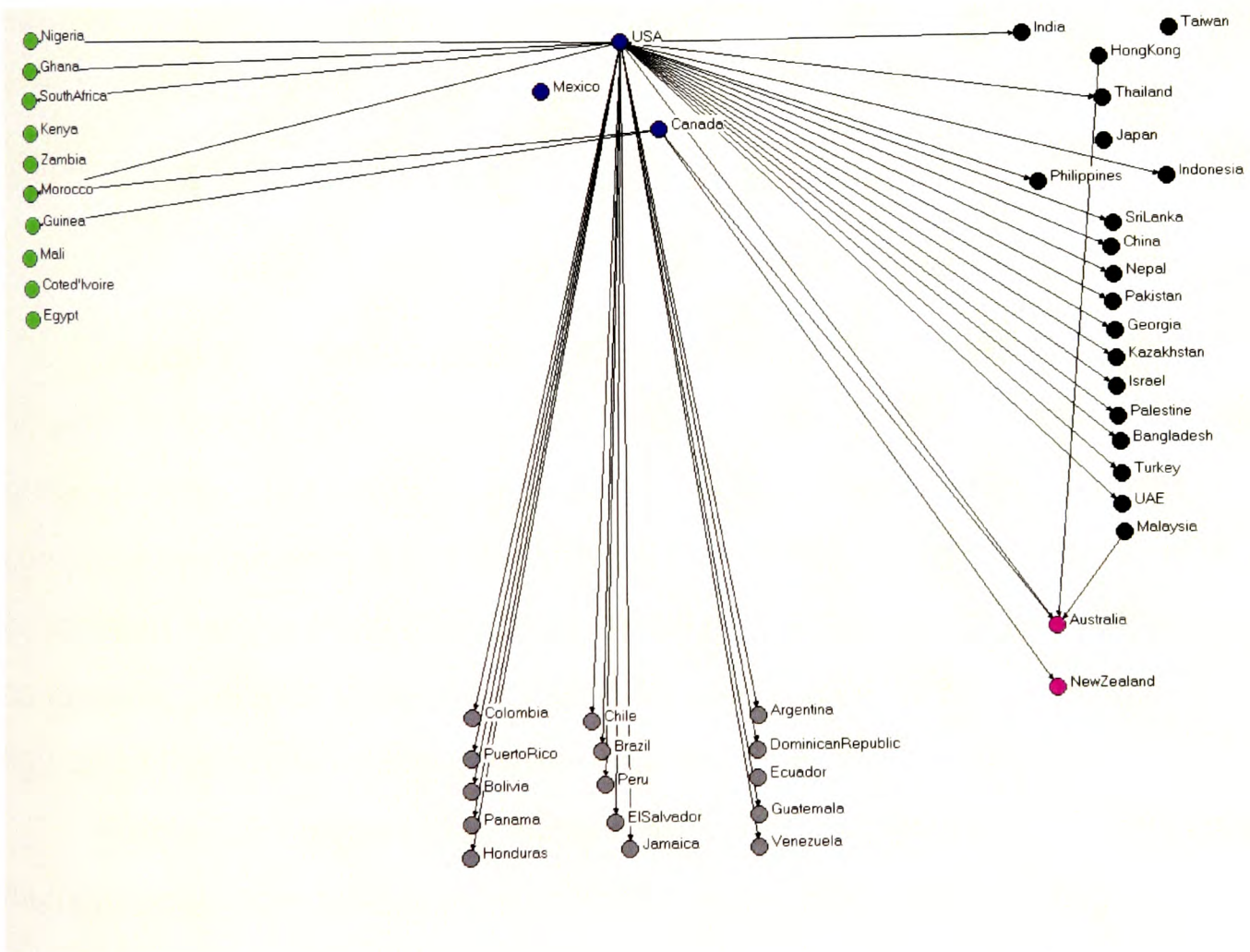


Figure 7.30 International acquisitions in electricity (excluding Europe)



Interestingly, Europe and North America also have a lot of ties between each other. This can be seen in Figure 7.31. In this graph, ties between these two continents are black, whereas red indicates ties within Europe and blue is used for ties within North America. It is also interesting to notice in this Figure that only the United States have corporations owning electricity companies in Europe, while Canada and Mexico have only electricity companies that are owned by European multinationals.

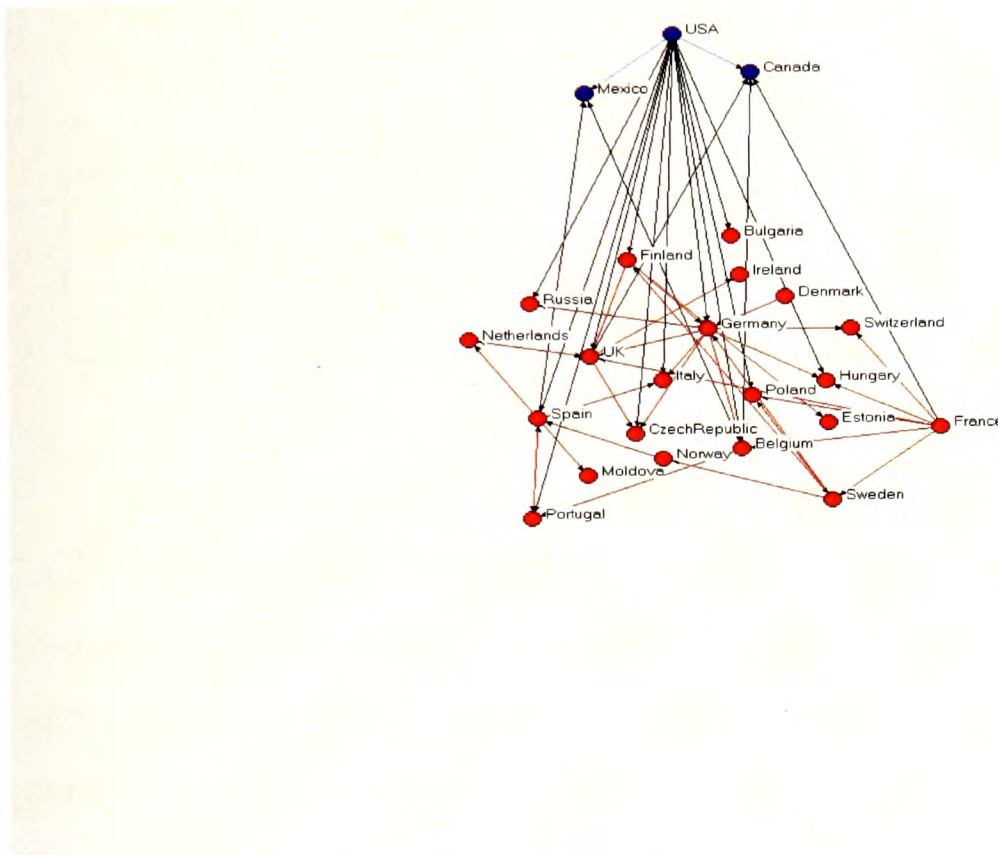


Figure 7.31 Ownership ties between Europe and North America in electricity

Some important conclusions can be drawn from Figures 7.26-7.31. The dense network of ties of North American and European companies together with a paucity of ties of other continents may show that some countries of these two continents comprise the largest part of the core of the electricity ownership network. This conclusion can be verified by an analysis of the ownership ties within and between continents, which is undertaken with the use of measures of density. The main figures of this analysis are summarised in Table 7.11.

Table 7.11 shows that ownership ties of European and North American multinationals are relatively dense and these corporations do not seem to have special preference for any particular continent. By contrast, corporations of the other continents have made few international acquisitions in the electricity industry, and these acquisitions are mostly in countries located on the same continents.



Table 7.11 Density for Continents in Electricity (Average Value within Blocks)

	<b>Europe</b>	<b>Asia</b>	<b>North America</b>	<b>South America</b>	<b>Oceania</b>	<b>Africa</b>
<b>Europe</b>	0.0786	0.0276	0.1111	0.0571	0	0.0381
<b>Asia</b>	0	0.0175	0	0	0.0526	0
<b>North America</b>	0.1746	0.2632	0.3333	0.3111	0.5000	0.2000
<b>South America</b>	0	0	0	0.0095	0	0
<b>Oceania</b>	0	0	0	0	0	0
<b>Africa</b>	0	0	0	0	0	0

Although values of densities in this table are small (many of them are below 0.1),<sup>65</sup> this table may verify the assumption that for the most influential European countries and companies in the electricity sector there is no geographical borders for exporting capital. However, it can be also seen in this table that these powerful countries and corporations have many ties within their own continents. This observation together with the fact that multinationals of less dominant continents tend to invest within their own continents indicate that the geographic factor may impact on developments in the electricity industry.

Ties within and between continents can be also examined with the use of EI index. Most interesting figures of EI index for this case are shown in Table 7.12.

<sup>65</sup> It should be noted that large density of ownership ties within or between some of the continents shown in this table may be explained by a small number of countries on some of the continents.

Table 7.12 Group Level E-I Index for Continents in Electricity

<b>Continents</b>	<b>Internal Ties</b>	<b>External Ties</b>	<b>Total</b>	<b>E-I</b>
<b>Europe</b>	60	54	114	-0.053
<b>Asia</b>	12	28	40	0.400
<b>North America</b>	4	55	59	0.864
<b>South America</b>	4	32	36	0.778
<b>Oceania</b>	0	5	5	1.000
<b>Africa</b>	0	14	14	1.000

The figures of this table confirm the previous conclusions. However, it may be interesting to notice at this point that there are a number of differences between values of EI index for the electricity industry, which are shown in this table, and the figures of EI index for the water sector, which are presented in Table 7.2. For example, in the electricity industry the number of external ties (ties between continents) is greater and the number of internal ties (ties within the continents) is smaller than in the water sector. This result may indicate that the impact of geographic factors is less significant in the electricity industry than in the water sector.

It is also worth mentioning that this table shows a very remarkable dissimilarity between Europe and North America, which has not been mentioned yet. It is possible to see that the quantity of internal ties of European countries exceeds the number of their external ties. By contrast, there are a considerably smaller number of internal ties associated with countries of North America than the quantity of their external ties.

To summarize the findings of this subsection, it is possible to say that the geographical factor associated with continents seems to describe the ownership network in the electricity industry quite well. Nevertheless, the geographic factor can be also represented by regions, and the next subsection examines whether the use of the category of regions can yield more significant result than the use of the category of continents.

### 7.2.1.2. Regions

How countries under study are divided into regions is shown in Table 7.3 in Section 7.1.1.2. The visual image of this network in terms of regions is presented in Figure 7.32. Although this network seems to be very difficult for analysis, it is possible to make some important conclusions by analysing ties of its main components, as is shown in this subsection.

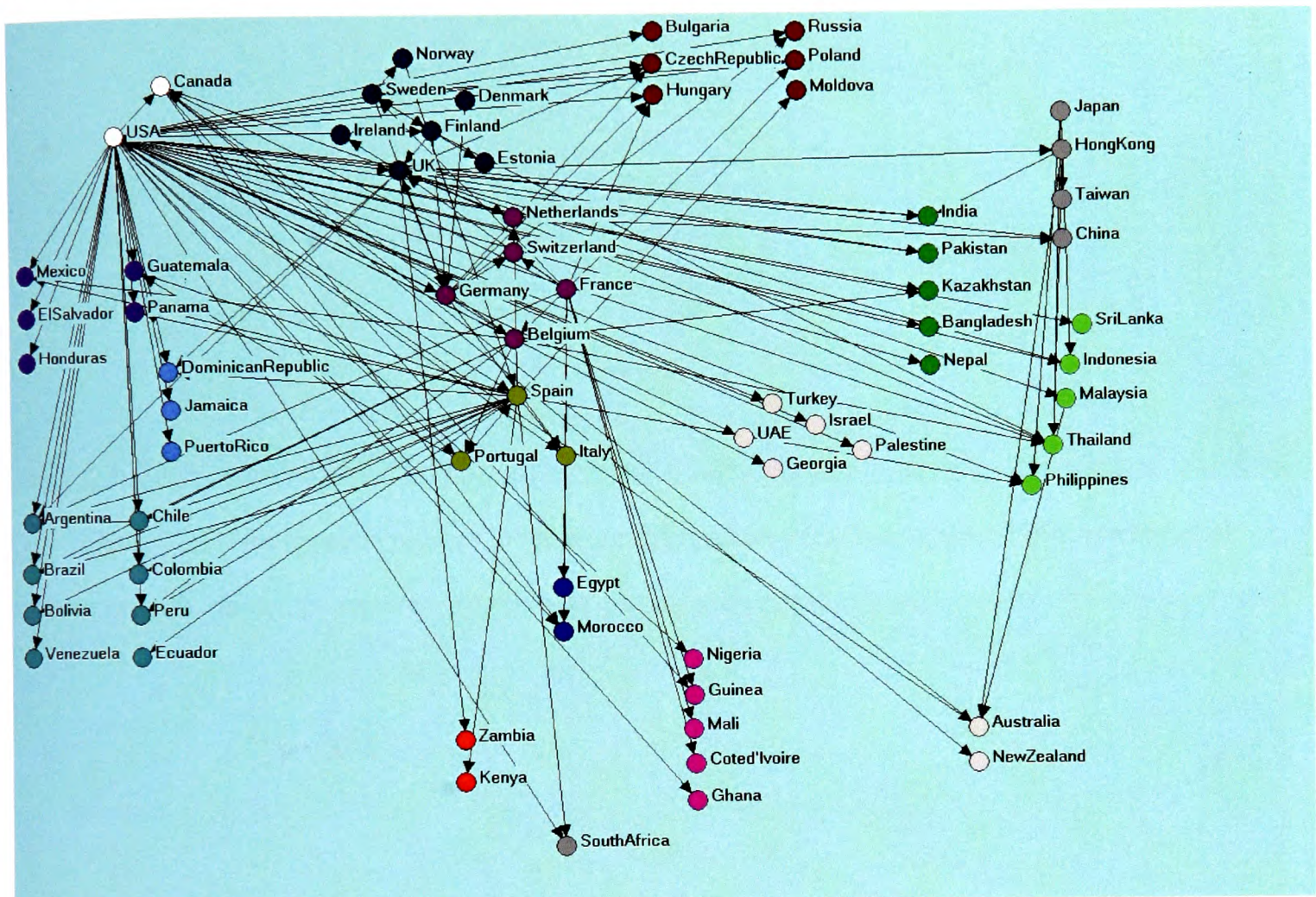


Figure 7.32 Ownership ties within and between continents in the electricity industry

Most importantly, it should be noted that, similar to the water case, the analysis with the use of the category of regions does not produce more valuable results than the use of the category of continents. As can be seen in Figure 7.33 and 7.34, Northern American and European regions have the largest proportion of the ties comprising the network. This conclusion can be drawn on the basis of exclusion of ties one of these two important components. Thus, Figure 7.33 shows external ties of all regions except for three European regions (Northern Europe, Western Europe and South Europe), whereas Figure 7.34 shows external ties of all regions apart from Northern America.



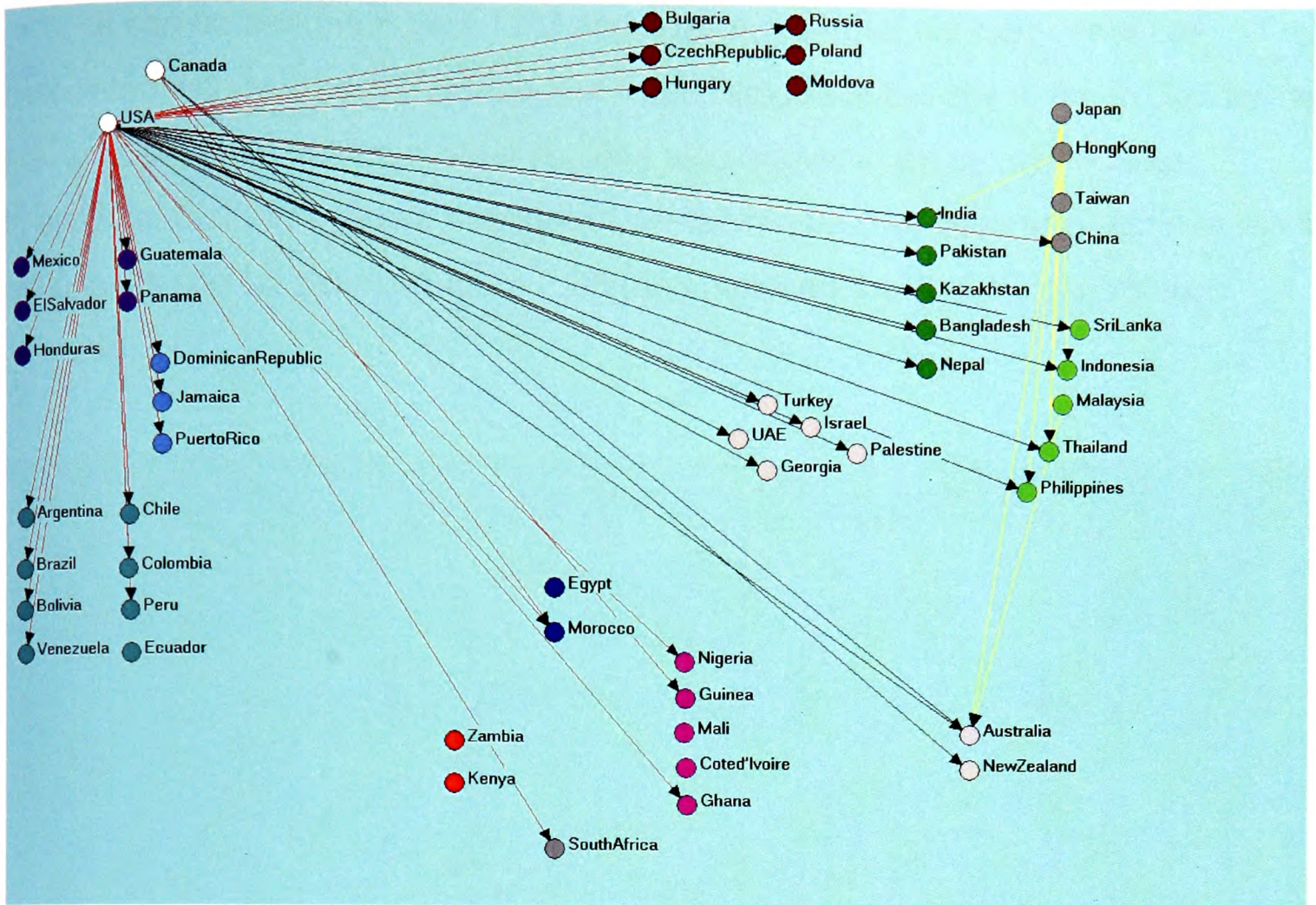


Figure 7.33 Ties between regions in the electricity industry (excluding three European regions)

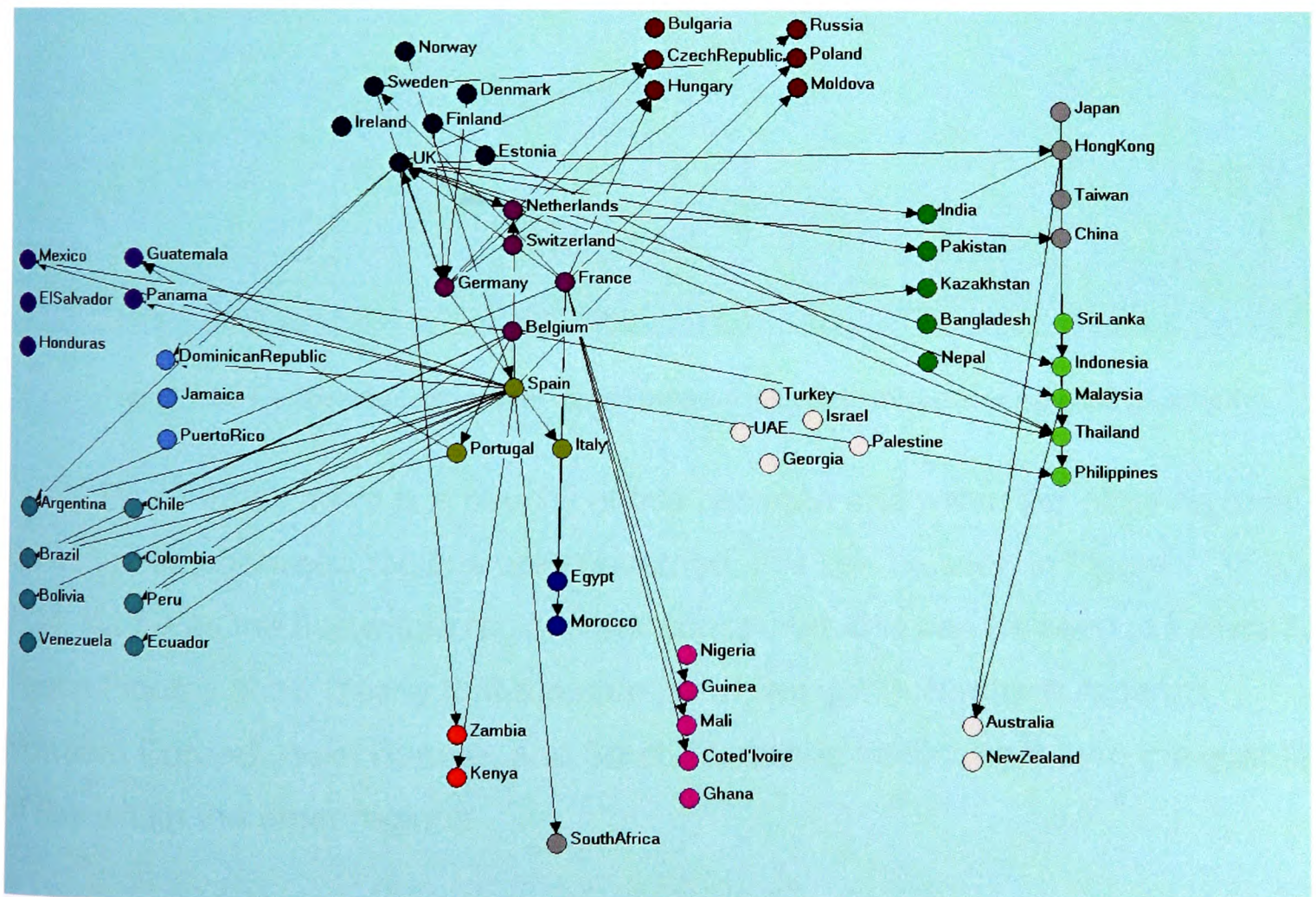


Figure 7.34 Ties between regions in the electricity industry (excluding Northern America)



It can be seen in Figure 7.33 and Figure 7.34 that the number of ties associated with Northern America and three regions of Europe is much greater than the number of ties between other regions also shown in these two Figures. In addition, there is a dense network of ownership ties between and within these four regions, as can be seen in Figure 7.35 (ties between the regions are yellow coloured).

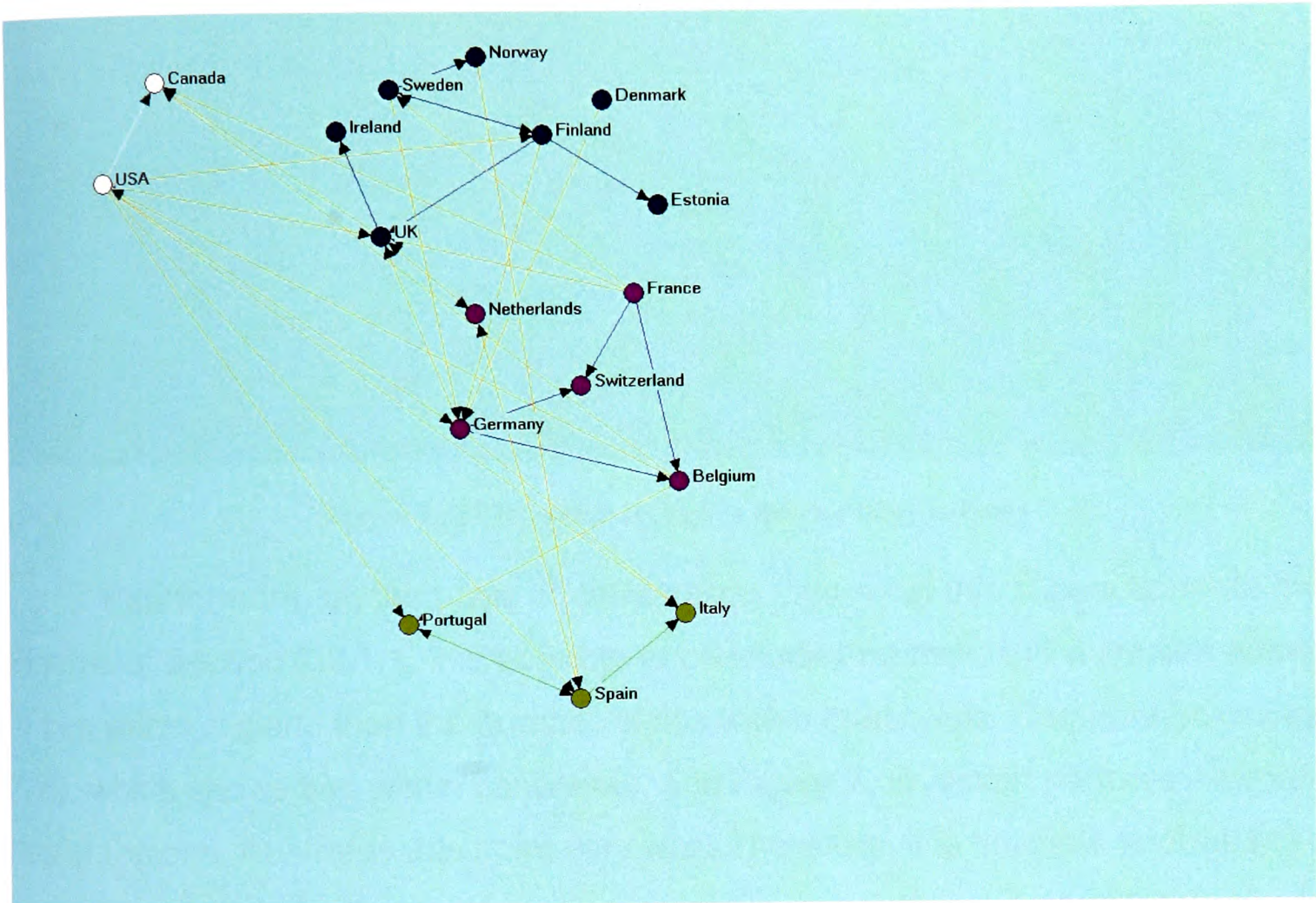


Figure 7.35 Ties between and within three European regions and Northern America (electricity)

By contrast, there is a paucity of ties between and within the other regions. As far as the ties between regions are concerned, this can be seen in Figure 7.33 and 7.34. As far as the ties within regions are concerned, this can be seen in Figure 7.36. These Figures show clearly that the number of ties within Northern America, Northern Europe, West Europe, and South Europe is much larger than the quantity of ties within the other regions.



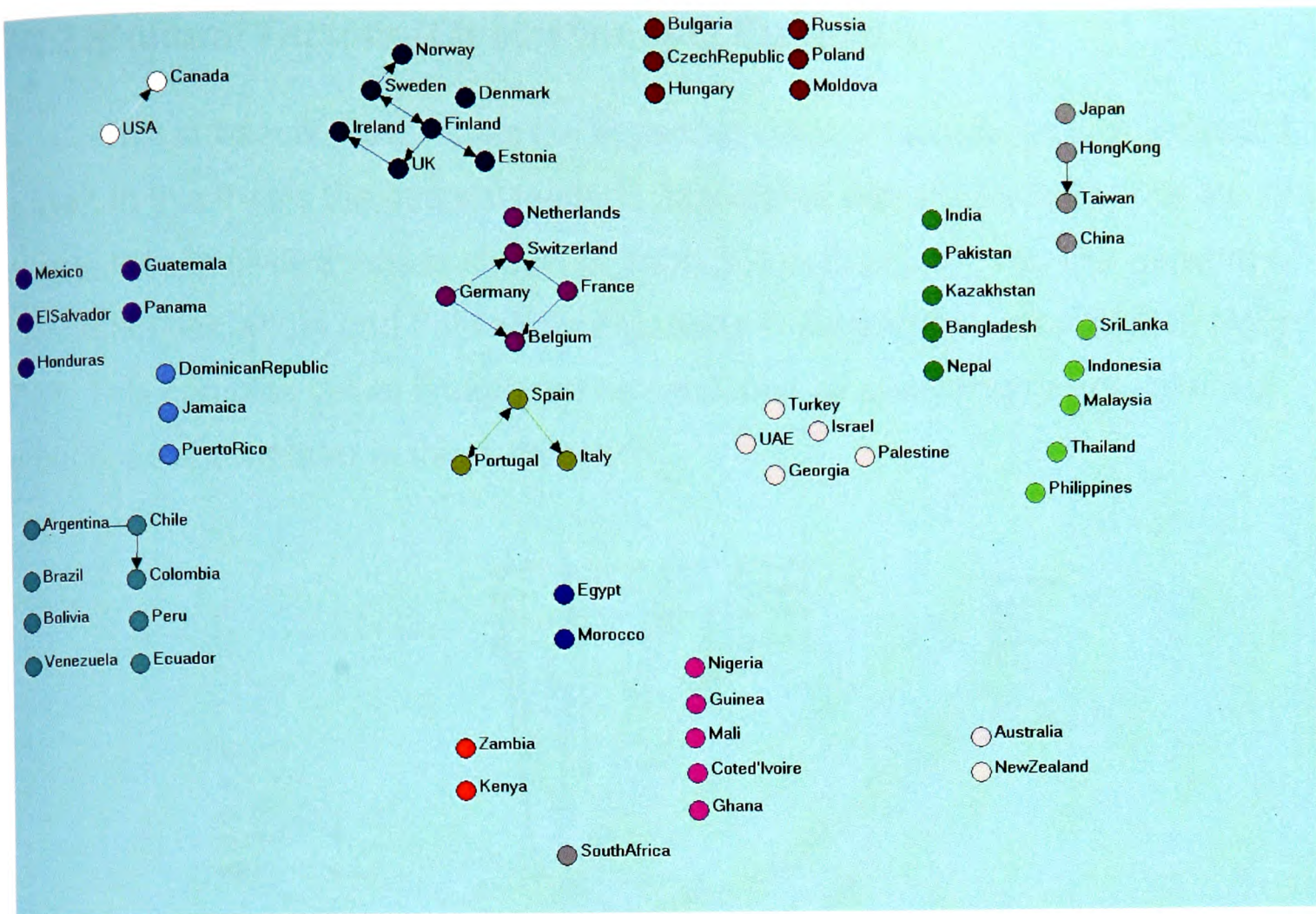


Figure 7.36 Ties within regions in the electricity industry

Furthermore, on the basis of comparison Figures of this subsection with the Figures of Section 7.2.1.1, it is possible to conclude that there are a smaller number of ties within regions than the number of ties within continents. Comparison of Figure 7.28, which shows ties within continents, and Figure 7.36, which portrays internal ties of regions, illustrates this point very well. Therefore, it is possible to draw the conclusion that the category of continents represents the geographical factor better than the category of regions.

To summarise, the findings for international ownership ties in the electricity sector, obtained as a result of using continental and regional groupings, are similar. However, the continental model is slightly better for the description of the ownership network of the electricity industry than the regional model. Consequently, in the further analysis of comparative strength of different types of factors, only the continental model of the influence of the geographical factor on international ownership in the electricity sector is used. This analysis is presented in Section 7.2.5 that follows Sections 7.2.2, 7.2.3 and 7.2.4 which present results of the use of visualisation techniques for the analysis of the impact of the cultural, economic and political factors on the ownership network of the electricity industry.



## 7.2.2. Cultural Factors (Civilizations) in Electricity

This subsection examines the impact of cultural factors. As was indicated earlier, in this thesis the cultural factor is associated with civilisations. The placement of countries in civilisations is shown in Table 7.4 in Section 7.1.2. The network of ownership ties within and between civilisations in electricity is presented in Figure 7.37. This complex visual image can be simplified by analysing ties of selected groups, as shown later in this subsection.

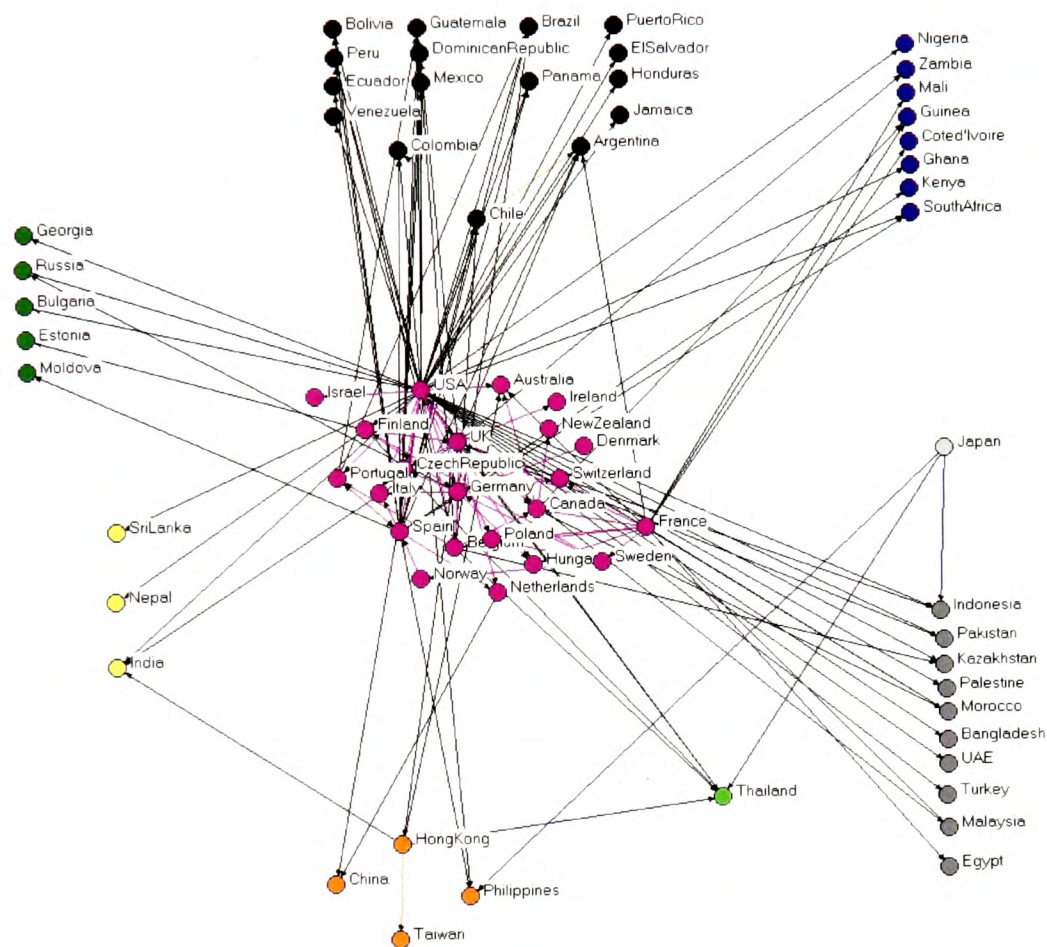


Figure 7.37 Ownership network in electricity in terms of civilisations

The analysis of this network produces results similar to the findings obtained in Section 7.1.2 for the water sector. To start with, there are not many ownership ties if the countries of the Western civilisation are excluded from analysis, as can be seen in Figure 7.38. This Figure shows that there are only four ownership ties between eight out of nine civilisations under study.

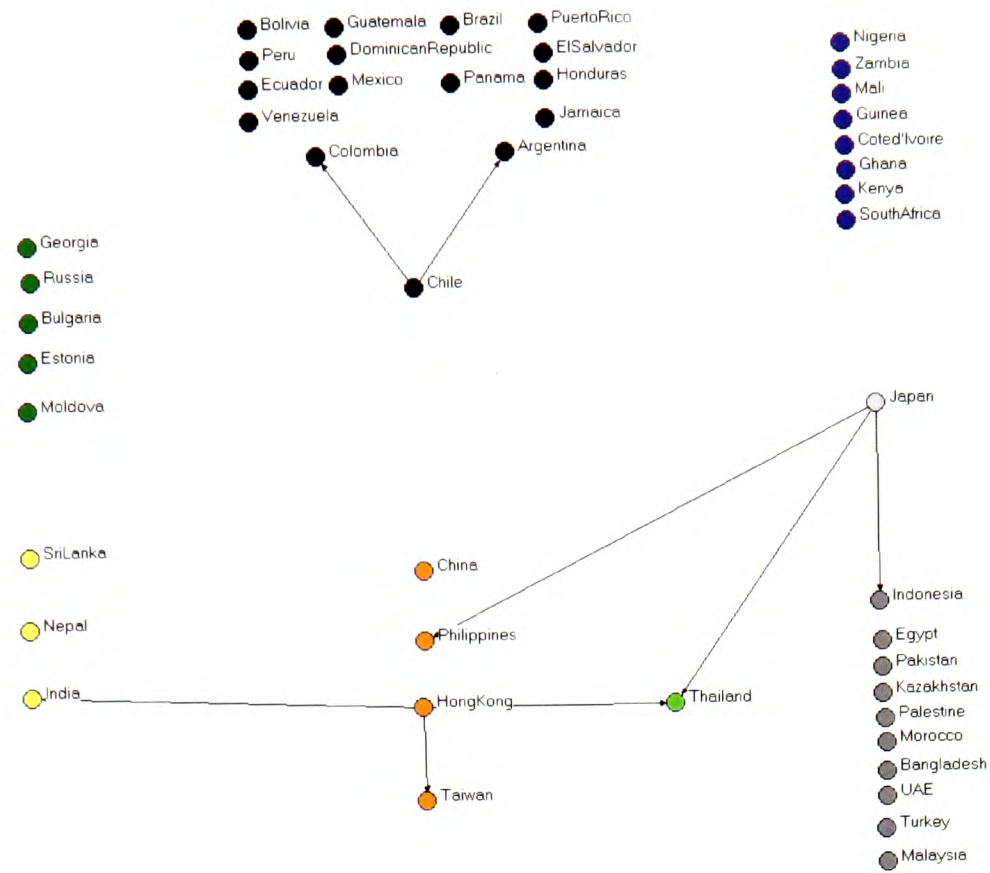


Figure 7.38 Ties within and between all civilisations except for the Western civilisation in electricity

Another important conclusion which can be drawn from this visual image is that the number of ties within these eight civilisations is also small.

On the contrary, there are a great number of ties within the Western civilisation. This can be seen in Figure 7.39.

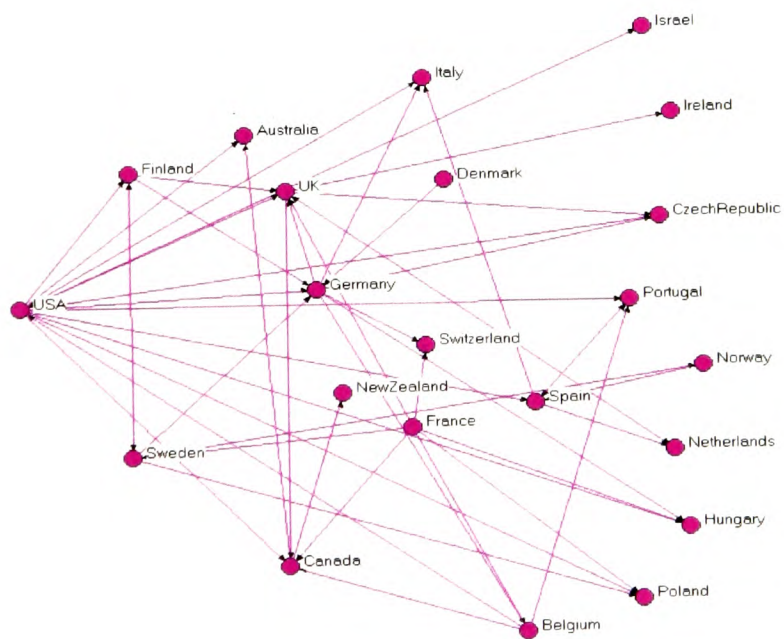


Figure 7.39 Ownership ties within the Western civilisation in the electricity industry



There is little difference of the pattern of ties within the Western civilisation in the electricity industry, presented in Figure 7.39, from the pattern of ties within the Western civilisation in the water sector. There are four dominant players in this network - the USA, Britain, Germany and France. The multinationals of these countries jointly, or individually, own electricity companies in other countries of the Western civilisation.

The Western civilisation has also a great number of ownership ties with the other eight civilisations, as can be seen in the he subsequent graphs, which show ties between the Western civilisation and each of these civilisations. For example, Figure 7.40 shows internal and external ownership ties between the Western civilisation and the Latin American civilisation. The nodes and ties within the Western civilisation are pink and the ties of the Latin American civilisation are orange. The colour black is used for nodes of the Latin American civilisation and for ties between these two civilisations.

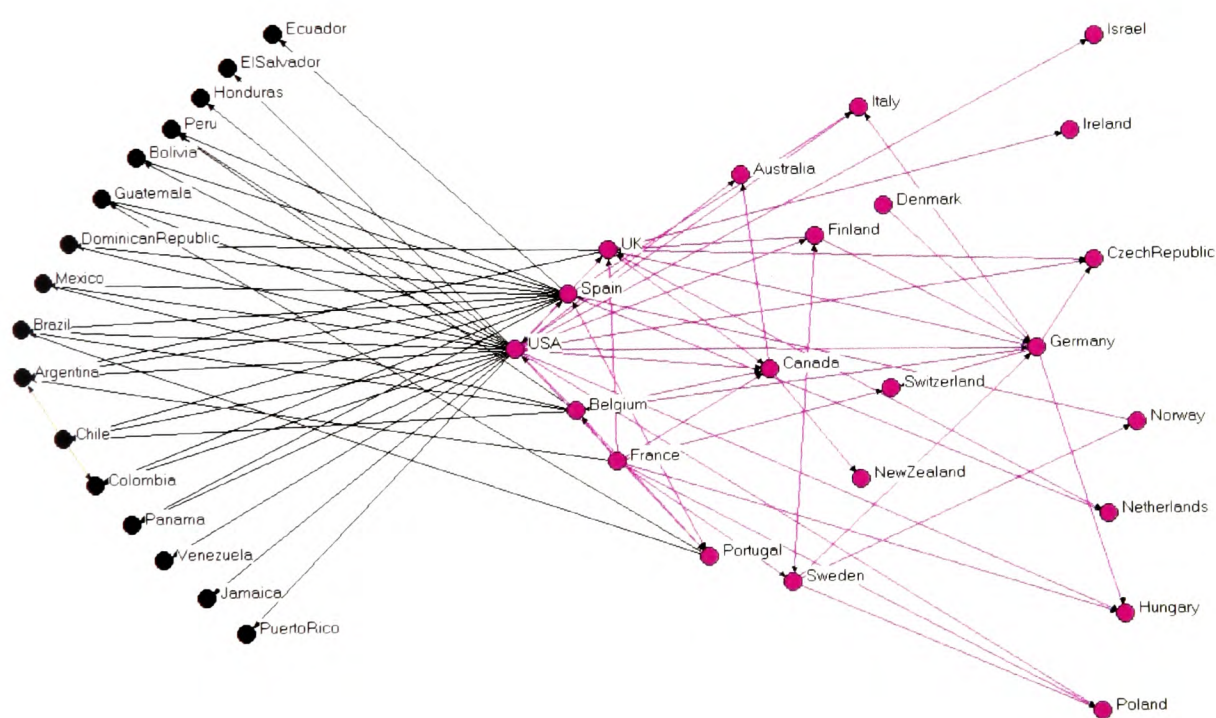


Figure 7.40 Ownership ties in the electricity industry: the Western civilisation versus the Latin American civilization

The analysis of this Figure shows that it is almost identical to Figure 7.14 which shows the pattern of interaction between the Western civilisation and the Latin American civilisation in the water sector. This Figure reveals that the multinationals

of the Western civilisation owns Latin American companies, as all the ties between the civilisations are directed from the countries of the Western civilisation towards the countries of the Latin American civilisation. Brazil, Argentina, Mexico and Chile are again identified as the most attractive countries of the Latin American civilisation for western investment. Similarly, the ties between the Western civilisation and the Latin American civilisation are mediated through a small subset of countries. These countries are located in the central part of Figure 7.40 and include the USA, France, Spain, Belgium and the UK.

The next graph presented in Figure 7.41 shows the structure of ownership ties between the Western civilisation and the African civilisation.

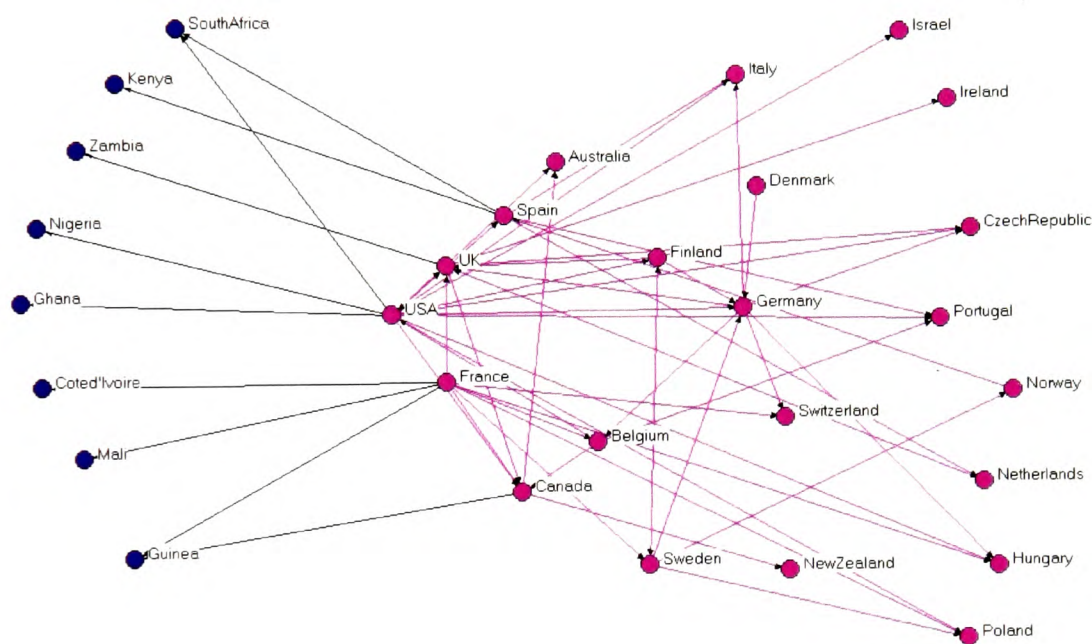


Figure 7.41 Ownership ties in the electricity industry: the Western civilisation versus the African civilization

It is possible to see that that the structure of ties is similar to the shown in Figure 7.40. The Western civilisation owns electricity companies in the countries of the African civilisation and there is no company of the African civilisation that has any stake in the electricity companies of the Western civilisation.

The network presented on this graph is also very similar to the ownership network representing ties between the Western civilisation and the African civilisation in the water sector. Again there are a smaller number ties between these two civilisation than between the Western civilisation and the Latin American civilisation.



Similar to the water sector, there are no ownership ties within the African civilisation in the electricity industry.

The similar pattern of ownership ties exists between the Western civilisation and the Islamic civilisation, as can be seen in Figure 7.42. Likewise, the directionality of ties is mostly from the countries of the Western civilisation towards the countries of the Islamic civilisation (except for one tie Malaysia-Australia). The United States and the United Kingdom are again among the countries that own most electricity companies in the countries of the Islamic civilisation.

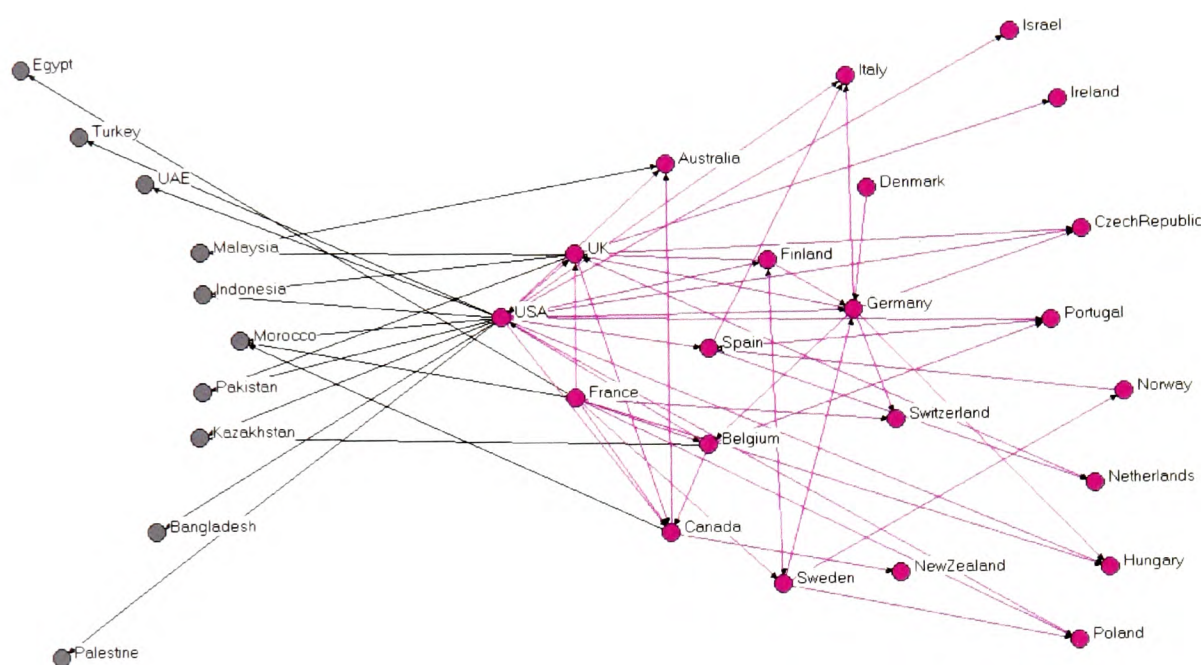


Figure 7.42 Ownership ties in the electricity industry: the Western civilisation versus the Islamic civilization

It should be noted that almost all ties (with one exception) are directed from the countries of the Western civilisation towards the countries of the Islamic civilisation. Interestingly, electricity companies of Malaysia, Indonesia, Morocco, Pakistan and Kazakhstan are owned not by one but by several countries of the Western civilisation. Again, it is the USA, United Kingdom and France that own most public companies in the countries of the Islamic civilisation.

The pattern of ownership ties between the Orthodox civilisation and the Western civilisation is very much the same, as can be seen in Figure 7.43. Similarly, the directionality of ties is from the countries of the Western civilisation towards the countries of the Orthodox civilisation. However, it is worth mentioning that British and

French corporations do not have ownership ties with the countries of the Orthodox civilisation in the electricity industry.

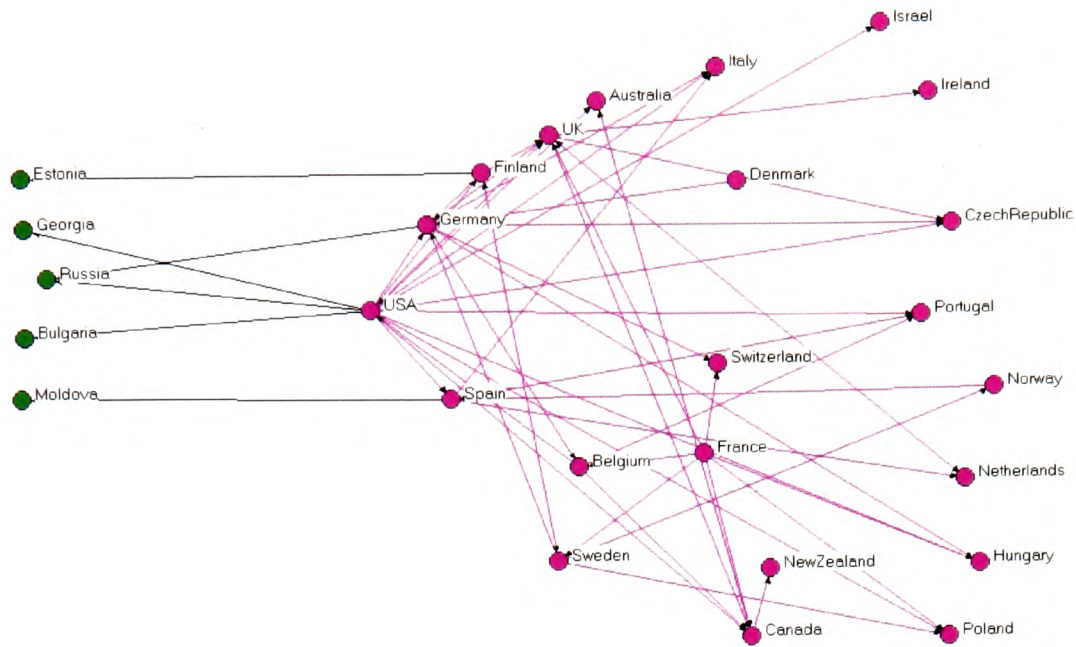


Figure 7.43 Ownership ties in the electricity industry: the Western civilisation versus the Orthodox civilization

In other words, the pattern of ties shown in this graph mostly resembles the pattern of ties between these two civilisations in the water sector. The difference is that the United States has a larger number of ties with the Orthodox civilisation than the other countries of the Western civilisation.

The pattern of ownership ties between the Western civilisation and the Sinic civilisation is mostly similar to the pattern of ties between the Western civilisation and the Orthodox civilisation. This can be seen in Figure 7.44. The difference is that each of the countries of the Sinic civilisation apart from Taiwan has ownership ties with two countries of the Western civilisation.



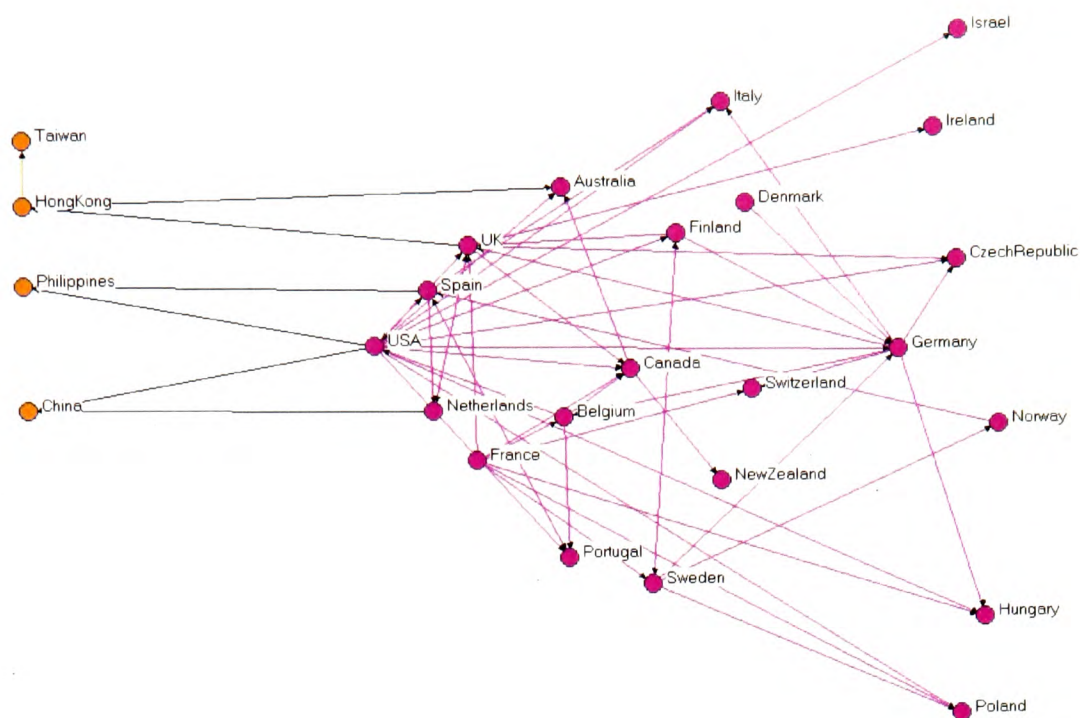


Figure 7.44 Ownership ties in the electricity industry: the Western civilisation versus the Sinic civilization

Furthermore, there is not much difference in the pattern of ownership ties of the Western civilisation with the countries of the other three civilisations. As there are few ownership ties between them, they can be presented in one graph shown in Figure 7.45. The pattern of ownership ties in this Figure is similar to the shown in the previous figures: the multinationals headquartered in the Western civilisation own electricity companies in the countries of the other civilisations. In addition, it is of interest to notice that the United States, the United Kingdom, Belgium and Finland are the countries which mediate this interaction, and that all these four countries are involved in acquisitions in the electricity industry of Thailand.

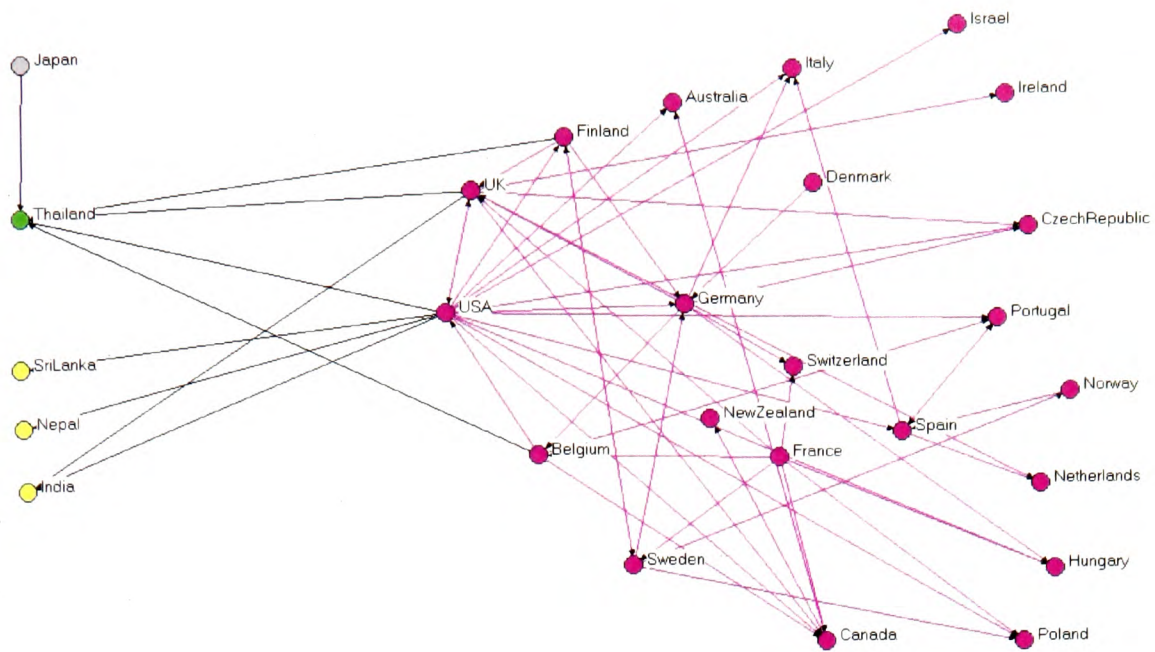


Figure 7.45 Ownership ties between the Western civilisation and Hindi, Buddhist, and Japanese civilisations

The pattern of ownership ties among civilisations can be clarified with the use of the measure of density. Densities of ownership ties between all civilisations are presented in Table 7.13. Rows of this table describe the acquisitions made by some of the civilisations in the countries of other civilisations. The figures in the columns estimate density of acquisitions made by the countries of other civilisations in any particular civilisation under study.



*Table 7.13 Average Density of Ownership Ties between Civilisations in Electricity*

	Sinic	Latin American	African	Islamic	Western	Hindi	Orthodox	Buddhist	Japanese
Sinic Civilisation	0.0833	0	0	0	0.0114	0.0833	0	0.2500	0
Latin American Civilisation	0	0.0083	0	0	0	0	0	0	0
African Civilisation	0	0	0	0	0	0	0	0	0
Islamic Civilisation	0	0	0	0	0.0045	0	0	0	0
Western Civilisation	0.0568	0.0994	0.0568	0.0682	0.1061	0.0606	0.0545	0.1818	0
Hindi Civilisation	0	0	0	0	0	0	0	0	0
Orthodox Civilisation	0	0	0	0	0	0	0	0	0
Buddhist Civilisation	0	0	0	0	0	0	0	0	0
Japanese Civilisation	0	0	0	0	0	0	0	0	0

This table summarises what has been indicated earlier. The row that is associated with the Western civilisation shows the presence of relatively dense ties of this civilisation with the other civilisations. Because the number of countries within each of the considered civilisations is different, the figures of this table give us a rather blurred picture. However, it is possible to notice that only two civilisations (the Islamic civilisation and the Sinic civilisation) own some electricity companies belonging to the Western civilisation. Also, it should be emphasised that there are some ties within civilisations (the diagonal of this table). It indicates that the cultural factor might make an impact on the ownership structure of the global water sector.

To sum up the findings of this subsection, a few multinationals of the Western civilisation own electricity companies in the countries of the other civilisations. Outside of the Western civilisation there are fewer ownership ties. The dense net of ties within the Western civilisation together with a number of ties within some other civilisations may indicate that the cultural factor is significant for decision-making on acquisition of foreign electricity companies.



### 7.2.3 Economic Factors in Electricity

The previous subsection has assessed the influence of the cultural factor. The impact of the economic factor on international acquisitions in the electricity industry is examined in this subsection. As it has been outlined in Section 7.1.3, the economic factor in this thesis is associated with income per person, according to classification of the World Bank. In this classification countries are divided into four groups, including countries with high income per person, upper middle income per person, lower middle income per person, and low income per person. How the countries under study are placed in these groups is summarised in Table 7.6 in Section 7.1.3.

The network of international acquisitions of these countries in the electricity industry can be seen in Figure 7.46. Although this network looks difficult to read, it is possible to simplify this graph by visualising ties between selected groups of

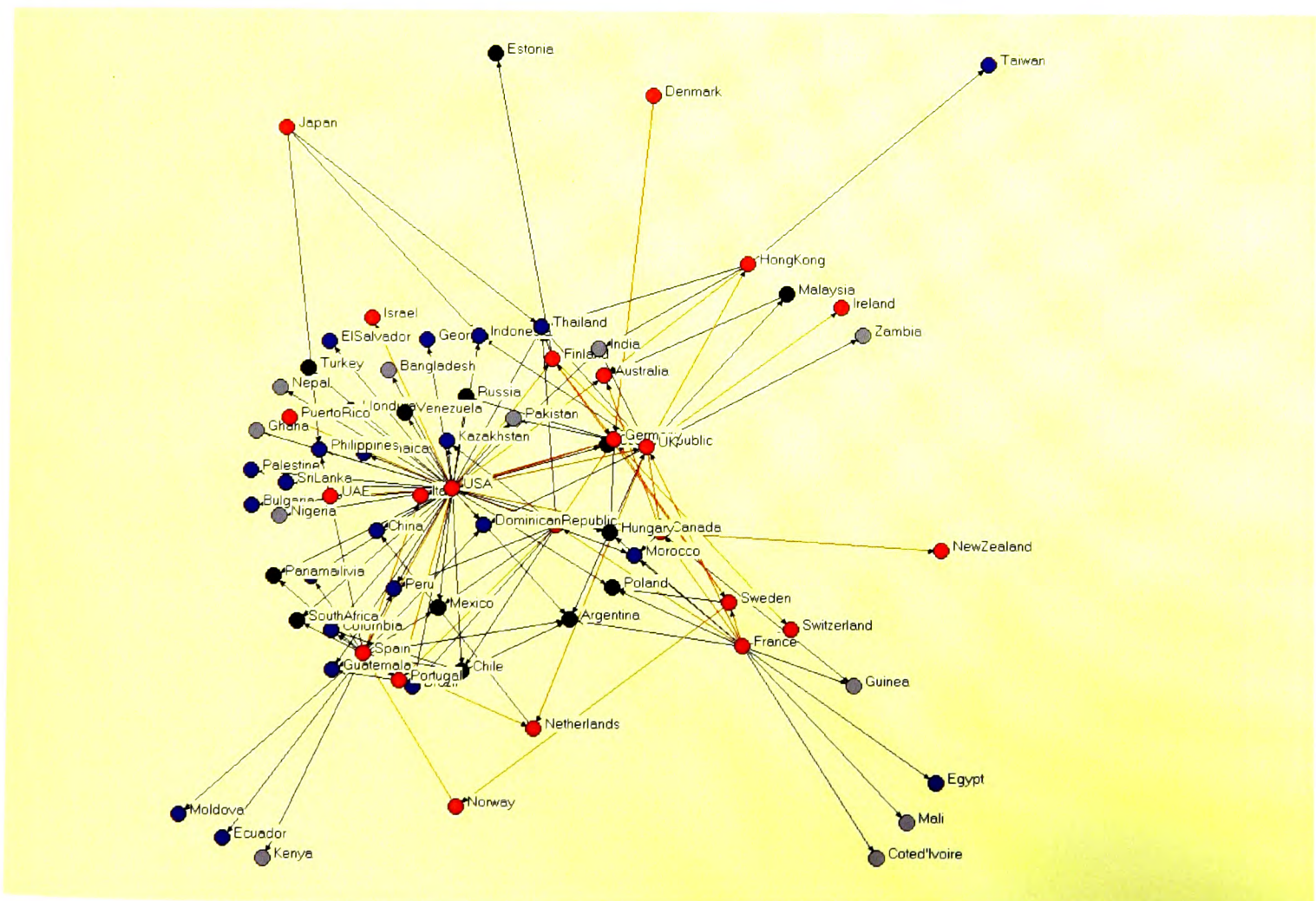


Figure 7.46 Ownership ties in the water sector within and between countries with different income per person (MDS layout)

For example, Figure 7.47 shows external and internal ties of countries with upper middle income, lower middle income, and low income per person. In this



Figure, countries with upper middle income are black, countries with lower middle income are blue, and countries with low income are grey. This graph shows that there are only few acquisitions between and within groups of countries that do not have high income per person. It can be seen in this visual image that there are only two ownership ties belonging to these three groups of countries.

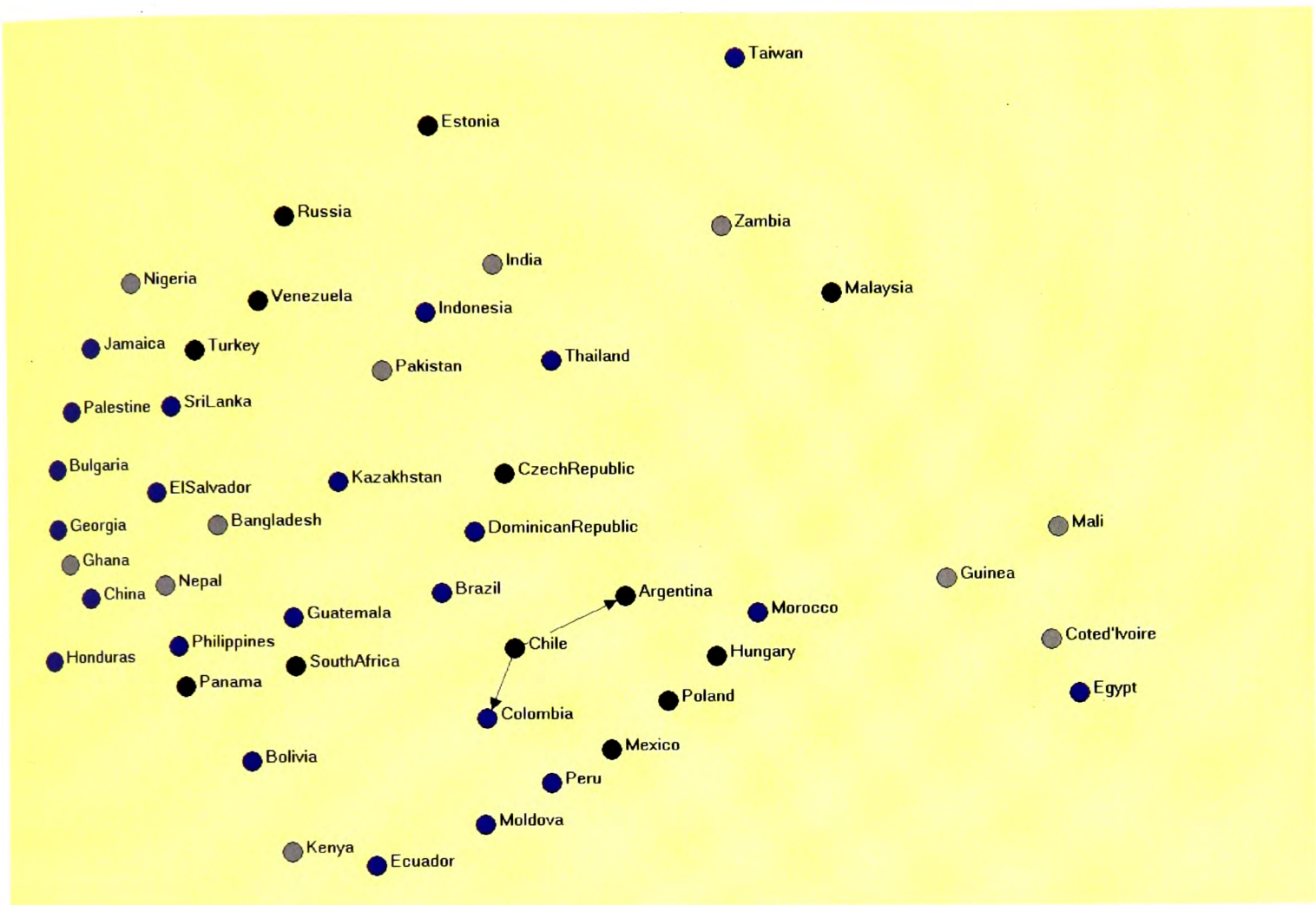


Figure 7.47 Ties within all groups apart from the group with high income per person (electricity)

By contrast, there are plenty of ties between the countries of the group with high income per person, as can be seen in Figure 7.48. Almost all countries are interconnected except for Japan.



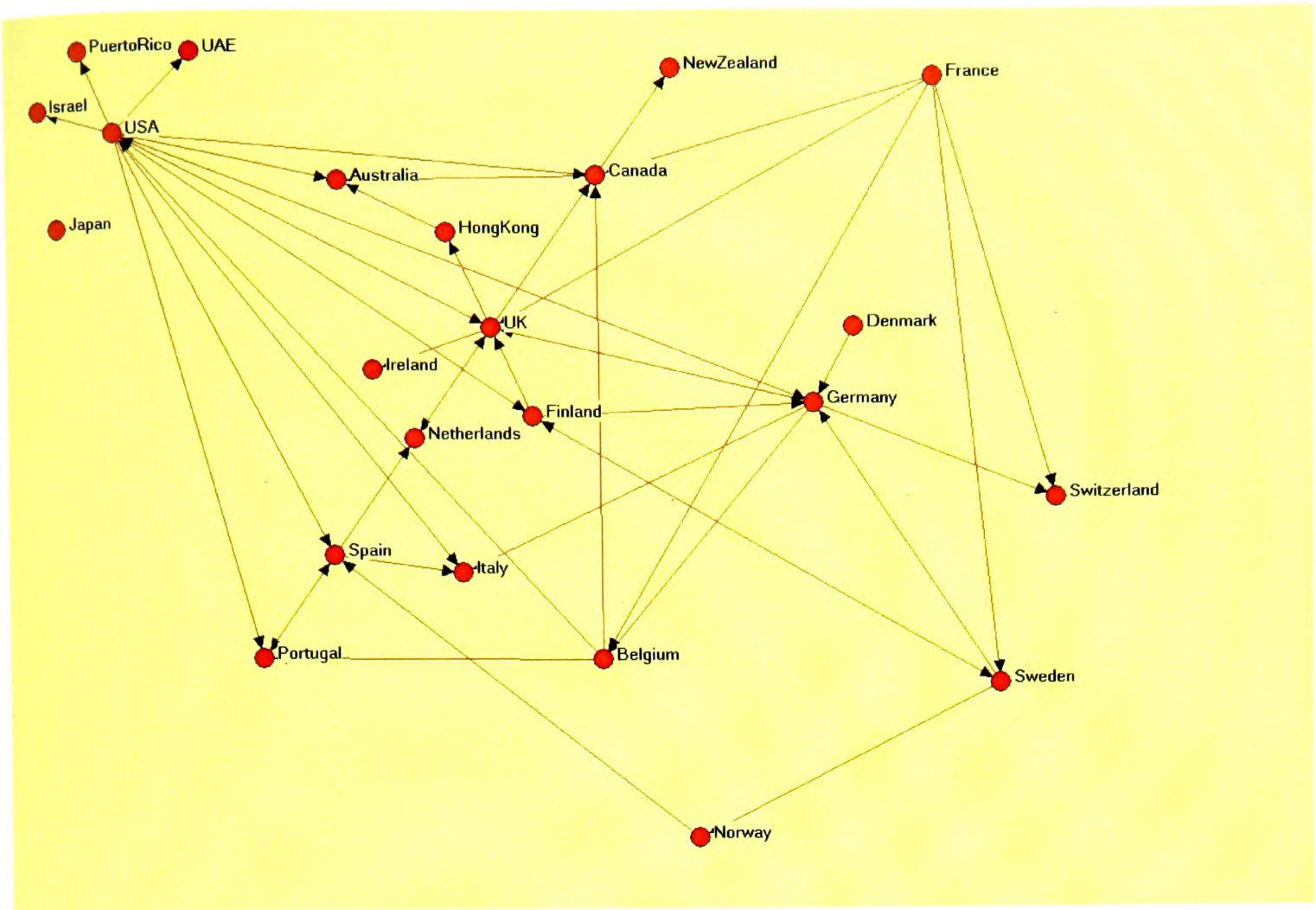


Figure 7.48 Ties within the group with high income per person in the electricity industry

The countries with high income have also a great number of ties with countries with upper middle income, as presented in Figure 7.49. In this Figure, countries with high income are red and countries with upper middle income are black.

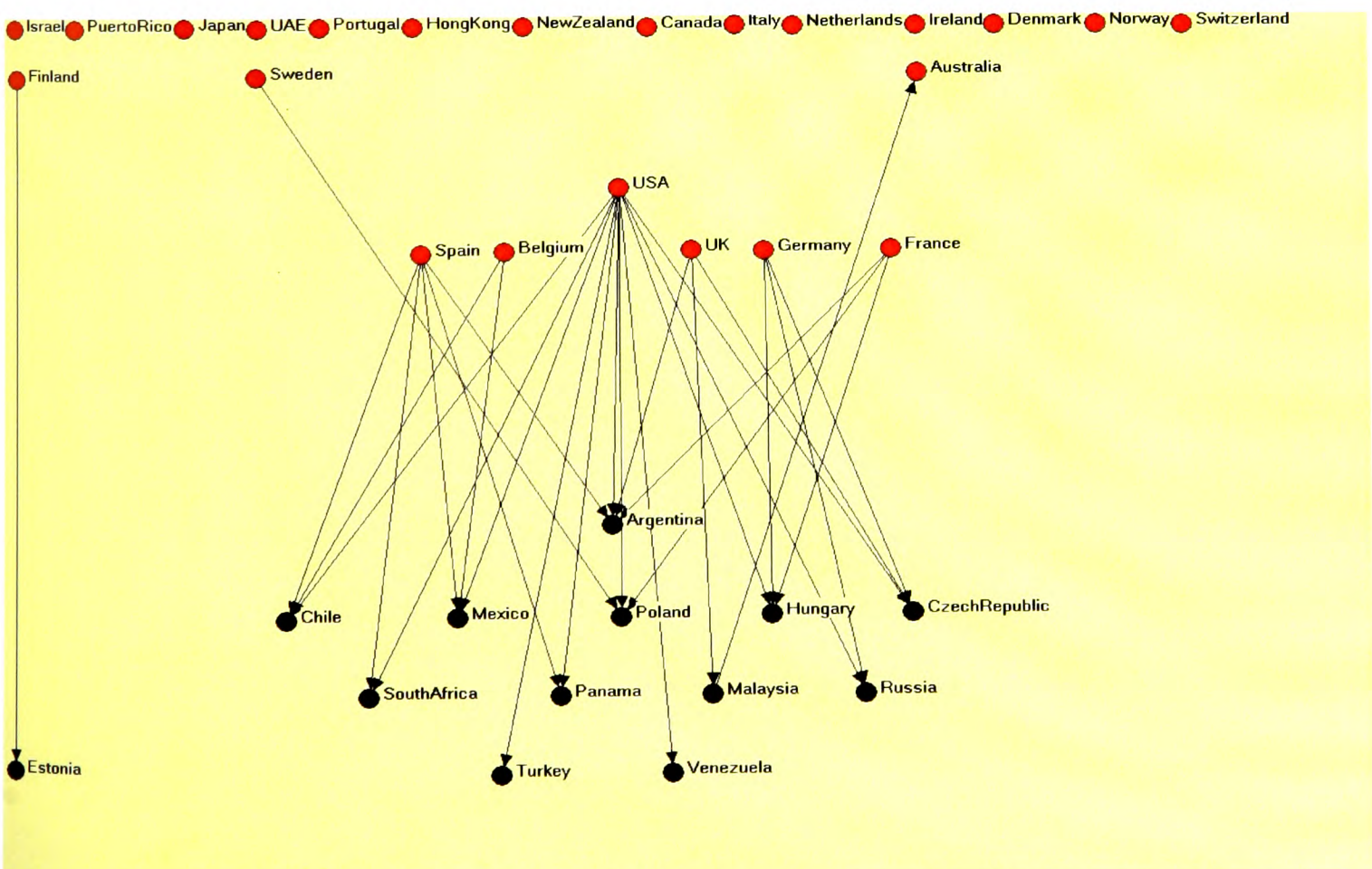


Figure 7.49 Ties between the group with high income and upper middle income per person



The number of ties is even greater between countries with high income and countries with lower middle income per person, as can be seen in Figure 7.50 (countries with high income are red and countries with lower middle income are blue coloured).

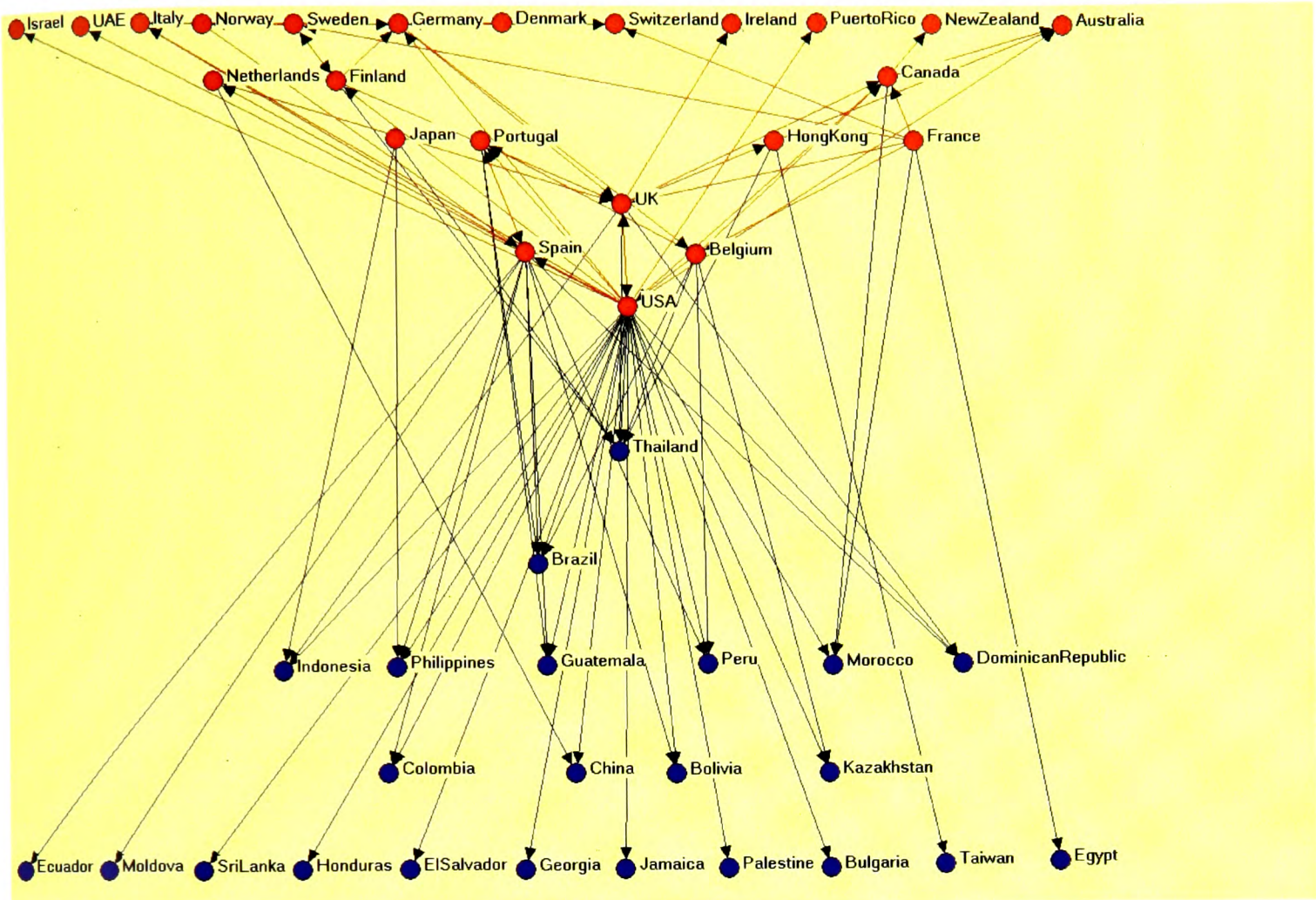


Figure 7.50 Ties between the group with high income and lower middle income per person

On the contrary, the quantity of ties decreases when ownership ties between high income countries and countries of low income are presented. This case is shown in Figure 7.51. It is interesting to note that only five countries with high income are involved in acquisitions in countries with low income per person.



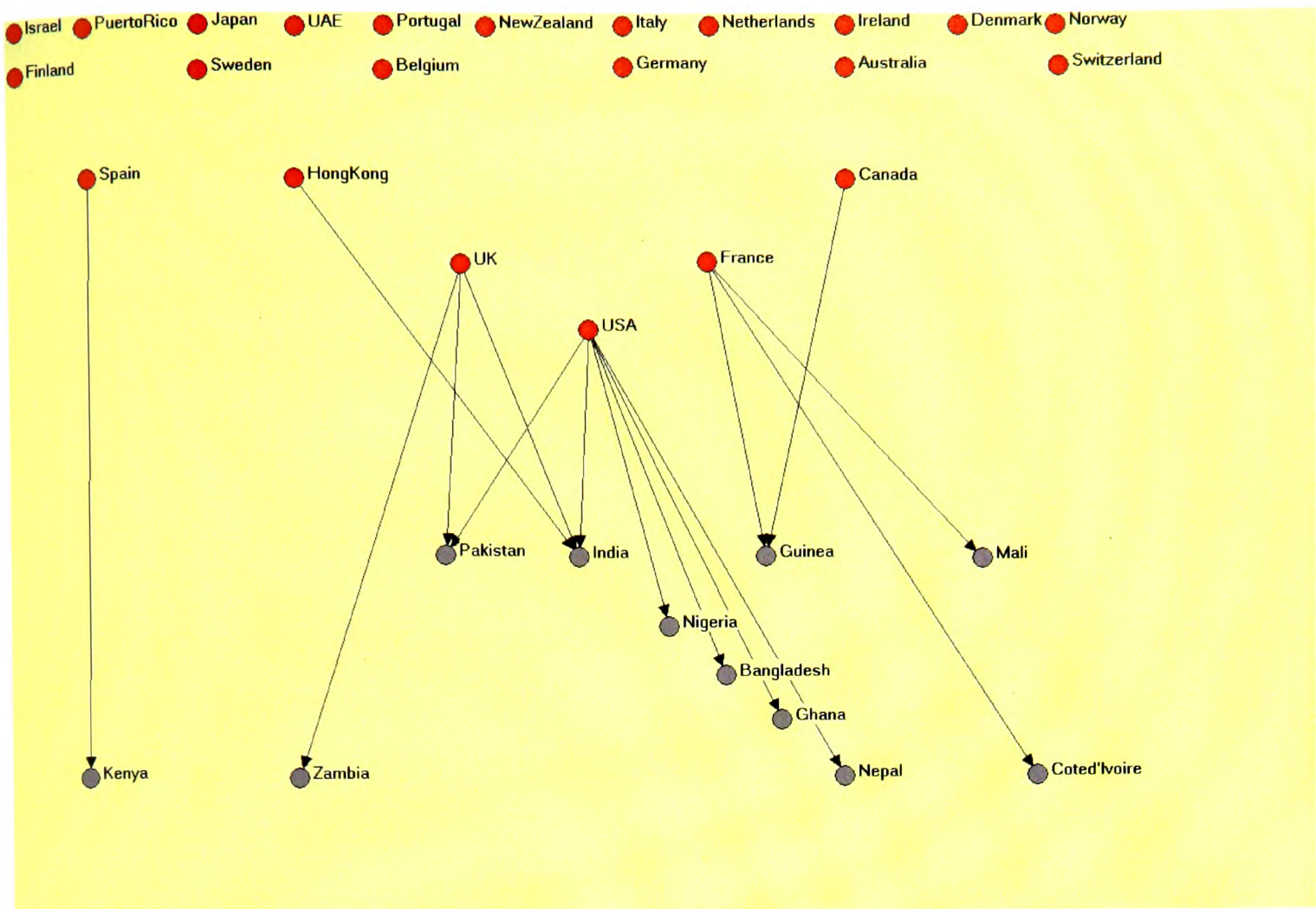


Figure 7.51 Ties between the groups with high and low income per person

The concept of density can be used in order to contribute to this analysis. The densities of ties associated with all the groups are summarised in Table 7.14. These statistics show that most ownership ties in the electricity industry are made by countries with high and upper middle income per person.

Table 7.14 Average Density of Ties between Countries with Different Income per Person (Electricity)

	High Income per Person	Upper Middle Income per Person	Lower Middle Income per Person	Low Income per Person
High Income per Person	0.0870	0.0970	0.0888	0.0593
Upper Middle Income per Person	0.0033	0.0064	0.0033	0
Low Middle Income per Person	0	0	0	0
Low Income per Person	0	0	0	0

To sum up, the findings of this subsection show that the category of income per person seems to be important for international acquisitions in the electricity



industry. Multinationals of high income countries prefer to invest in countries with upper middle or lower middle income per person. There are only a small number of ties between corporations from countries with high income per person and companies belonging to countries with lower income per person. This finding is very important because it demonstrates that the policy of hoping that MNCs will invest in the electricity industry of low income countries is failing.

### 7.2.4 Political Factors in Electricity

The previous subsection has assessed the influence of the economic factor. This subsection aims to examine the impact of political factors on international acquisitions in the electricity industry. The political factor is associated with the membership in the Organisation for Economic Cooperation and Development (OECD). Countries-members of the OECD are outlined in Table 7.8, and ownership ties between OECD countries are presented in Figure 7.52.

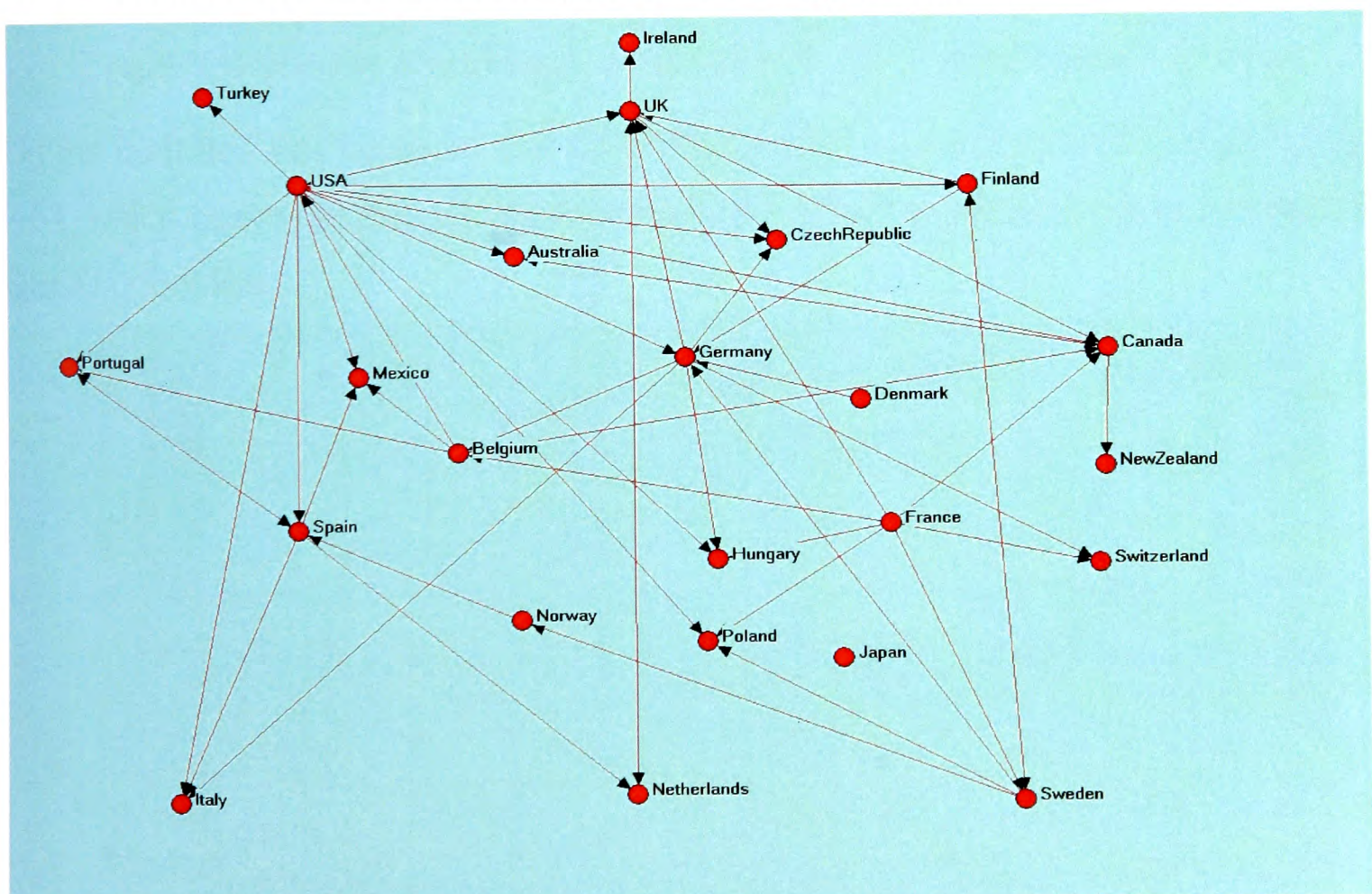


Figure 7.52 International ownership ties between OECD countries (electricity)

It can be seen in this Figure that there is a dense net of ownership ties between OECD countries, similar to the network of ownership ties between these countries in the water sector. There are also a great number of ties between OECD



and non OECD countries, as shown in Figure 7.53. (In this Figure, ties between OECD and non-OECD countries are yellow, ties between non-OECD countries are black, and ties between countries-members of the OECD are red).

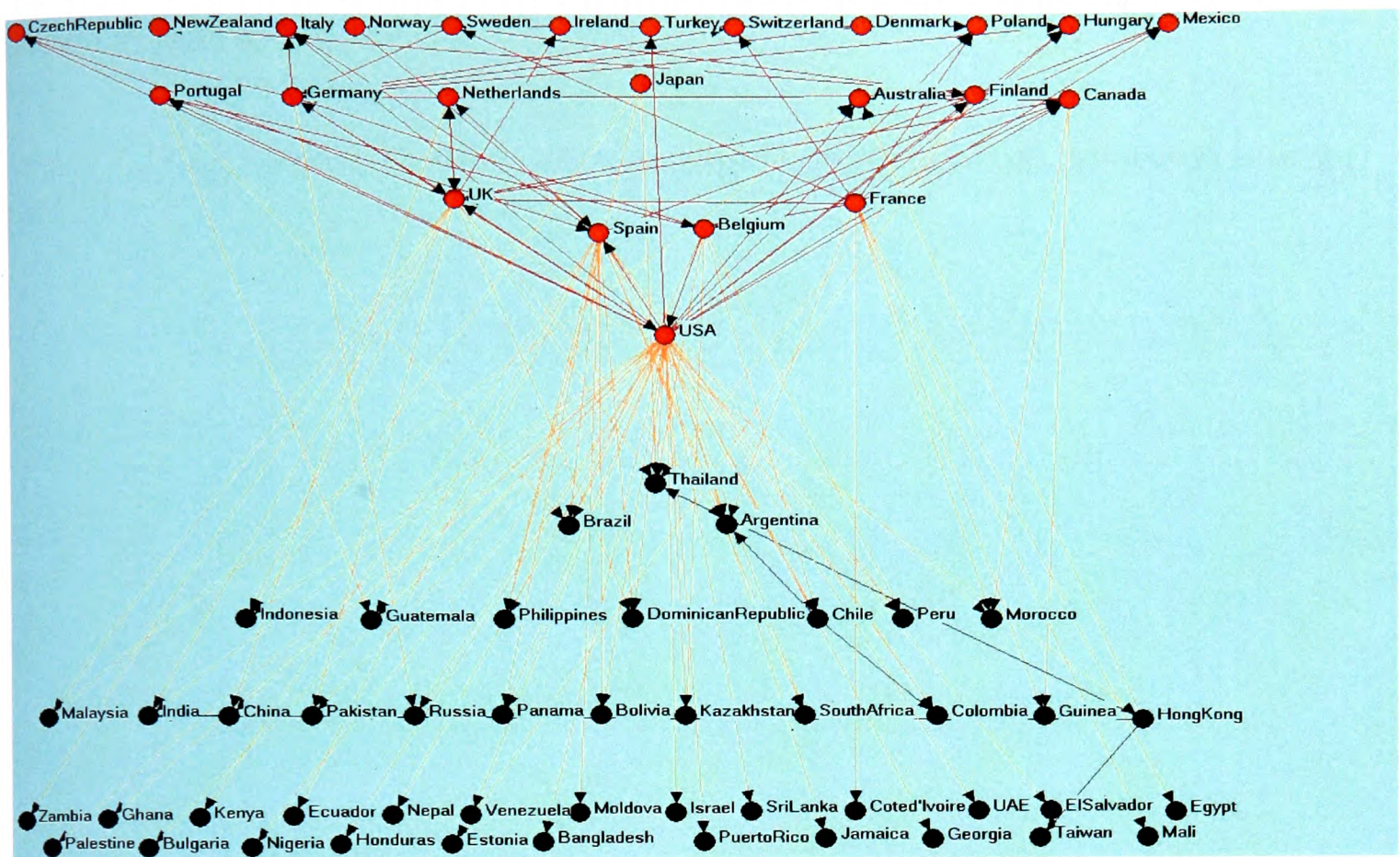


Figure 7.53 International ownership ties between OECD and non OECD countries (electricity)

On the contrary, ties between non OECD countries are rare. It can be seen in Figure 7.54, which demonstrates clearly that there are only five ownership ties between non OECD countries.

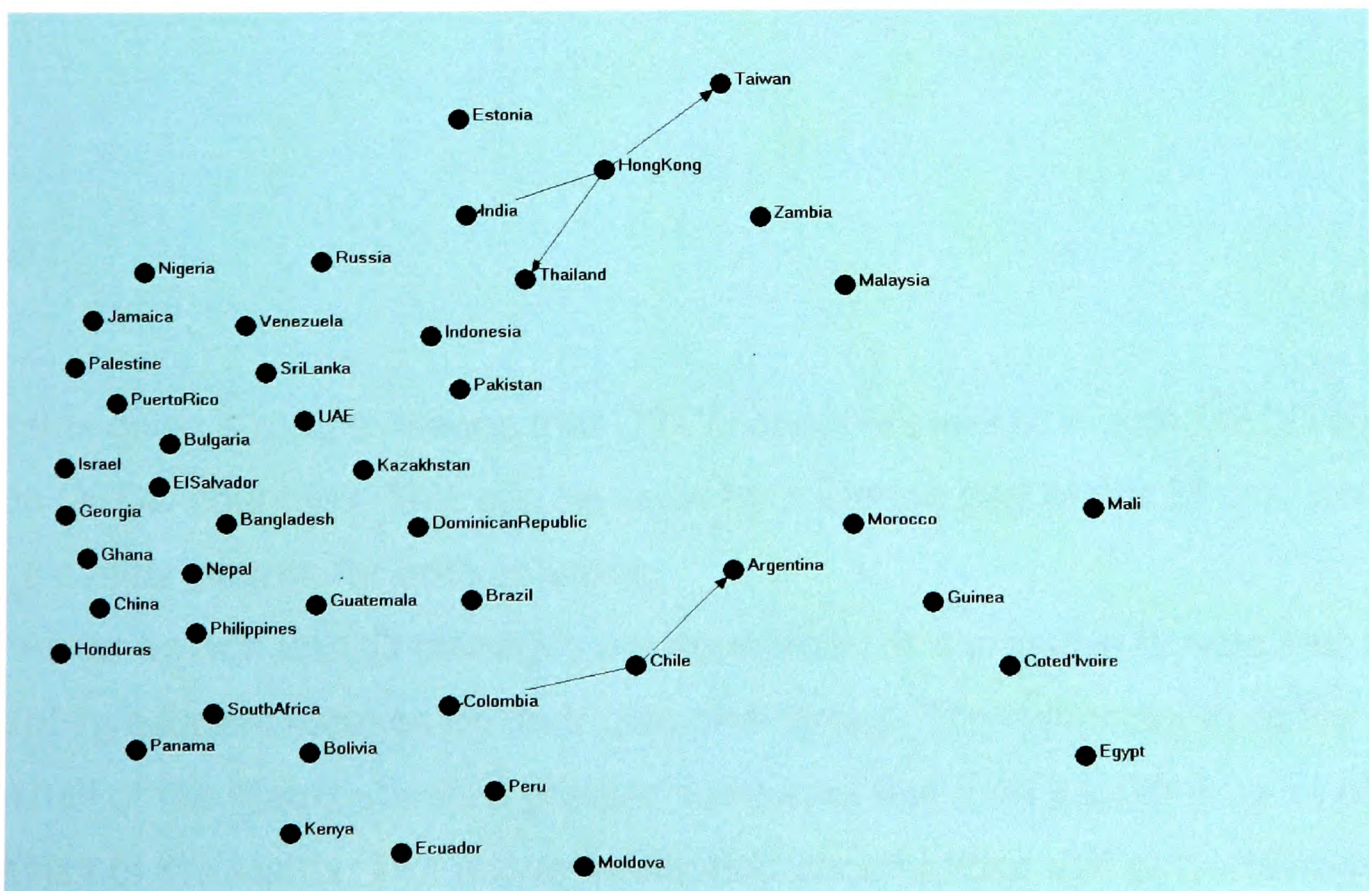


Figure 7.54 International ownership ties between non OECD countries (electricity)

Furthermore, the impact of the membership in the OECD on ownership ties can be estimated by calculating densities of ownership ties of OECD countries with their partners in OECD and with non OECD countries. The result of this operation is shown in Matrix 7.2.

*Matrix 7.2 Comparative Densities of Ownership Ties (Attribute: the Membership in the OECD)*

The matrix displays ownership tie densities between 49 countries, categorized by OECD membership. The top half (rows 1-24) represents OECD countries, and the bottom half (rows 25-49) represents non-OECD countries. The left column (columns 1-24) shows ties with other OECD countries, and the right column (columns 25-49) shows ties with non-OECD countries. The matrix is symmetric, with the diagonal representing self-ties. The top-left quadrant shows a high density of ties, indicating significant investment within the OECD. The top-right quadrant shows a moderate density of ties, indicating investment by OECD countries in non-OECD countries. The bottom-left quadrant shows a lower density of ties, indicating investment by non-OECD countries in other non-OECD countries. The bottom-right quadrant shows a higher density of ties, indicating investment by non-OECD countries in OECD countries.

This matrix gives strong evidence that OECD countries invest in both OECD countries and non OECD countries. This can be seen from the top part of this Matrix, which shows a similar pattern for both columns.

As far as non OECD countries are concerned, it is possible to note that their choice of investment focuses on their own peer group. The right column of the bottom half of the Matrix shows a greater number of ties than the left column of the bottom half of the Matrix. The above mentioned observations can be verified by the figures of average distances, which are presented in Table 7.15.



*Table 7.15 Average Density of Ownership Ties of OECD and Non OECD Countries in Electricity*

	<b>Non OECD</b>	<b>OECD</b>
<b>Non OECD</b>	0.0024	0.0018
<b>OECD</b>	0.0716	0.0942

Although values of densities are small, the figures of this table indicate, that there is no difference for OECD countries where to acquire ownership in the electricity industry. The coefficients 0.0716 and 0.0942 are close to each other. However, it should be noted that the density of ownership ties within OECD countries is the greatest (0.0942). Similarly, the choice of the investments in the water sector for non OECD countries is normally within their own group (coefficient 0.0024 in the first row of this table).

To summarise the findings of this subsection it is possible to say that the political factor, in terms of the membership in OECD, may have an impact on the distribution of ownership in the electricity industry, because the structural properties of acquisitions of these two groups are different. However, if the analysis is undertaken with the aim of establishing whether these ownership acquisitions take place only within the borders of the specified groups, the conclusion will be different, because countries-OECD members have a great deal of ownership acquisitions in the group of non-OECD members. Also it should be emphasised that the ownership is concentrated in and largely within countries-members of the OECD. The purpose of the next subsection is to identify the impact of which of the factors examined in the previous four subsections is the strongest and whether these factors are statistically significant.



## 7.2.5. Comparative Analysis of the Impact of Geographical, Cultural, Economic, and Political Factors on the Structure of Ownership in Electricity

This subsection aims to compare the impact of geographical, cultural, economic, and political factors on the ownership network in the electricity industry. Quadratic Assignment Procedure (QAP) is used for this purpose.

### 7.2.5.1. The Assessment of the Impact of the Geographical Factor (Continents)

The figures produced by the QAP routine for continents are presented below.

#### QAP MATRIX CORRELATION

```
-----
Observed matrix:          inputElandE
Structure matrix:        AffilContinents
# of Permutations:       2500
Random seed:             483
```

#### Univariate statistics

		1	2
		inputEla	AffilCon
		-----	-----
1	Mean	0.029	0.222
2	Std Dev	0.167	0.415
3	Sum	138.000	1070.000
4	Variance	0.028	0.172
5	SSQ	138.000	1070.000
6	MCSSQ	134.057	832.961
7	Euc Norm	11.747	32.711
8	Minimum	0.000	0.000
9	Maximum	1.000	1.000
10	N of Obs	4830.000	4830.000

Hubert's gamma: 43.000

#### Bivariate Statistics

		1	2	3	4	5	6	7
		Value	Signif	Avg	SD	P(Large)	P(Small)	NPerm
		-----	-----	-----	-----	-----	-----	-----
1	Pearson Correlation:	0.037	0.014	0.000	0.017	0.014	0.992	2500.000
2	Simple Matching:	0.768	0.014	0.762	0.015	0.014	0.992	2500.000
3	Jaccard Coefficient:	0.037	0.014	0.026	0.005	0.014	0.992	2500.000
4	Goodman-Kruskal Gamma:	0.235	0.014	-0.007	0.128	0.014	0.992	2500.000
5	Hamming Distance:	1122.000	0.014	1146.242	25.646	0.992	0.014	2500.000

Running time: 00:00:01

Copyright (c) 1999-2000 Analytic Technologies

The interval for p value (explained in Section 7.1.5.1) is [-0,034; 0,034]. These figures show that there is evidence of correlation at 0.05 significance. However, there is no correlation at 0.01 significance. It gives evidence that the geographic factor is significant and it makes an impact on ownership distribution in

the electricity industry. However, it should be noted that its impact is less significant in the electricity industry than in the water sector.

### 7.2.5.2. The Assessment of the Impact of the Cultural Factor (Civilisations)

As far as the cultural factor is concerned, the figures produced by the QAP routine for civilisations look as follows.

#### QAP MATRIX CORRELATION

```
-----
Observed matrix:          inputElandE
Structure matrix:        AffilICivilisations
# of Permutations:       2500
Random seed:             794
```

#### Univariate statistics

	1	2
	inputEla	AffilICi
	-----	-----
1 Mean	0.029	0.183
2 Std Dev	0.167	0.387
3 Sum	138.000	886.000
4 Variance	0.028	0.150
5 SSQ	138.000	886.000
6 MCSSQ	134.057	723.475
7 Euc Norm	11.747	29.766
8 Minimum	0.000	0.000
9 Maximum	1.000	1.000
10 N of Obs	4830.000	4830.000

Hubert's gamma: 52.000

#### Bivariate Statistics

	1	2	3	4	5	6	7
	Value	Signif	Avg	SD	P(Large)	P(Small)	NPerm
	-----	-----	-----	-----	-----	-----	-----
1 Pearson Correlation:	0.086	0.000	0.001	0.022	0.000	1.000	2500.000
2 Simple Matching:	0.810	0.000	0.798	0.016	0.000	1.000	2500.000
3 Jaccard Coefficient:	0.053	0.000	0.026	0.007	0.000	1.000	2500.000
4 Goodman-Kruskal Gamma:	0.473	0.000	-0.011	0.173	0.000	1.000	2500.000
5 Hamming Distance:	920.000	0.000	972.518	23.726	1.000	0.000	2500.000

Running time: 00:00:01

Output generated: 08 Jul 07 18:41:11

Copyright (c) 1999-2000 Analytic Technologies

These figures show that there is evidence of correlation at 0.05 significance. There is evidence of correlation even at 0.001 significance. It is possible to conclude that the cultural factor makes a very significant impact on ownership distribution in the electricity industry.

### 7.2.5.3. The Impact of the Economic Factor (Income per Person) on Ownership Distribution in the Water Sector

In this study the impact of the economic factor is associated with income per person. The figures produced by the QAP routine for this case are presented below.

#### QAP MATRIX CORRELATION

```
-----
Observed matrix:      inputElandE
Structure matrix:     AffilIncome
# of Permutations:    2500
Random seed:          201
```

#### Univariate statistics

	1	2
	inputEla	AffilInc
	-----	-----
1 Mean	0.029	0.265
2 Std Dev	0.167	0.441
3 Sum	138.000	1278.000
4 Variance	0.028	0.195
5 SSQ	138.000	1278.000
6 MCSSQ	134.057	939.846
7 Euc Norm	11.747	35.749
8 Minimum	0.000	0.000
9 Maximum	1.000	1.000
10 N of Obs	4830.000	4830.000

Hubert's gamma: 45.000

#### Bivariate Statistics

	1	2	3	4	5	6	7
	Value	Signif	Avg	SD	P(Large)	P(Small)	NPerm
	-----	-----	-----	-----	-----	-----	-----
1 Pearson Correlation:	0.024	0.087	-0.000	0.017	0.087	0.938	2500.000
2 Simple Matching:	0.725	0.087	0.722	0.015	0.087	0.938	2500.000
3 Jaccard Coefficient:	0.033	0.087	0.026	0.004	0.087	0.938	2500.000
4 Goodman-Kruskal Gamma:	0.152	0.087	-0.008	0.116	0.087	0.938	2500.000
5 Hamming Distance:	1326.000	0.087	1342.633	29.409	0.938	0.087	2500.000

Running time: 00:00:01

Output generated: 08 Jul 07 18:41:53

Copyright (c) 1999-2000 Analytic Technologies

These figures show that there is no evidence of correlation even at 0.05 significance. It is possible therefore to conclude that the economic factor associated with income per person is not significant and it does not make a considerable impact on ownership distribution in the electricity industry.

It should be remembered, though, while interpreting this result that the impact of the factors (including the impact of the economic factor) is assessed in this study on the basis of having ownership ties in the same group the owning countries belong

to. Certainly, our discussion in Section 7.2.3 has demonstrated that multinational corporations tend to invest in countries with a relatively high income per person (there are only a very small number of ties with countries with low income per person). This can also be considered as a confirmation of the impact of the economic factor and this observation is likely to be correct. However, a different methodology should be used in order to estimate this effect.

In this study we use another approach and since the acquisitions have been frequently made outside the groups the countries belong to (even though most of them have been made in the groups with relatively high income), it inevitably diminishes our measure of the significance of this factor. It is a limitation of the approach that is used in this thesis. That is why it is important to take into account results that have been obtained with the use of other SNA techniques while interpreting the findings of Sections 7.1.5 and 7.2.5.

#### 7.2.5.4. *The Impact of the Political Factor (OECD) on Ownership Distribution in the Water Sector*

Finally, the figures produced by the QAP routine for the political factor associated with membership in OECD are as follows.

##### AP MATRIX CORRELATION

```
-----
Observed matrix:      inputElandE
Structure matrix:     AffilOECD
# of Permutations:    2500
Random seed:          452
```

```
Univariate statistics
                1          2
                inputEla  AffilOEC
-----
1   Mean        0.029     0.543
2   Std Dev     0.167     0.498
3   Sum         138.000   2622.000
4   Variance    0.028     0.248
5   SSQ         138.000   2622.000
6   MCSSQ       134.057   1198.629
7   Euc Norm    11.747     51.205
8   Minimum     0.000     0.000
9   Maximum     1.000     1.000
10  N of Obs    4830.000  4830.000
```

Hubert's gamma: 57.000



## Bivariate Statistics

	1	2	3	4	5	6	7
	Value	Signif	Avg	SD	P(Large)	P(Small)	NPerm
1 Pearson Correlation:	-0.045	0.033	0.000	0.024	0.972	0.033	2500.000
2 Simple Matching:	0.452	0.972	0.459	0.010	0.972	0.033	2500.000
3 Jaccard Coefficient:	0.021	0.972	0.028	0.004	0.972	0.033	2500.000
4 Goodman-Kruskal Gamma:	-0.263	0.033	0.004	0.143	0.972	0.033	2500.000
5 Hamming Distance:	2646.000	0.972	2608.818	55.555	0.033	0.972	2500.000

These figures show that there is evidence of correlation at 0.05 significance, but there is no evidence of correlation at 0.01 significance. In other words, the political factor associated with the membership in OECD can be regarded as significant, although its impact is less significant than the influence of the geographical and cultural factors.

### 7.2.6. Summary of Section 7.2.

This part of the chapter has assessed the role of geographical, economic, political and cultural factors in the electricity sector. The findings for geographical factors with the use continental and regional groupings are similar, although the “continental” model is slightly better for the description of the ownership network of the electricity industry than the “regional” model. It has been revealed that Europe and Northern America play a dominant role in this global ownership network because these continents are associated with the majority of ties with other continents and have a dense net of ties with each other.

As far as the cultural factors (in terms of civilisations) are concerned, it has been found that there is a dense net of ties within the Western civilisation. Furthermore, the results of this study show that a few multinationals of the Western civilisation own a large number of electricity companies in the countries of the other civilisations. In addition, it has been revealed that outside the Western civilisation there is a paucity of ownership ties.

The visual analysis of the role of the economic factor (in terms of the category of income per person) has revealed that this factor may be important for international acquisitions in the electricity sector. For example, it has been shown that multinationals of high income countries largely invest in countries with upper middle or lower middle income per person, while the number of ownership ties between countries with high income per person and countries with lower income per person is

small. The visualisation of the political factor (in terms of the OECD membership) has revealed that the ownership is concentrated in and largely within countries-members of the OECD. These results question the efficiency of the present privatisation policies aiming to develop poor (low income) countries.

As far as the QAP measured impact of the variables under study is concerned, the key QAP indicators of the previous subsections can be summarised in Table 7.16.

*Table 7.16 Figures of QAP Correlation for All Factors (Electricity)*

	<b>Geographical Factor</b>	<b>Cultural Factor</b>	<b>Economic Factor</b>	<b>Political Factor</b>
	<i>Continents</i>	<i>Civilisations</i>	<i>Income Per Person</i>	<i>(OECD Membership)</i>
<b>Pearson Correlation</b>	0.037	0.086	0.024	-0.045
<b>Significance</b>	0.014	0.000	0.087	0.033
<b>P value interval</b>	[-0,034;0,034]	[-0,043;0,044]	[-0,034;0,034]	[-0,048;0,048]

The figures of this table show that the geographical and cultural factors make a great impact on ownership distribution in the electricity industry. The impact of economic and political factors associated with income per person and membership in OECD is less significant. These findings support neither Hypothesis 4 nor Hypothesis 5. The meaning of these findings (as well as findings of Chapter 5) for globalisation theories and for the assessment of privatisation policies is discussed in the next Chapter, while the next Section summarises the main findings of this Chapter.

### 7.3. Summary of Main Findings for Research Question 2.

This Chapter has examined the impact of geographical, cultural, economic and political factors on international acquisitions in the water and electricity sectors. To some extent, the main measures for ties of water companies differ slightly from the measures obtained for electricity, as can be seen from Table 7.17, which summarised key QAP indicators for both sectors.

Table 7.17 Figures of QAP Correlation for All Factors in Water and Electricity

	<b>Geographical Factor</b>	<b>Cultural Factor</b>	<b>Economic Factor</b>	<b>Political Factor</b>
	<i>Continents</i>	<i>Civilisations</i>	<i>Income Per Person</i>	<i>(OECD Membership)</i>
	Water			
<b>Pearson Correlation</b>	0.044	0.061	0.031	- 0.053
<b>Significance</b>	0.004	0.000	0.007	0.086
	Electricity			
<b>Pearson Correlation</b>	0.037	0.086	0.024	-0.045
<b>Significance</b>	0.014	0.000	0.087	0.033

However, there are also a lot of similarities and it is possible to draw general conclusions that are valid for both of these sectors. The most important result is that for the most part the findings obtained for both sectors under study support neither Hypothesis 4 nor Hypothesis 5. This result may indicate that even when the process of acquisitions is concerned, globalisation does not overcome the impact of cultural and geographical factors. The geographical and the cultural factors are more significant than the economic and political factors. The findings of this chapter mainly support the regionalisation theory.

It should be noted that these findings should be interpreted cautiously. As it has already been stated in Section 4.3.5., the choice of just one variable for each of the factors under study can hardly be representative. Consequently, it is better to say that the findings of this study are opening an interesting debate on the boundaries of the proposed approach for assessing the impact of the factors.

Importantly, the material of this Chapter show that the use of QAP (or some other statistical measures) alone could result in overlooking some important structural properties of the ownership network in public services. Fortunately, the use of a variety of SNA techniques allows us to overcome this problem. For example, the graphs for all factors have shown the presence of groups that are associated with the greatest proportion of ties – the Western civilisation for the cultural factor, Europe or North America for the geographic factor, countries with high income for the economic factor, members of OECD for the political factor. This is a strong evidence of the existence of the centre-periphery pattern, which has been identified in the previous Chapter.

Interestingly, the findings of this Chapter show that multinational corporations prefer to invest in countries with upper middle or lower middle incomes per person. It has been found for both water and electricity that there are only a small number of ties between corporations headquartered in countries with high income per person and companies belonging to countries with lower income per person.

Finally, it should be noted that the graphs examined in this Chapter may indicate the presence of a great number of joint ventures between multinational corporations involved in public services. Figures 7.14, 7.21, 7.22 for the water sector, and Figures 7.41, 7.50, 7.51, and 7.53 for the electricity sector are especially remarkable in this respect. Thus, the material of this Chapter mostly confirms and develops the findings of Chapter 6. The importance of these findings (of this and the previous Chapters) for globalisation debates and theory is discussed in detail in Chapter 8 that follows.



## Chapter 8

### Discussion of Findings

The previous two chapters have presented the findings in relation to the pattern of ownership (Research Question 1) and the factors impacting on this pattern (Research Question 2). This chapter will discuss the implications of these results for an understanding of globalisation (Research Question 3). It is divided into four sections. Section 8.1 discusses implications of the findings about pattern of ownership, Section 8.2 presents implications of the findings about factors, Section 8.3 assesses the place of public services in globalisation, developing a neo-colonialist analysis of globalisation, and the final section summarises the main points of the chapter.

#### ***8.1. Implications of Findings Related to the Pattern of Ownership***

This section mainly discusses the findings of Chapter 6, which were obtained via applying several techniques of social network analysis, in particular, visualisation, k-core routine, degree centrality, indices of centralization and distances. These findings are related to Research Question 1 which asks: *What is the pattern of global ownership in the utilities, following their domestic privatisation and restructuring?*

It has been shown in Chapter 6 that the pattern of global ownership network in public services in each and all sectors has a star-like pattern. This pattern is best illustrated by Figure 6.32, which we repeat for the convenience of readers as Figure 8.1.

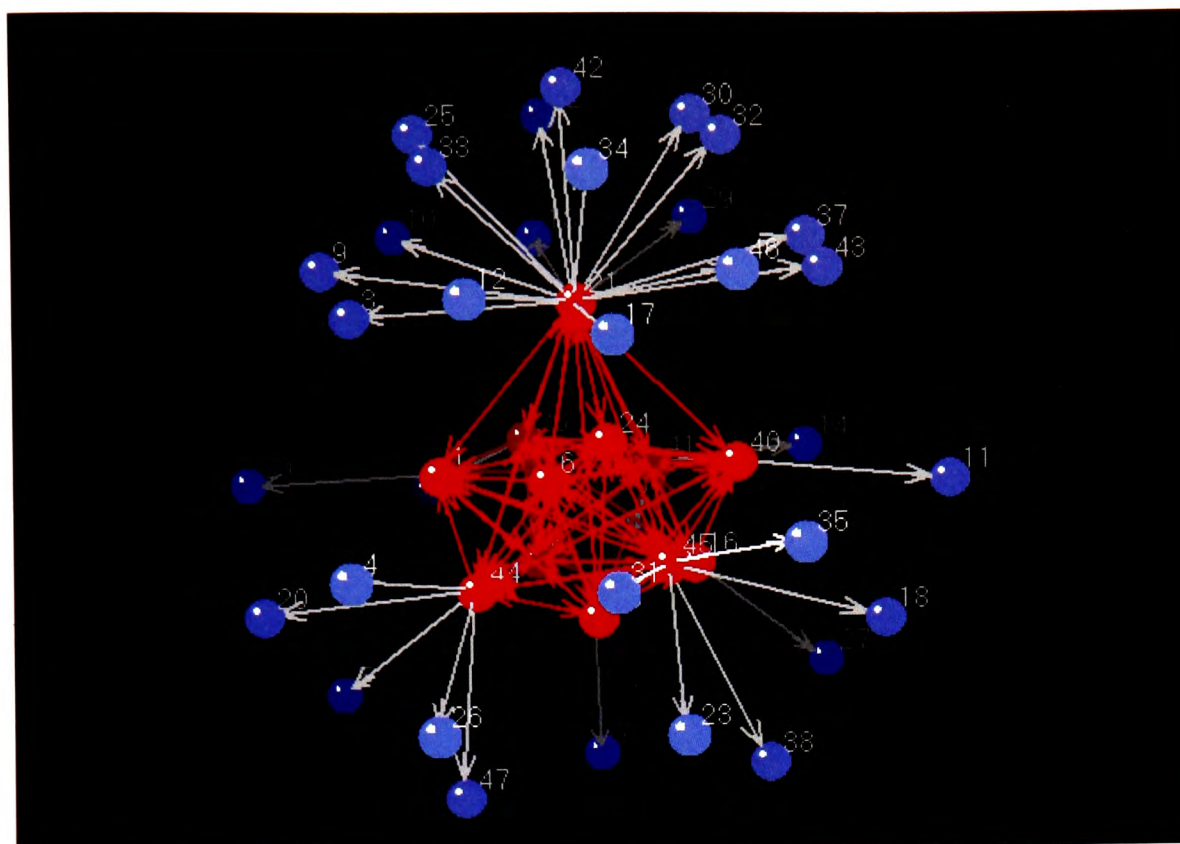


Figure 8.1 Pattern of ownership concentration of global public services

In this Figure, the core is represented by red nodes whereas the periphery is identified by blue nodes. This image shows that multinational corporations which are headquartered in the countries of the core own companies of the rest of the world. For example, 90 per cent of global ownership (measured by out degree centrality) in the water sector is concentrated in just 5 countries. Similar figures for water companies show that 90 percent of total out degree centrality is concentrated in just 17 companies from 303 firms under study.

It should be noted that this result is consistent with the findings of some other studies with regard to other important industries. These studies have also revealed that globalised capitalism has triggered concentration in many industries and that globalisation means “bigger and more centralised capital” (Scholte, 2005: 182). For example, Kaplinsky (2008: 130) reports a growing concentration of production and distribution in buying and retailing. He claims that in the USA between 1987 and 1991, the five largest chains increased their share of retail sales from 35 to 45 %. The dominance of these five chains increased even more in 1995, when their market share reached 68 %. Concentration of retailing in the USA could be evident even if

these five dominant chains were not taken into account – it is reported that the other twenty four chains in the United States controlled 30 per cent of the market (in 1991).

The situation with retailing in Europe is not much different from that in America. For example, in Germany, five retailers accounted for 28% of the clothing market in 1992. In the UK, the top five retailers had 32 % of the market in 2000, and another top ten retailers had 42%. In France and Italy, the role of independent retailers also considerably declined after 1985 (Kaplinsky, 2008: 130). Many other industries in these regions also have a similar trend. For example, the number of component suppliers in auto industry has sharply reduced, with a simultaneous growth of their size and market share (Ibid.: 151).

The next important finding of this dissertation is that the core of global ownership network in public services has a complex structure. For example, inside the core, the countries-owners should be distinguished from the most colonised countries. In order to identify the real owners, the direction of ties has to be taken into account. Therefore, in order to reflect this phenomenon, the ownership network of public utilities that has been shown at the beginning of Chapter 6 (Figure 6.1) can be modified and represented by the scheme shown in Figure 6.33, which we repeat for the convenience of readers on Figure 8.2.

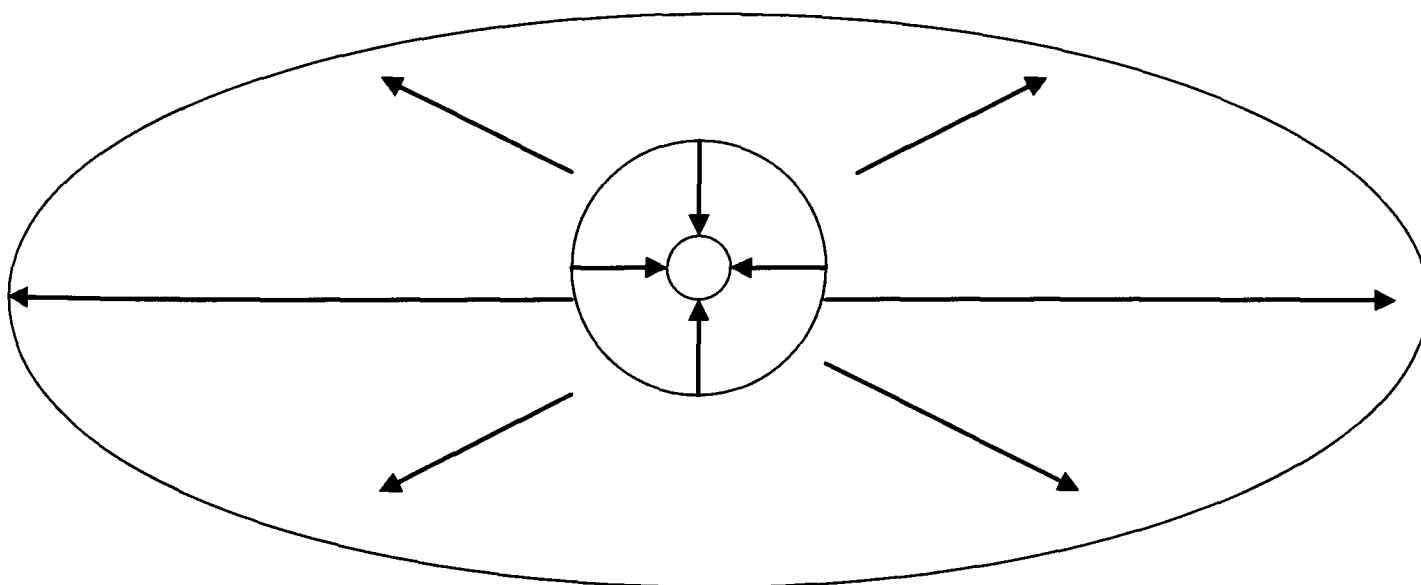


Figure 8.2 Scheme of ownership concentration in public services

In this scheme, there is the core (the circle inside the ellipse) of countries (multinationals) that own public companies in most other countries of the world



(represented by the large ellipse). Within the core there is an area with in-directed ties (a smaller circle). This area represents the most colonised countries.

It should be noted that the finding of the asymmetry of ownership in public services is very important. In principle, the concentration of ownership among owning countries does not require the existence of the core of colonised countries. If what happens is just trade and business in universally required services then there is likely to be a random spread of colonised countries. But if there is a core of colonised countries then this requires an explanation.

Factors that may explain this asymmetry can be identified as either common internal factors or common external factors. The internal factors may be associated with the fact that all the countries are middle income countries, or those in special need of more electricity. In other words, they have more attractive markets. Common external factors may reflect the impact of World Bank initiatives or some strategies of USA foreign policy.

Also, if all the core owning countries are active in the core colonised countries, then this may show strong degrees of cooperative activity or collusion. This cooperation can be especially illustrative if one takes into account joint ventures between the owning companies-countries. They are presented in Figure 8.3, which shows that there is a dense network of joint ventures between companies associated with the core of owning countries in public services.

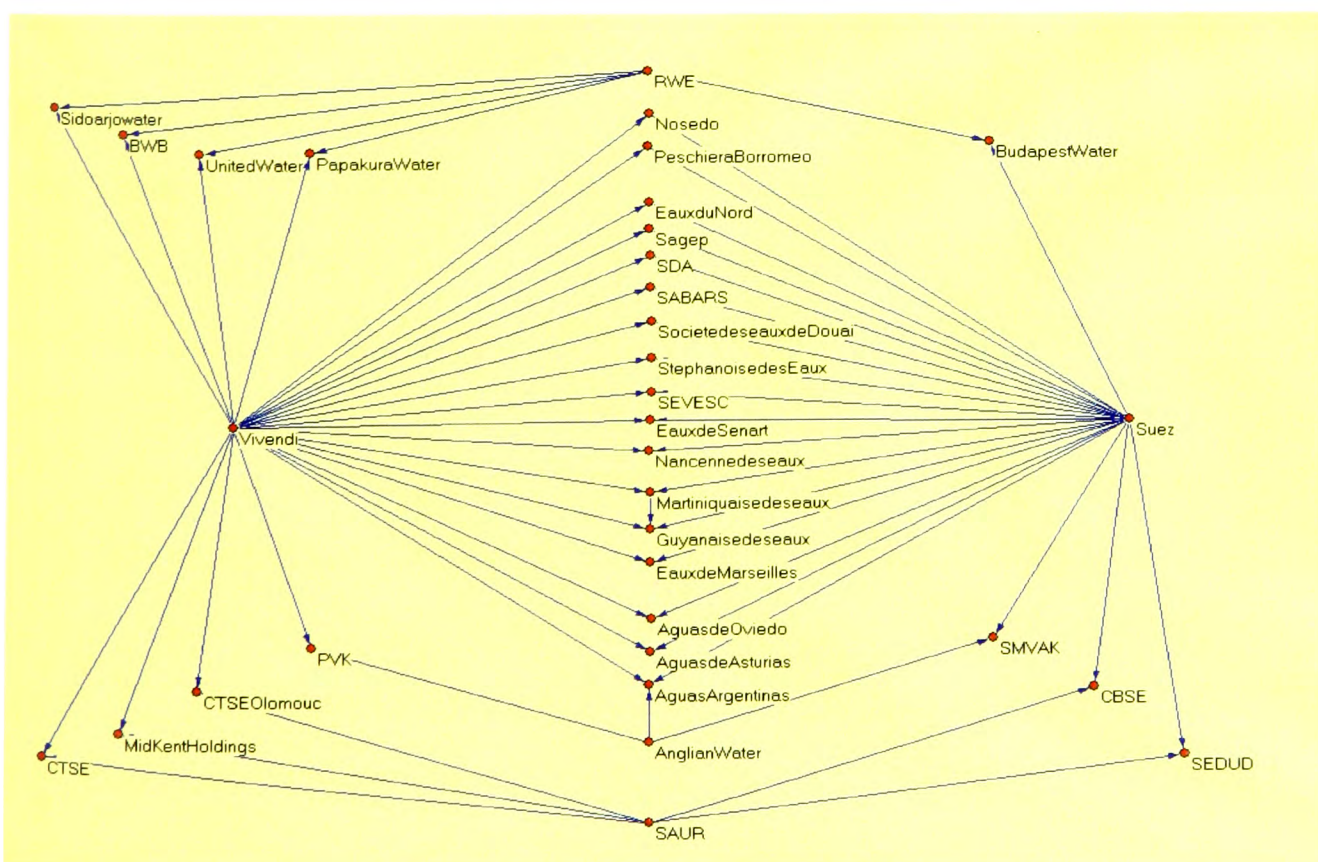


Figure 8.3 Joint ventures between main European multinationals



This finding strongly disputes the argument that the involvement of multinational corporations in local markets of public service providers resulted in the creation of a competitive market. This argument is one of the key points for current policy making in public services.

It should be emphasised that the findings of Chapter 6 are also important for academic debates. For example, they are especially interesting in the light of Hymer's ideas. There are two elements of the Hymer approach that are of special relevance here. First, Hymer (1960) argued that multinational corporations seek foreign markets in order to exploit market imperfections and to increase their market power. Second, he pointed out that the removal of conflicts in foreign markets should be regarded as one of the most important determinants of FDI.<sup>66</sup>

The scheme suggested in this thesis (Figure 8.1 and Figure 8.2) demonstrates that Hymer's theory can be of relevance for understanding international acquisitions in public services. It is evident that the majority of multinationals operate in countries where they are unlikely to meet serious rivals. On the other hand, when several competitors are present (the central part of the scheme shown in Figure 8.2), they tend to remove conflicts between each other by the establishment of joint ventures with one another, as is well illustrated by Figure 8.3.

The findings of this study can be also seen as a critical assessment of the Triad thesis (Hirst & Thompson, 1996). Indeed, the Triad thesis implies the existence of the core of countries that are accounted for the greater proportion of economic transactions and power. According to different estimates, countries of the Triad mostly interact one with another and are associated with nearly 80 per cent of world economic activities (Boyer & Drache, 1996; Hirst & Thomson, 1995). Some figures of importance of the countries of the Triad are shown in Tables 2.1-2.3 presented in Chapter 2.

It is of a great interest to examine whether ownership related developments in public services have similar trends. First of all it should be noted that, as has been shown in Chapter 6, the Three Polar Model and the Extended Three Polar Model, which are associated with the Triad thesis, do not particularly match the pattern of the global ownership network of public services examined in this study. This outcome may lead to considering the findings of this dissertation as contesting the

---

<sup>66</sup> Reported in Letto-Gilles, 2005: 61.

Triad thesis. However, the interpretation of this result should be undertaken in a comprehensive way.

For example, two important elements of the Triad thesis should be highlighted. The first element is concerned with the proportion of world economic transactions and the second element reflects the interaction of members of the Triad one with another. In Chapter 6, a couple of three polar models have been examined, mostly in terms of interaction between the three blocks of the Triad (North America, Western Europe and Japan). It has been shown that as far as issues related to international ownership in public services are concerned, the blocks of the Triad are not particularly tied one with another. In this sense, the Triad thesis with regard to public services can be rejected.

However, as far as the second element of the Triad thesis is concerned, the situation is considerably less straightforward. In fact, it can be seen from our data that a great proportion of ties are associated with the countries of the Triad. For example, 95 % of out-degree centrality and 14 % of in-degree centrality in the water sector are associated with countries of the Triad. Consequently, it is possible to say that in this sense the findings of this dissertation are consistent with the Triad thesis.

On the other hand, as far as the core of the global network of public services, it is possible to see only a couple of countries of the Triad there. For example, as can be seen in Figure 6.3, there are only four countries of the Triad in the core of the water sector, and moreover, three of them belong to the same block of the Triad (Western Europe). In other words, although the findings of this dissertation do not reject the Triad thesis, it is more plausible to dismiss three-polar models as less appropriate when we describe structural properties of the global network of public services.

The identified pattern of the global ownership network in public services can be used for an assessment of implications of local privatisation policies. For example, the fact that the greatest part of ownership ties in public services is concentrated in the countries of the Triad shows that privatisation in developing countries does not result in any form of local “popular capitalism” but rather reinforces the existing pattern of global economic dominance by the Triad countries.

The findings of this dissertation make it evident that local privatisation policies in many countries resulted in the formation of a global arena that is convenient for activities of multinationals. However, it is of interest if there are any particular

preferences or constraints for multinationals in how to use this global environment. Thus, it is of particular interest to examine the findings for Research Question 1, which is concerned with the pattern of the global ownership network of public services, in the context of an inquiry into a possible impact of geographical, economic, political and cultural factors on the structural properties of the ownership network under study. These aspects are associated with Research Question 2, and the implications of findings related to this research question and its subquestions are discussed in the next Section.

## ***8.2. Implications of Findings Related to the Factors Impacting on the Ownership Pattern***

This section addresses Research Question 2, concerning the impact of a variety of factors on ownership acquisitions in public services. It analyses implications of the findings in Chapter 7 regarding the impact of geographical, cultural, economic and political factors on international acquisitions in the water sector and the electricity industry. These findings are mostly examined in the light of their relevance for the development of globalisation theory and for an assessment of privatisation policies.

With regard to Research Subquestion 2.1 of this study, which aims to find out if there is a regional dimension to the internationalisation of the public utilities, it has been shown in Chapter 7 that the impact of the geographic factor in terms of continents is significant. This means that most international acquisitions in public services take place within their geographic regions. In terms of assessment of privatisation policies this result shows that although neoliberal and privatisation policies have been actively promoted throughout the entire world, financial (and associated with them technological and innovations flows) have not particularly overcome natural geographical barriers. This conclusion can also be interpreted in the framework of globalisation studies. For example, a higher density of economic transactions within geographic regions may demonstrate a greater validity of the regionalisation theory than the globalisation theory (discussed in Section 2.3).

Similar conclusions can be made with regard to Research Subquestion 2.4, which aims to assess the importance of *cultural factors* in ownership processes related to public utilities. It has been shown that the impact of cultural factors,

assessed in terms of Huntington's concept of civilisations, is even more significant than the impact of geographical factors. Implications of this finding regarding neoliberal policies and globalisation are similar to conclusions of the previous paragraph about Research Subquestion 2.1.

This result has even more implications for globalisation theory. It is possible to see that culture is greatly connected with economic processes. The fact that culture can affect economic performance and economic development is well known (for example, Weber, 1978). Some studies have also discovered that culture impacts on international transactions. For example, as has already been mentioned in this study, culture is likely to play a considerable role in the formation of international political and economic alliances. This trend is especially noticeable with regard to business networks of Southern countries. By contrast to northern business networks that are not discriminative about race, religion or origin, southern networks have considerably more restricted code of entry, which is greatly influenced by ethnicity, kinship and a number of other culture based factors (Sherman, 2003). Our study contributes to the argument about the importance of cultural factors for international economic transactions by showing that ownership acquisitions in public services are affected by culture, if measured on the basis of the Huntington's concept of civilisations.

Research Subquestion 2.2 of this study examines the role of specific economic factors in the internationalisation of ownership of public services. It has been found in Section 7.1.3 and Section 7.2.3 that the impact of the economic factor in terms of income per person is not particularly significant. It should be noted, though, that this result should be interpreted very specifically, whereby the strength of external factors reflect the extent of international acquisitions involving countries with similar income per person. This technique does not distinguish between groups that are more different (or less different) in terms of income per person from the group in question. In other words, for the richest countries, the group of countries with low income are regarded in terms of the SNA routine used as similar to the groups of countries with middle incomes per person.

This difference, however, can be important. For example, the findings of Section 7.1.3 and Section 7.2.3 of this study show that multinational corporations prefer to invest in countries with upper middle or lower middle incomes per person. It has been found for both water and electricity that there are only a small number of ties between corporations headquartered in countries with high income per person



and companies belonging to countries with lower income per person. In other words, multinationals involved in international ownership acquisitions in public services seem to enter the most profitable markets and are not involved in operations in less advantaged countries, leaving them without much needed expertise and financial resources. This result is consistent, for example, with Thomsen's (2005: 11) findings regarding PPPs in public utilities.

This finding is important because it shows for instance that the policy of hoping that MNCs will invest in low income countries in both water and electricity has failed to reach its key targets. Consequently, our findings contradict the expectation of neoliberals that neoliberal policies would benefit all nations. On the contrary, these results more support Stiglitz's (2008) argument that neoliberal policies based on market fundamentalism have failed.

Another important result associated with economic factors in a broader perspective is that global trends of FDI in a variety of industries are similar to patterns of ownership acquisitions in public services. For example, Hoogvelt (2001) notes that a substantial proportion of global FDI concentrates in the developed rather than in developing countries, similar to the finding of this dissertation. Also, it has been shown in Section 8.1 that the greatest part of FDI is associated with the countries of the Triad. The results demonstrate that the greatest part of international ownership ties in public services is also associated with the Triad countries. This interesting conclusion can be further developed in such a way: since a closer look at the ownership structure of public services has revealed the existence of particular countries of the Triad with a higher concentration of ownership, it is possible that there are Triad countries that are associated with a higher rate of FDI. This assumption could be tested in further FDI studies.

Analysis of findings related to Research Subquestion 2.3 about the role of political factors in international acquisitions in public services produces similar results as have been obtained in the case with economic factors. It has been found that the impact of political factors associated with membership in OECD is not significant. Again this result is likely to have been caused by the features of the techniques used for this study. It is important to see the difference in the impact of political factors on ownership networks in public services and the role of political factors on the development of globalisation policies. Even though the role of politics in the development of globalisation policies can hardly be disputed (as it has been shown

in Section 3.1), the effect of certain aspects of political factors on specific developments in particular industries can be minor.

Furthermore, it is of interest to move beyond the boundaries of cultural and political factors as they have been defined in this study, and to consider that the concept of civilisations proposed by Huntington (1993) contains not only cultural dimensions but also political aspects. It is not a surprising result given that culture is a very multidimensional concept that contains a clearly noticeable historical dimension. For example, Parker et al. (2003) defines culture as “a collective product, consisting of processes and artefacts produced over a long period of time and by a large numbers of individuals, which enables the past to be carried into the present and future.” It is evident that this definition points out at historical facets of culture.

Since the development of any society is impossible without some political developments, the concept of culture involves certain political aspects. The political dimension is even more endorsed in the concept of civilisations because civilisations are products of cultural, historical and political developments. In this respect, the findings of this study could be interpreted as the data that show a considerable impact of past colonial (and hence political) developments on the current configuration of the ownership network in public services. Wider implications of this important observation are to be discussed in Section 8.3.2.

In the meantime, our discussion has approached the last research subquestion of this study. Research Subquestion 2.5 asks what out of the above mentioned factors are more significant for explaining international ownership patterns in public utilities. It should be noted that it is not easy to give a generalised answer to this question because the main measures for ties of water companies differ slightly from the measures obtained for electricity (as can be seen from Table 8.1, which summarised key QAP indicators for both sectors). However, there are also a lot of similarities and it is possible to draw general conclusions that are valid for both of these sectors. The most important result is that for the most part the findings obtained for both the industries support neither Hypothesis 4 nor Hypothesis 5.

Table 8.1 Figures of QAP Correlation for All Factors in Water and Electricity

	<b>Geographical Factor</b>	<b>Cultural Factor</b>	<b>Economic Factor</b>	<b>Political Factor</b>
	<i>Continents</i>	<i>Civilisations</i>	<i>Income Per Person</i>	<i>(OECD Membership)</i>
	Water			
<b>Pearson Correlation</b>	0.044	0.061	0.031	- 0.053
<b>Significance</b>	0.004	0.000	0.007	0.086
	Electricity			
<b>Pearson Correlation</b>	0.037	0.086	0.024	-0.045
<b>Significance</b>	0.014	0.000	0.087	0.033

This result may indicate that even when the process of acquisitions is considered, globalisation does not overcome the impact of cultural and geographical factors. The geographical and the cultural factors are more important than the economic and political factors, in terms of variables selected for this study. However, it should be noted that these findings should be interpreted cautiously. Clearly the choice of just one variable for each of the factors under study can hardly be representative. It is better to say that the findings of this study are opening an interesting debate on the boundaries of the proposed approach for assessing the impact of the factors.

Nonetheless, it is of interest to note that this result is consistent with Thomsen's (2005) study on PPPs in the utility sector. He points out that many transnational corporations tend to invest either in the neighbouring economies or in the countries with close cultural or linguistic links. For example, he notes that French, Spanish and Portuguese firms largely invest in the utilities sectors of former colonies. He observes similar patterns of investment behaviour for German firms in Central Europe as well as for Korean and Japanese companies in Asia. Thomson finds the same feature for smaller local providers, which are also frequently active within their own regions (Thomsen, 2005: 15).

Importantly, this finding mainly supports the regionalisation theory, which states that economic transactions are largely concentrated within certain regions (Krugman, 1991; Aiginger & Leitner, 2002; Harvey, 2003). Economic aspects under study and the classifications for regions selected for this dissertation are different from those used in related research. However, our findings also identify a visible trend of regionalisation, and are therefore in line with a large number of globalisation related studies on other industries, making an empirical contribution to the globalisation debate about regionalisation.

Switching to the discussion on the implications of the findings for an assessment of privatisation policies, it is possible to say that local privatisation policies worldwide have constructed a convenient global environment for activities of multinationals; they use this environment for expansionist policies in public services. Their choice of foreign partners is motivated by seeking relatively high revenues, but to some extent (except for the most internationalised multinationals) is restrained by cultural and geographic factors.

Perhaps, the most interesting finding of Chapter 7 is that the use of QAP (or some other statistical measures) could result in overlooking some important structural properties of the ownership network in public services. Fortunately, the use of a variety of SNA techniques allows us to overcome this problem. For example, the graphs for all factors have shown the presence of groups that are associated with the greatest proportion of ties – the Western civilisation for the cultural factor, Europe or North America for the geographic factor, countries with high income for the economic factor, members of OECD for the political factor. This is a strong evidence of the existence of the centre-periphery pattern. It is very likely that this pattern of the network makes a strong impact on our findings.

The presence of this pattern allows us to argue that the findings of Chapter 7, while mainly supporting regionalisation theory, do not contradict globalisation theory. As some theorists of globalisation have recently pointed out, regionalisation theory and globalisation theory do not necessarily contradict each other because they explain only part of empirical data and can overlap (Krempel & Plümper, 2003).

Our research may illustrate how it is possible. The findings obtained here show that the ownership network in public services is not homogeneous and its parts have different structural properties. Some aspects of acquisition behaviour confirming the globalisation theory are associated with a few actors (the core of the



network). At the same time the behaviour of other actors of this network can be explained within the framework of the regionalisation theory.

For example, the graphs in Section 6.1.1 and 6.2.1 show that most of the external ties belong to only a few countries: France and the UK - in the water sector, and the UK along with the USA - in the electricity industry. If these three countries continue increasing the number of their external partners, while the rest of the actors of the network maintain or even raise their internal ties, the longitudinal SNA techniques, which have been used in internationalisation studies so far, are likely to produce results confirming both theories.

It may be interesting to notice at this point that the fact that only few owning countries are involved in interregional acquisitions can be interpreted in the framework of the New Trade Theory. This theory proposes that protectionist policies within certain countries or regions might help build up a solid competitive advantage for subsequent international competition via a network effect. Whether this effect works for public services needs to be examined in further studies, but the findings of Chapter 7 show that it may well be the case.

Also, it should be noted that the graphs examined in Chapter 7 may indicate the presence of a great number of joint ventures between multinational corporations involved in public services. Figures 7.14, 7.21, 7.22 for the water sector, and Figures 7.41, 7.50, 7.51, and 7.53 for the electricity industry are especially remarkable in this respect. Thus, the material of Chapter 7 related to Research Question 1 mostly confirms and develops the findings of Chapter 6 for Research Question 2. Broader implications of the findings for both of these research questions are discussed in the next subsection.

### **8.3. Implications of the Findings for Globalisation Theory**

This Section aims to present a broader synthesis of findings for the two previous research questions. This synthesis is reached on two scales. In the narrow sense – it concerns the place of public services in the globalisation processes and the place they should occupy in globalisation debates. This dimension is associated with the concept of the global system of capitalism and is discussed in Subsection 8.3.1. The broader dimension, although related to the narrow one, reflects on the neo-colonial trend of economic globalisation. This dimension is examined in Subsection 8.3.2.

#### **8.3.1. Public Services as Part of the Global Capitalist System**

As reported in Chapter 4, globalisation has resulted in the establishment of a global system. To be more precise, that is the global *capitalist* system. It composes the core of the global economy and impacts on many social and political aspects of the contemporary world. This subsection outlines the main features of the global capitalist system. Then, taking into account the findings of the two previous chapters, it discusses the place of public services in the global capitalist system, and draws some important conclusions.

The global capitalist system is well described by George Soros in a series of his books on global economic crises. Thus, Soros (1998: 101) claims that the contemporary global economy is characterised not only by free trade in services and goods, but by the free movement of capital. He points out that the role of international financial capital for certain countries is very substantial and this gives him a reason to speak about the existence of the global capitalist system that provides a global infrastructure for the flows of capital. As capital in-flows can bring substantial benefits, many countries seek to attract and retain foreign capital providing favourable conditions for it.

It can be seen that the free movement of capital is the key feature of the global capitalist system. Yet, different components of capital differ in the level of this freedom. For example, financial capital associated with portfolio investments is more flexible and mobile than physical investment. Financial capital is capable of dictating

its rules of games to national governments because it can avoid locations with conditions that are not particularly favourable for it (such as regulations or large taxes, for example). Multinational corporations, more associated with physical investment or investments in production, are also able to exercise this sort of power, although it is more evident at the time of investment decisions (Soros, 1998: 106).

Interestingly, Soros (1998) compares the global capitalist system with a gigantic circulatory system. This system first sucks up capital into the financial institutions and markets and then it pumps it out to the periphery. Peripheral flows are direct or indirect. Direct capital in-flows can be in form of credits and portfolio investments. Indirect financial in-flows are normally associated with activity of multinational corporations. It should be emphasised that Soros recognises that the centre is more attractive for capital than periphery because the conditions for capital at the centre are better and the range of opportunities in the centre is larger than in the periphery.

It is not easy to define exactly when the financial capitalist system emerged. Soros argues that it really emerged in the 1970s, although some initial steps could be tracked to pre- and post-World War II foreign investments or even to Italian city-states. Most definitely, the development of this system was substantially triggered by neo-liberal policies of the leadership of the United States and United Kingdom in the 1980s. It could be argued that the global capitalist system is now close to its completion because, as it was seen in 2008-2009, a certain fault (credit crunch) in the financial system of one of the countries resulted in the global financial crisis with severe consequences for the global economy and most countries in the world.

The recent crisis events have shown that the global capitalist system is flawed. Since the global economy remains substantially unequal (for example, in terms of centre-periphery relations), any deficiencies in the global economy are capable of causing substantial problems for the global capitalist system, and vice versa. Most characteristically, during the time of crisis, the centre withdraws and absorbs capital from the periphery. This structural inequality allows us to compare the global capitalist system with empire. There are a number of reasons for this comparison. Although the global capitalist system does not assigned to a particular territory, it really governs the countries involved. Like any empire, it has a centre and a periphery, and the centre benefits at the expense of periphery. Most importantly, the global capitalist system can be characterised by some imperialist features, such

as expansionism and exploitation. Imperialism is an important part of our discussion, but we will discuss it in detail later, in the next subsection (8.3.2). In the meantime, we are going to assess the place of public services in the global capitalist system.

What is the place of public services in the global capitalist system? It has been shown in this subsection that the global capitalist system has expanded substantially during the last three decades. This process was initiated by the leadership of the major world powers, the United States and the United Kingdom. International financial organisation also played an important role in this process. It was triggered by the collapse of the Soviet Union and the communist system in Central and Eastern Europe. It was encouraged and motivated by political interests of certain business and political elites across the globe.

This expansion has resulted not only in a rise of the number of capitalist economies in the world, but also in the promotion of the capitalistic principles (market relations, liberalisation, privatisation among others) in many industries of the public sector. Public services are also becoming part of the global capitalist system. This thesis has provided a substantial piece of evidence of this process. For example, it has been shown in Chapter 4 that developments in this industry are initiated under a capitalist agenda (neo-liberalism). These processes are substantially controlled by the capitalist governments of the leading countries in the world, and by pro-capitalistic international financial bodies, like the World Bank.

Furthermore, the existence of global ownership networks in the electricity and water sectors has been revealed in Chapter 6. It has been shown that these ownership networks have a core and periphery, the features of the global capitalist system reported with regard to many other industries of the global economy. As it has been outlined in Chapter 7, the ownership networks in public services have other features similar to globalisation trends, such as an impact of cultural and social factors on economic processes associated with globalisation.

This evidence suggests that public services in general and public utilities in particular, are becoming part of the global capitalist system. This industry therefore might and should attract more attention from globalisation specialists and play a much more important role in globalisation theory and debates, especially because it is a *special* segment of this global system.

Public services are not the most important part of the global capitalist system. However, they are currently a special part of the global capitalist system because



they have certain features that distinguish them from the other industries, being traditionally less market oriented and more frequently associated with natural monopolies. It could be argued that these features, together with the fact that public services have become part of the global capitalist system relatively recently, make public services in a sense the weakest (or the most peripheral) part of the system.

It is possible to draw a number of interesting implications out of this statement. First, the capital flows in public services, including FDI and ownership acquisition flows in this industry, are to some extent dependent on the general state and conditions of the global capitalist system and the global economy. During the times of crisis, similar to financial flows in “normal” capitalist industries (when the centre pumps the capital out of the countries of the periphery), the centre is likely to withdraw the capital from peripheral industries, like public services.

In other words, certain developments in public services (as the most sensitive part of the global capitalist system) might reflect on the prospects of a coming crisis. For example, it could be claimed that the economic crisis and credit crunch in 2008 could be to some extent “forecasted” by the process of withdrawal of multinationals from public industries of many countries during the period from 2004 to 2008. This assumption, however, is a purely theoretical speculation at the moment, and it needs to be verified in subsequent studies.

The second important observation associated with the statement that public services are the weakest part of the present global capitalist system is that political resistance in this industry might have larger chances of success. This resistance process could be initiated by trade unions in this industry, and could become a starting point initiating the reconfiguration of the present globalisation trends and theories towards another, less capitalism oriented model of globalisation, for example, approaching the model of globalisation advocated by Sklair (2002).

It should be noted that that global capitalist system is the key part of the global economy and the global system of capitalism. The formation of the global system of capitalism was a long and complex process. It did not always go peacefully, involved a great deal of international interventions, and is frequently associated with imperialism and colonial practices. In fact, some researchers point out that capitalism is impossible without international expansions and associated colonial policies (Harvey, 1999: 411). As an understanding of imperial practices and colonial developments is essential for interpreting the findings of this dissertation, the

next section of this chapter reviews the history of imperialism and colonialism, and seeks to locate the identified developments in public services in this historical framework.

### **8.3.2. International Acquisitions in Public Services and Neo-Colonialism**

As it has been shown in the previous subsection, the internationalisation of capital is an important element for the development of the global capitalist system. Capital transcends the national borders in a variety of forms and needs national and international institutions to provide, secure and regulate these transactions. There are a number of reasons for this expansion: capital needs to transcend national borders in a search for new markets and, as it has been argued, capitalism has too many contradictions that cannot be resolved within nations, and it needs therefore to seek solutions for these contradictions via expansionistic practices abroad (Harvey, 1999: 414; Ferro, 1997: 23). In other words, internationalisation is an important feature of capitalism.

Furthermore, it can be argued that colonialism is an important element of international capitalistic expansion and the internationalisation of capital. This argument is based on the assertion that the core of capitalist production is based on a social relation, which can be called “the expropriation of the labourer”. The search for cheap labour drives bourgeoisie to look at international locations, and this encourages colonial policies (Marx, 1976: 940). This subsection therefore reviews the history and main features of colonialism and interprets the developments in public services as part of neo-colonial strategies.

It should be noted first that imperialism and colonial practices existed long before capitalism. Ferro (1997) tracks the roots of colonialism as far back as the ancient Greek period or the times of the Roman Empire, and it is possible to find the evidence of colonial practices even in those ancient times. However, western historians mostly use the term “colonisation” with regard to the period of the Great Discoveries in XV century, when powerful European states expanded in America, Africa and Asia. This can be explained by differences in the interpreting the term “colony” and “colonisation”. Although there is a definition of colonisation as “occupation of a foreign land, with its being brought under cultivation, with the

settlement of colonists” (Ferro, 1997: 1), in the western tradition this term is normally used more specifically for foreign lands separated from the core of the empire by sea or oceans (Ferro, 1997: 2).

The start of the European colonisation can be associated with the Crusades and marches for “the reconquest of the Tomb of Christ”. Many European colonial routes were motivated by this ideology, even though some of them ended in India, China and America. Expeditions by Vasco de Gama, Columbus, Cortez and others allowed powerful European states (Portugal, Spain, France and England) to reach these remote destinations and established colonies there.

As can be seen from the previous subsection, colonial acquisitions were part of imperial ambitions of many states and imperialism and colonialism are frequently associated one with another. It should be noted that the difference between colonialism and imperialism exists, although it is not particularly significant. Edward Said (1993: 8) provides a connection between the two terms by defining imperialism as “the practice, the theory and the attitudes of a dominating metropolitan centre ruling a distant territory”. Colonialism can be defined as “a specific articulation of imperialism associated with territorial invasions and settlements” (Jacobs, 1996: 16). However, Ferro (1997: 19) has identified a couple of cases of imperialism without colonialism, mentioning Egypt and the Ottoman Empire in 1881 and Latin America when the City ruled in Peru and Argentina.

The history of early imperialism and colonialism reveals that there were a variety of motives for military interventions and colonial acquisitions. It is not easy to identify the dominant motive of colonisation. It could be argued that early colonial interventions could be explained by “heroic” motives of certain rulers of ancient countries, giving the example of Alexander Macedonian. Religious motives of expansionist and colonial practices have also been mentioned. However, in most cases, it is possible to identify underlying economic motives of these policies (Ferro, 1997: 16). For example, the earlier states needed resources to feed their citizens. It was not easy at time when economic production of essential goods was not particularly developed. Colonial acquisitions to some extent alleviated this problem and contributed to the welfare (or survival) of the states.

Economic motives of colonial practices became even more visible with the development of capitalism. Surprisingly, with the arrival of “the most efficient system of production”, as capitalism is frequently credited, the need and struggle for colonies

intensified. A good explanation of this paradox has been provided by Biel (2000). He points out that the driving force of capital is self-expansion and it tends to produce more than consumers can afford to consume. As a result of this capitalistic expansion, there are periodic circles of over-production and related fluctuations in unemployment. Under these circumstances, countries are forced in the race of growth and expansion in order to diminish problems, caused by these fluctuations. This need for growth and the associated struggle for resources lead them to expand into the colonies (Biel, 2000: 29).

The phase of capitalism associated with intense acquisitions of colonial states or territories is called imperialism. To distinguish this phase from the imperialism of the pre-capitalist era, we will call it capitalist imperialism. Williams & Chrisman (1993: 2) claim that colonialism is a phase within a more persistent process of capitalist imperialism, spanning until the present. They define colonialism as a phase of imperialism in which the expansion of the accumulative capacities of capitalism was realised through the conquest and possession of other people's land and labour in the service of the metropolitan core.

It should be noted that colonial practices of capitalist imperialism changed over time. First imperial developments were substantially embedded in nationalism. For example, during the formation of the British Empire, scientific and legal theories of social evolution gave British expansion across the world a "national" logic. The world, in evolutionary terms, was inhabited by "advanced" and "backward" people. For example, John Westlake (1894 and 2009), cited in Said (1978: 207), advised that the "uncivilised" sections of the globe should be annexed and occupied by the "civilised" and advanced powers. The idea of national strength manifested in territorial expansion was appealing for many, and this was used by the rulers of leading capitalist states in their imperial ambitions and racism (Ferro, 1997: 23).

After World War I, when negative sides of such strategies became evident for the majority, imperialistic tactics were changed, but imperialism and colonial policies did not end. Imperialism is activated by numerous desires and needs - it cannot just disappear and neither can its colonial practices. As imperialism can take a variety of forms, its colonialist formations survived and were reactivated in a magnitude of ways. Imperialism associated with the policies nation- states was gradually transformed in business imperialism, and earlier colonial practices of territorial



capitalist expansion and exploitation have been transformed in the less politically visible domination of financial capital.

The period after World War II (1945-1965) is characterised by the success of many national movements against colonisation. However, de-colonisation of this period was rather limited to a change in sovereignty. Ferro (1997: 19) argues that one political authority was replaced by another, but the economic bonds survived and simply transformed existing domination in another form. Illustrating these trends, Said (1993: 8) notes that “direct colonialism has largely ended, but “imperialism... lingers where it has always been, in a kind of general cultural sphere as well as in specific political, ideological, economic and social practices”.

Eventually, the rulers of imperial states realised that the previous form of colonial practices and keeping colonies under their sovereignty was not particularly efficient, not to mention that it harmed the political image of the countries. It was soon recognised that instead of controlling colonies from inside, it could be more politically beneficial and economically efficient to dominate them from outside. As Ferro (1997: 349) acutely observes, the imperialist states have changed their strategies. They are now more interested in “helping” the colonies to develop, and “replace visible presence by the invisible government of the big banks: the International Monetary Fund, World Bank, and so on.” In other words, imperialism has been transformed in neo-imperialism, and colonialism - in neo-colonialism.

The idea of neo-colonialism has been well described by Nkrumah. He notes: “The essence of neo-colonialism consists of the fact that a state which is in theory independent and endowed with all the attributes of sovereignty actually has its policies directed from outside” (Nkrumah, 1965: ix, cited in Ferro, 1997: 349). Nkrumah (1965: x) claims that “the result of neo-colonialism is that foreign capital is used for the exploitation rather than for the development of the less developed parts of the world. Investment under neo-colonialism increases rather than decreases the gap between the rich and the poor”.

It is noteworthy that ideology has always been an important component of imperialism and colonialism. Most colonial policies have been frequently explained by good motives. One of the key pronounced motives has always been the intention to help underdeveloped countries to reach the level of developed states, and to bring the values of the western culture to backward peoples. As Robert Young (1990:122) notes, humanism is part of the legitimating drive of imperialism.

Neo-liberalism has become a new convenient ideology used for this purpose. The idea to develop backward countries and reduce world poverty has resulted in global dissemination of some principles and values of the western culture. Although there are certain doubts that this strategy has helped to develop the world and to reduce poverty, it has definitely formed a substantial ideological and cultural framework for the development of the global system of capitalism, made possible international expansions of multinational corporations, and resulted in some forms of neo-colonial domination of some countries over the others.

The findings obtained in this dissertation can be interpreted as providing the empirical evidence of neo-colonial practices in public services. There are a number of dimensions in which colonisation features discussed in the previous paragraphs match the results obtained in this study. First, the presence of colonial policies, at least in the form of external acquisitions, can be seen in the findings of Chapter 7. It has been found in the analysis of the variable of the OECD membership that its impact is low. Given that a low value in the selected technique demonstrates that the acquisitions do not normally take place within the boundaries of designated groups (or regions), this result indicates the presence of a considerable number of external ownership acquisitions.

Second, colonialism and neo-colonialism are normally associated with unequal division of power and privilege, as well as with the presence of the centre (Empire) and dependent peripheries (colonies). The findings of Chapter 6 regarding ownership concentration reflect this colonialist pattern. Figures 6.32, 6.33, 8.1, 8.2 are the most illustrative in this respect.

Third, it has been shown that the most economically promising colonies have attracted attention from several competing powers, causing conflicts, and arrangements that might alleviate them. In this sense, the finding of the core of colonised countries, reported in Chapter 6 is remarkable. This finding is extended by Figure 8.3 that shows the presence of a substantial number of joint ventures among leading multinational corporations. The purpose of these joint ventures may be seen in alleviating conflicts between major multinational corporations, sharing foreign markets among them. These findings can be interpreted as illustrating the above mentioned feature of colonialism and neo-colonialism.

Finally, it is of special interest to examine the findings obtained with the use of the concept of civilisations in the light of colonisation developments. As has been

noted in Chapter 4 and Chapter 7, the concept of culture is very broad and the concept of civilisations is associated with only few aspects of culture. It is equally important to mention that the concept of civilisations is also very broad and includes many dimensions. The connection between these two concepts could be seen at the point that the borders of civilisations frequently coincide with territorial area of particular cultures. It is important to note, however, that cultural values are not permanently assigned to a specific territory. They tend to expand or to be disseminated in other countries and regions.

It should be noted that cultural values have been disseminated through a variety of mechanism and processes, with colonial acquisitions and practices being one of these mechanisms. In fact, the dissemination of cultural values was one of the main functions, or at least declared intentions, of many colonies. For example, first colonial developments were motivated by the intention to expand the values of Christianity, while later colonial acquisitions were explained by motives of “bring the cultural achievements to backward peoples.”<sup>67</sup> This link between colonialism and cultural expansion is not surprising, given that even the definition of colonies at the beginning of this subsection includes the word “cultivation”, which also composes the core of several definitions of culture.

The Huntington’s concept of civilisations, in spite of all controversy about this concept, to some extent reflects this territorial cultural expansion via colonial practices. This can be well seen in the boundaries of the Western civilisation, which include the areas composed by colonial acquisitions of Europeans in XIX century. Thus, the concept of civilisations has provided us with a sort of bridge from culture to certain historical developments, which are frequently associated with colonial practices. Importantly, the findings of Chapter 7 have revealed a substantial impact of the variable of civilisations for both studied sectors of public utilities. Consequently, this result may be interpreted as revealing the track of the colonial past that illuminates itself in modern neo-colonial policies of multinational corporations.

To summarise the discussion of this subsection, colonisation policies of the imperialist states during several previous centuries have considerably impacted on

---

<sup>67</sup> It should be noted that colonial practices have not always promoted the culture of the imperial core. For example, after Greece had been colonised by Rome, the Greek culture was disseminated by Romans through other parts of this large empire.

globalisation trends. These historical developments set in motion the process of world integration, via institutional and bureaucratic standardisation and cultural unification (Ferro, 1997: 350-355). Globalisation therefore can be seen as a modern phenomenon with historical roots. Also, the findings of this thesis demonstrate that globalisation under the principles of neo-liberalism has resulted in the world that is shaped and ruled by neo-colonial policies. Hence, it is possible to link the historical developments of globalisation and colonialism by claiming that colonial policies of the past have impacted on the contemporary globalisation trends, and the current type of globalisation leads to neo-colonialism and neo-imperialism on the global scale.

#### **8.4. Summary**

The analysis undertaken in this chapter contributes to the understanding of globalisation and provides a critical look at the global consequences of local privatisation policies across the world. As a result of privatisation policies (with subsequent implementation of liberalisation programmes) the global capitalist system has substantially expanded both in terms of the number of countries involved and the number of industries. In contrast to many arguments about globalisation (Wolf, 2004), the evidence presented in this thesis indicates an increasing concentration of ownership within this system and shows that the global capitalist system has the centre and the periphery. This pattern is characteristic for a particular form of globalisation that is based on principles of neo-liberalism.

The concentration of economic power in multinational companies sponsored and hosted by a few states makes us rethink the ways in which we understand the debates about privatisation and re-assess the form and character of privatisation in the global context. Contrary to arguments that globalisation promotes development worldwide and benefit the third world, the post-privatisation concentration of ownership identified in this thesis rather points at a modern form of economic colonisation – neo-colonialism.

Furthermore, this analysis has revealed that the modern form of globalisation is a configuration of a variety of factors, including political, geographical, economic



and cultural. Even a preliminary look at the relationships between these factors in globalisation trends suggests that the key dimension of globalisation is economic. However, the economic transactions and relationships associated with globalisation processes (for example, global ownership networks) are shaped under the influence of a great variety of political, geographic and cultural factors. Even a preliminary view on the impacts of these factors encourage us to search for historical roots of the modern developments and while explaining economic processes of globalisation to credit the lines shaped by history.

## Chapter 9

### Conclusion

This dissertation has examined several aspects of globalisation, the major process of the current period. It has shown that globalisation is a complex phenomenon, which can be described in terms of cultural, political and economic globalisation. The political dimension is associated with practices of concentration and exercising the political power both on domestic policies and in the international arena. The cultural dimension embodies social arrangements for production and exchange of symbols reflecting major beliefs and values in a society. In globalisation, political dimension is associated with global vision or global political thinking, while culture manifests itself in the global dissemination of a particular set of cultural values, mostly related to the western world.

The economic dimension deals with the processes of production and exchange of goods, products and materials. This dimension in globalisation is mostly associated with the development of global markets and the global economy. It has been argued in this study that the economic dimension is the most important because it substantially impacts on the developments in other spheres, both cultural and political. Consequently, this study mostly focuses on the economic dimension and defines globalisation as a process of the formation of interdependent economies on the global scene, facilitated by the establishment of common values and political institutions.

The ideological basis for economic globalisation is provided by ideas of neoliberalism. Neoliberalism is based on the principles of deregulation and market liberalisation. Neoliberal policies are recommended and promoted for developing countries by international financial organisations and the American government since the mid 1970s. Privatisation is the key element of these neoliberal policies.

Although there have been numerous studies on economic globalisation, some important facets remain under-researched. For example, although privatisation policies constitute a substantial part of neoliberal structural institutional reforms, research on privatisation in the context of globalisation is limited. While certain reference has been made with respect to international regulation, competition and

the concentration of capital, the concept of ownership is unjustifiably left on the periphery of globalisation studies.

Yet, ownership acquisitions constitute a core element of privatisation and in addition to the control over their companies, the owners of the key national enterprises frequently get access to the political arena and start playing an important role in domestic and foreign policies. This shows that ownership is important and global ownership related processes, like privatisation, deserve substantial attention from theorists of globalisation.

What are the patterns of ownership and what do they mean to a changing international order? This question of ownership needed to be answered, and, yet, this promising dimension was not sufficiently examined in globalisation studies before. Equally unaddressed were the factors impacting on international ownership acquisitions. An attempt of filling this gap in globalisation theory has been undertaken in this thesis by examining structural properties of global ownership networks in a selected industry.

The industry chosen for this analysis is public services. This important industry provides the population with necessary products and services, including water, gas, and electricity, among other essentials. Although recent developments in this industry have many common features with other processes of globalisation, public services are under-represented in the mainstream of globalisation studies. This is one of the first detailed studies in this respect, concerning the implications of ownership patterns and the role of historical relations in the current global developments.

Two sectors of public services have been chosen for empirical analysis – water and electricity. These two sectors have been selected because they constitute an important part of public services, because they are relatively self-contained, and because there is empirical data for these sectors available for the analysis. Data for this study is taken from the PSIRU data base at the Business School of the University of Greenwich. On the first of March 2003, this database maintaining information regarding multinational companies involved in privatisation of public utilities contained data on 6229 companies from 142 countries.

This thesis is mostly concerned with international outcomes of the privatisation of public utilities. It started with the claim that the privatisation of public services worldwide should be located within debates on globalisation. However,

rather than leave the debates here, the thesis has examined the main globalisation trends regarding the internationalisation of public services, and interpreted them as the emerging modern form of economic colonialism.

To develop this argument the thesis has comprised a variety of dimensions. Three sets of debates have been reviewed, including debates on globalisation, the internationalisation of capital and colonialism. In the course of this analysis attention has been drawn to the concentration of economic power and the international dominance of three economic blocs – the North America, Western Europe and Japan (the Triad). The second dimension of the thesis is the presentation of analytic framework to analyse some outcomes of the recent developments of privatisation worldwide. Drawing on the achievements of social network analysis, a methodology for examining the outcomes of privatisation in relation to ownership and the patterns of concentration that have emerged has been developed.

With this methodology, the third dimension has been presented. In this part of the thesis, the pattern of global ownership network in public utilities has been examined, and a variety of explanatory dimensions of the process of globalisation have been assessed, specifically geography, culture, economy, and politics. Using SNA techniques, the thesis has identified the presence of the star-like pattern of ownership in all studied sectors of public utilities, indicating substantial ownership concentration in public services, and has outlined a rich vein of evidence of the key features of the outcomes of privatisation worldwide. Finally, the broad themes of the analysis have been drawn together in the assessment section on globalisation.

There are three main research questions in this study. Research Question 1 is concerned with the pattern of the global networks in public services. Research Question 2 examines the impact of various factors on the structure of international acquisitions in public services, including geographical, economic, cultural and political factors. The final research question of this study, Research Question 3, assesses implications of the findings of Research Questions 1 and 2 for globalisation theory.

As far as specific results for Research Question 1 regarding ownership concentration in public services are concerned, it has been found that the ownership networks of two sectors of public services, including electricity and water have star-like patterns. The identified pattern has been explored in depth and the appropriateness of a couple of three polar models has been checked for the water



sector and the electricity industry, two of the key sectors of public services. The findings show that in terms of connections these models are less appropriate for describing the pattern of the internationalisation of ownership in public services than the centre-periphery model, although concentration of ownership in the countries of the Triad is high. These findings support the world system theory.

The importance of this result can be understood in the context of current debates on public policy. The policy of new public management (NPM) used in many countries across the world has two major elements – privatisation and liberalisation (Larbi, 1999; Popov, 2006). However, according to various sources, reforms of public services do not necessarily help create the competitive market. Instead, some European companies seem to concentrate into a continental oligopoly. Thus, nearly half the electricity in the EU is generated by companies belonging to just five groups – EdF, RWE, E.on, Enel and Vattenfall, as can be seen in Figure 4.2 of this thesis.

The findings of this thesis contribute to this argument by giving an insight into concentration of ownership in public services on the global scale. For example, they demonstrate that ninety per cent of global ownership (measured by out degree centrality) in the water sector is concentrated in just five countries. Similar figures for companies show that ninety percent of total out degree centrality is concentrated in just 17 water companies from 303 firms under study.

This thesis has identified not only the presence of the core of owning countries; it has also revealed the existence of a core of colonised countries in the ownership network of public services, which can be seen as a reinforcement of theory of neo-colonialism in relation to globalisation. This finding could have been regarded as the evidence of competition in selected countries, if it had not been significantly weakened by the presence of numerous joint ventures between the multinationals involved in provision of public services in these countries. Joint ventures between leading multinational corporations are an efficient way to avoid competition between them, and this thesis has shown that there are many companies that are jointly owned by several leading multinationals. The most remarkable graphs in this respect are presented in Figure 6.12, Figure 6.25 and Figure 8.3. Consequently, the findings of this thesis demonstrate that competition in the market of public services is considerably abridged and they strongly dispute one of the key arguments of current initiatives of IFIs in reforming public services, which

states that the involvement of multinational corporations in local markets is likely to encourage the creation of a competitive market.

The findings of the thesis can be interpreted in the light of Hymer's ideas. Hymer (1960) argued that multinational corporations seek for foreign markets in order to exploit market imperfections and to increase their market power. He also pointed out that the removal of conflicts in foreign markets should be regarded as one of the most important determinant of FDI. The scheme suggested in this thesis (Figure 8.1 and Figure 8.2) demonstrates that Hymer's theory can be applicable to public services. It can be seen that many multinationals operate in countries where they are unlikely to meet serious rivals. On the other hand, when several multinational competitors are present (the central part of the scheme shown in Figure 8.2), they tend to remove conflicts between each other by the establishment of joint ventures with one another, as specified in Figure 8.3.

The second research question and the related set of hypotheses of this thesis are concerned with the impact of different factors on the internationalisation of ownership in public services. It has been tested whether geographical, cultural, economic, and political factors impact on ownership distribution in public services. Checking these hypotheses has allowed us to assess the validity of the regionalisation theory and the globalisation theory, two main theories that have been suggested in order to explain the major trends of globalisation.

The findings of this thesis indicate that the impacts of the cultural factor and the geographical factor on the global ownership network are significant, and that the cultural factor seems to continue to make the greatest impact on ownership distribution in public utilities. However, while interpreting this result, it should be taken into account that the concept of civilisations selected for the cultural variable of this study is multidimensional (like all concepts of culture) and consequently this result might be explained in different terms. For example, this finding can open a discussion on the role of the colonial past on the current developments in public services.

The results of this dissertation support the regionalisation theory. It should be noted, though, that the interpretation of the conclusions made on the basis of QAP measures should be undertaken very cautiously because only one variable for each of the factors has been analysed and because these measures rather reflect the extent of having ownership ties within the group to which the countries are assigned.

Fortunately, the use of a variety of SNA techniques helps in clarifying some important points. For example, visualisation of ties associated with selected groups allows us to discover that multinationals tend to invest in those countries which have relatively high income per person (MNCs have almost no ties with countries with low income per person). This can be regarded as the impact of the economic factor, although this aspect cannot be measured with the help of QAP. This finding shows that if the intention of the reform policies of the World Bank in public services was to attract investments into the poorest countries, this policy has failed. An empirical analysis of the consequences of IFIs policies in public services can be regarded as one of the contributions of this thesis.

Furthermore, the use of visualisation techniques has allowed us to identify the presence of groups having the greatest proportion of ties (the Western civilisation, Europe or North America, countries with high income per person, members of the OECD). This finding has confirmed the existence of the centre-periphery pattern in which few countries have both intra and interregional ties, while the other countries have only intraregional ties, which has been identified in Chapter 6. The presence of this pattern allows us to argue that the confirmation of the regionalisation theory does not necessarily refute the globalisation theory, because such a structure allows the network to demonstrate features confirming both theories: when the most central nodes are present - the network is highly centralised, and when they are removed - the nodes are clustered in regions. This can be regarded as another contribution of this thesis.

Giving a more broad assessment of the findings in the context of globalisation processes, theories and disputes, which is the main task of Research Question 3, this thesis has suggested two main findings. First, it has provided the empirical evidence that after massive privatisation programmes worldwide public services are becoming part of the global capitalist system. It has been shown that the global capitalist system has expanded substantially during the last three decades, involving a rise in the number of countries with capitalist economy in the world and a penetration of capitalist relations in many industries of the public sector.

As it has been shown in this dissertation, a variety of international ownership acquisitions in public services have resulted in the emergence of global ownership networks. These networks are substantially based on capitalist relations and have properties which were previously identified for economic processes in other more

conventionally “capitalistic” industries. They not only have the core and the periphery, but also reflect a certain impact of non-economic factors, the trends that have been identified in other economic processes of globalisation with respect to other industries.

Public services of water and electricity are a special part of the global capitalist system. They have certain features distinguishing them from the other industries, by being natural monopolies and traditionally less market oriented. Nevertheless, this thesis has demonstrated that the process of privatisation of those sectors forms part of the same pattern as globalisation in general. The special place of public services makes them a very interesting component of globalisation studies. Overall, this has provided the evidence that public services in general, and public utilities in particular, might and should attract more attention from globalisation specialists and play a much more important role in globalisation theory and debates. This can be regarded as one of the most important contributions of this dissertation, because up to date few of the major globalisation studies have examined the internationalisation of public services, and none of them - with the use of social network analysis.

Second, this thesis has provided the empirical evidence that ownership is extremely concentrated, mainly in two countries. This pattern of relations reflects earlier stages of capitalist history when the most powerful states sought colonies to provide them with essential resources. The metropolitan centres of the newly established empires substantially controlled the development of the colonies. The old declaration of intention to develop the ‘backward’ people both in economic and cultural terms is also reflected in the current promise of expanded services from privatisation, and both have similarly poor results.

Imperialism and colonisation policies have changed over the time. The strategies of rapid military expansion of the fifteenth – nineteenth centuries have been eventually replaced by economic methods. The political rule over the former colonies has been substituted by an indirect control of industries that are vitally important for the wellbeing of these countries. The control via ownership is one of the techniques of control and dominance. Thus, this dissertation has empirically proved that the current mode of globalisation has resulted in a new form of economic inequality, when rich countries export the surplus of capital in developing countries



and keep them under economic control, producing an essential environment for economic imperialism and neo-colonialism.

These findings contribute to a richer understanding of privatisation and globalisation by showing that the current form of globalisation, particularly in relation to privatised utilities worldwide, seems to reinforce the dominance of a few wealthy states, which capitalise on their economic prosperity and historical dominance. This empirical evidence leads us to rethink the ways in which we understand the debates about privatisation and to re-assess the form and character of privatisation in global context. Contrary to arguments that globalisation promotes development worldwide and benefits the third world, the post-privatisation concentration of ownership identified in this thesis rather indicates a form of modern economic colonisation, mostly illuminating itself via the lines shaped by history.

A very important asset of this thesis can be seen in the fact that it provides a view on globalisation that is based on empirical data. The empirical data on global level is not easily available and it makes the task of testing assumptions of theorists about certain aspects of globalisation difficult. Because of that, many of the globalisation processes have not been sufficiently researched. By contrast, the findings of this thesis are based on a comprehensive dataset on companies operating in public services, and this makes this research especially valuable for globalisation theory.

Another contribution of the thesis is that it has shown that techniques of social network analysis can supplement conventional methods of measuring ownership concentration. They can be successfully used in studies of internationalisation, and make an important contribution to globalisation studies. It should be also noted that this research assesses globalisation processes on the basis of non-longitudinal data. While the previous SNA studies examined the change of the structural properties of the networks under study for different years, this thesis has outlined the methodology that shows how it is possible to research important processes of globalisation having a non-longitudinal data set.

The findings of the thesis can be developed in further studies. One of the most interesting dimensions is a longitudinal study of the pattern of international acquisitions in public services. The reason for this is simple: the findings of this thesis are based on data for 2003, the year of the greatest involvement of MNCs in foreign markets of public services. After that these multinational corporations faced a

lot of problems, associated with risks of currency devaluations, the failure to make adequate profits, and political pressures. The problems encountered by MNCs on these markets have forced many of them to reconsider their international strategies in public services and retreat from the global scene.

For example, Suez and Veolia, the leading French water multinationals, have been withdrawing from activities in developing countries. Many other international operators, such as Thames Water, SAUR and International Water have been sold, or are in the process of being sold, by their parent companies. Many electricity multinationals have also retreated from international activities. Thus, the majority of American multinational corporations have retreated from Europe and developing countries, and there is a trend amongst EU-headquartered companies to withdraw from nearly all parts of the world apart from Europe itself (Hall, 2006a).

This process is of particular interest because it shows similarity with other trends that have been reported with regard to colonisation policies. For example, it has been argued that the process of expansion of the capital in the nineteenth century changed its direction in the middle of the twentieth century. Hoogvelt (2001) argues that it was replaced by the process of involution of capital, where capital started to return to the metropolitan core and to concentrate in the most developed countries. A longitudinal study of public services can bring an additional insight into this interesting process, which is also relevant both for globalisation theory and for analysis of present policies on the public services.

A more accurate and more advanced assessment of the impact of multiple factors on the internationalisation of public services can constitute the second research dimension. For this purpose, more variables can be taken into account while analysing the impact of economic and political factors. In addition, the impact of the geographic factor can be associated with geographical distances between countries rather than with grouping them into continents or geographic regions. The influence of the cultural factor deserves a more concise analysis. As has been shown in this research, culture is a multi-dimensional phenomenon and cannot be expressed in a single indicator.

Furthermore, the Huntington's concept of civilisations, which has been selected as the cultural variable for the analysis undertaken in this thesis, to some extent also reflects historical politico-economic developments. This has been of particular importance for this study because it has allowed us to raise the question

about the role of historical factors in globalisation processes. This dimension clearly deserves a more detailed and larger scale analysis because it may be of particular value in the discussion of features of neo-colonialism. This can and should constitute the third dimension of further research.

Fourth, the features of neo-colonial practices in the twenty first century cannot be fully grasped by applying only quantitative research techniques, although they are certainly of importance. The quantitative findings should be complimented by a more detailed qualitative assessment of reported developments. In other words, qualitative research on the content and context of colonial practices in public services worldwide could become the fourth dimension of further research inquiries related to issues identified in this thesis.

Fifth, the thesis that public services are currently the weakest (or the most peripheral) part of the global capitalist system might have interesting outcomes that need an empirical verification. For example, the dependence between international ownership related processes in public services and the development of major crises can be carefully examined. As it has been claimed by theorists and practitioners of world finance, the centre is likely to withdraw the capital from peripheral areas. Thus, the changes in the global ownership network in public services, arguably the most sensitive part of the global capitalist system, may be one of the first indicators that reflect on the prospects of a coming crisis.

The sixth dimension of future research is related to the previous but it is much broader because it concerns with the borders of the global capitalist system. Soros (1998: 103) claims that this system is abstract and invisible. However, it is possible to argue that the global capitalist system is real, although it is too complex to be outlined and measured. It is real because international transactions do take place via this system. It could be visualised because financial transactions are tractable, especially in the case of long or stable transactions, like the structure of ownership. In other words, the methodology used in this dissertation for exploring global ownership networks in public services could be applied on a larger scale to identify the existence and boundaries of this system.

Seventh, each of the aspects examined in this dissertation can be studied in depth on the level of companies rather than countries. For this purpose, it is possible, for example, to take into account values of acquisitions and percentage of control imposed by parent companies. In addition, further developments in public

services can be monitored and compared with mainstream theories of globalisation in order to assess the appropriateness and limits of the use of market strategies in public sector reforms. Further analysis might also identify relative links between multinational companies, the public sector and IFIs. Finally, the most challenging endeavour would be an attempt to expand SNA to the analysis of production networks associated with public services both locally and internationally (Dickens, 2003).



## GLOSSARY

***Multinational Company*** – an internationally integrated production system over which equity – based control is exercised by a parent corporation that is owned or managed essentially by the nationals of the country in which it is domiciled (Robinson, 1984: 3).

***Global Company*** – a corporation that treats the world as a single market and source of supply.

***Transnational Company*** - a corporation owned and managed to a significant degree by nationals of more than one country (Robinson, 1984: 153). It is more responsive to the needs of local markets than global companies.

***Affiliate*** – a corporation 50 percent or less of whose voting stock is owned by another corporation.

***International Contractual Joint Venture*** – a contractual agreement by two or more legal entities of different nationality to supply certain assets to a joint undertaking , assume certain operational responsibilities , and receive earnings as defined by contract.

***International Equity Joint Venture*** – an enterprise in which ownership is shared among two or more corporations (or owners) of different nationalities , each of whom contributes certain assets, shares risk to some extent, assumes some degree of operational responsibility, and receives a share of earnings via dividends.

***Minority – Owned Joint Venture*** – less than 50 percent but more than 10 percent ownership of a joint venture. Also called an affiliate.

***Mixed venture*** – one in which a government is a part owner, or in which equity is owned jointly by public and private interests.

***Subsidiary*** – a corporation unambiguously controlled by another corporation via ownership (that is, over 50 percent ownership of the voting stock).

## REFERENCES AND BIBLIOGRAPHY

- Abel, C., Lewis, C. (1985) *Latin America, Economic Imperialism and the State: the Political Economy of the External Connection from Independence to the Present*, London: Institute of Latin American Studies.
- Agarwal, J. (1990) "Determinants of FDI in Pacific-RIM developing countries", *Asian Economic Review*, pp. 83-110.
- Ahn, S., Schmidt, P. (1995) "Efficient estimation of models for dynamic panel data", *Journal of Econometrics*, 68: 5-27.
- Aiginger, K., Leitner, W. (2002) "Regional concentration in the United States and Europe: Who follows whom?", *Review of World Economics*, 138 (4): 652-679.
- Alba, R. D. (1973) "A graph-theoretic definition of a sociometric clique", *Journal of Mathematical Sociology*, 3: 113-126.
- Alba, R., Gwyn, M. (1983) "Elite social circles", Chapter 12 in Burt and Minor (Eds.) *Applied network analysis: A methodological introduction*, Beverly Hills: Sage.
- Allen, J., Thompson, G. (1993) "Think global, and then think again: Economic globalisation in context", *Area*, (29) 3: 213-227.
- Altomonte, C. (2000) "Economic determinants and institutional frameworks: FDI in economies in transition", *Transnational Corporations*, 9(2): 75-106.
- Amin, A., Robins, K. (1990) "Industrial districts and regional development: Limits and Possibilities", in Pyke, F., Becattini, G., Sengenberger (Eds.) *Industrial Districts and Inter-Firm Cooperation in Italy*, Geneva: International Institute for Labour Studies, pp. 185-219.
- Amin, A., Thrift, N. (1992) "New-marshallian nodes in global networks", *International Journal of Urban and Regional Research*, 16: 571-87.
- Amin, S. (1976) *Unequal Development*, New York: Monthly Review Press.
- Amin, S. (1980) *Class and Nation*, New York: Monthly Review.
- Amin, S. (1997) *Capitalism in the Age of Globalisation: The Management of Contemporary Society*, London: Zed Books.
- Anand, J., Kogut, B. (1997) "Technological capabilities of countries, firm rivalry and foreign direct investment", *Journal of International Business Studies*, 28 (3).
- Anheier, H. (1987) "Structural analysis and strategic research design: Studying politicized interorganizational networks", *Sociological Forum*, 2: 563-582.
- Appadurai, A. (2001) *Globalisation*, Duke University Press.
- Arabie, P., Boorman, S., Levitt, P. (1978) "Constructing blockmodels: How and why", *Journal of Mathematical Psychology*, 17: 21-63.
- Asmussen, C. (2006) *Local, Regional or Global, Quantifying MNC Geographic Scope*, Research paper, Center for Strategic Management and Globalisation, Copenhagen Business School.

- Baer, W., Birch, M. (Eds.) (1994) *Privatisation in Latin America/New Roles for the Public and Private Sectors*, Westport, Connecticut, London: Praeger.
- Bairoch, P., Kozul-Wright, R. (1998) "Globalization myths: some historical reflections on integration, industrialization and growth in the world economy", in Richard Kozul-Wright and Robert Rowthorn (Eds.) *Transnational Corporations and the Global Economy*, London: MacMillan, pp. 37-68.
- Baker, Wayne E. (1986) "Three-dimensional blockmodels", *Journal of Mathematical Sociology*, 12: 191-223.
- Baker, Wayne E. (1990) "Market Networks and Corporate Behavior", *American Journal of Sociology*, 96: 589-625.
- Bardhan, P., Bowles, S., Wallerstein, M. (Eds.) (2005) *Globalisation and Egalitarian Redistribution*, New York: Russell Sage Foundation.
- Bardhan, P., Bowles, S., Wallerstein, M. (Eds.) (2006) *Globalisation and Egalitarian Redistribution*, Princeton and Oxford: Princeton University Press.
- Barnes, J.A. (1983) "Graph theory in network analysis", *Social Networks*, 5: 235-244.
- Barnett, G.A., Salisbury, J.G.T. (1996) "Communication and globalization: A longitudinal analysis of the international telecommunication network", *Journal of World-Systems Research*, 2(16).
- Batagelj, V., Mrvar, A. (2001) PAJEK. Program for Large Network Analysis, University of Ljubljana.
- Bauman, Z. (1998) *Globalisation: The Human Consequences*, Cambridge: Polity Press.
- Bavelas, A. (1950) "Communication patterns in task-oriented groups", *Journal of the Acoustical Society of America*, Vol. 22: 725-730.
- Beck, N., Katz, J. (1995) "What to do (and not to do) with Time-Series Cross-Section Data", *American Political Science Review*, 89: 634-647.
- Berberoglu, B. (1987) *The Internationalization of Capital, Imperialism and Capitalist Development on a World Scale*, Praeger Publishers.
- Bergesen, A. Fernandez, R. (1999) "Who has the most Fortune 500 firms?: A network analysis of global economic competition, 1956-1989", in Volker Bornschier and Christopher Chase-Dunn (Eds.) *The Future of Global Conflict*, London: Sage Publications.
- Berkowitz, S.D. (1982) *An Introduction to Structural Analysis: The Network Approach to Social Research*, Toronto: Butterworths.
- Berkowitz, S.D. (1988) "Afterword: Toward a formal structural sociology", in Wellman and Berkowitz (Eds.) *Social Structures: A Network Approach*, Cambridge: Cambridge University Press, pp. 477-497.
- Berkowitz, S.D. (1988) "Markets and market-areas: Some preliminary formulations", in Wellman and Berkowitz (Eds.) *Social Structures: A Network Approach*, Cambridge: Cambridge University Press, pp. 261-303.
- Berkowitz, S.D., Carrington, P. J., Kotowitz, Y. and Waverman, L. (1978-79) "The determination of enterprise groupings through combined ownership and directorship ties", *Social Networks*, 1: 391-413.



- Berman, P. (2003) *Terror and Liberalism*, W W Norton & Company.
- Berry, B., Garrison, W. (1958a) "Functional bases of the central place hierarchy", *Economic Geography*, 34: 145-54.
- Berry, B., Garrison, W. (1958b) "Functional bases of central place theory", *Papers and Proceedings of the Regional Science Association*, 4: 107-20.
- Biel, R. (2000) *The New Imperialism, Crisis and Contradictions in North/South Relations*, London & New York: Zed Books.
- Blasi, J., Kroumova, M., Kruse, D. (1997) *Kremlin Capitalism*, Cornell University Press.
- Blau, P. (1981) "Introduction: Diverse views of social structure and their common denominator", in Blau and Merton (Eds.) *Continuities in Structural Inquiry*, London and Beverly Hills: Sage.
- Blau, P., Merton, R. K. (1981) *Continuities in Structural Inquiry*, London and Beverly Hills: Sage.
- Bodemann, Y. M. (1988) "Relations of production and class rule: The hidden basis of patron-clientage", in Wellman and Berkowitz (Eds.) *Social Structures: A Network Approach*, Cambridge: Cambridge University Press, pp. 198-220.
- Bonacich, P. (1972a) "Factoring and weighting approaches to status scores and clique detection", *Journal of Mathematical Sociology*, 2: 113-120.
- Bonacich, P. (1972b) "Technique for analyzing overlapping memberships", in Herbert Costner (Ed.) *Sociological Methodology*, San Francisco: Jossey-Bass.
- Bonacich, P. (2001) *The Evolution of Exchange Networks: A Simulation Study*, *Journal of Social Structure*, 2(5).
- Bond, M. (2004) *The Social Structure of the British Intercorporate Network and its Consequences for Corporate Political Action*, Presentation at Keble College (available on URL [http://sbs-xnet.sbs.ox.ac.uk/complexity/complexity\\_PDFs/abstract\\_Bond.pdf](http://sbs-xnet.sbs.ox.ac.uk/complexity/complexity_PDFs/abstract_Bond.pdf)).
- Bond, S. (2002) "Dynamic panel data models: a guide to micro data methods and Practice", *Portuguese Economic Journal*, 1: 141-162.
- Boorman, S.A. (1975) "A combinatorial optimization model for transmission of job information through contact networks", *Bell Journal of Economics*, 6: 216-249.
- Bordo, M., Taylor, A., Williamson, J. (2003) *Globalisation in Historical Perspective*, Chicago and London: The University of Chicago Press.
- Bordo, M., Taylor, A., Williamson, J. (Eds.) (2003) *Globalisation in Historical Perspective*, Chicago, London: The University of Chicago Press.
- Borgatti, S., Everett, M., Freeman, L. (1992) *UCINET IV Version 1.0 User's Guide*, Columbia, SC, Analytic Technologies.
- Borgatti, S.P., Everett, M.G. (1999) "Models of core/periphery structures", *Social Networks*, 21: 375-395.
- Borgatti, S.P., Everett, M.G., Freeman, L.C. (1999) *UCINET 6.0 Version 1.00*, Natick: Analytic Technologies.

- Borja, J., Castells, M. (1997) *Local and Global: Management of Cities in the Information Age*, London: Earthscan Publications Ltd.
- Bougon, M., Weick, K., Binkhorst, D. (1977) "Cognition in organizations: An analysis of the Utrecht jazz orchestra", *Administrative Science Quarterly*, Vol. 22: 606-639.
- Boycko, M., Shleifer, A., Vishny, R. (1995) *Privatising Russia*, Cambridge: The MIT Press.
- Boyd, J. P., Haehl, J. H., Sailer, L. D. (1972) "Kinship systems and inverse semigroups", *Journal of Mathematical Sociology*, 2: 37-61.
- Boyer, R., Drache, D. (1996) *States against Markets: The Limits of Globalization*, London: Routledge.
- Boyfield, K. (1997) *Privatisation: A Prize Worth Pursuing? Report*, European Policy Forum.
- Brajkovich, L. (1994) "Sources of social structure in a start-up organization: work networks, work activities, and job status", *Social Networks*, 16 (3): 191-212.
- Brandes, U. (1999) *Layout of Graph Visualizations*, Dissertation, Universität Konstanz, Fakultät für Mathematik und Informatik.
- Brandes, U. (2001) "Drawing on physical analogies", in M. Kaufmann and D. Wagner (Eds.) *Drawing Graphs: Methods and Models*. Springer LNCS Tutorial 2025: pp. 71-86.
- Breiger, R. (1979) "Toward an operational theory of community elite structure", *Quality and Quantity*, 13: 21-47.
- Breiger, R. (1981) "Structures of economic interdependence among nations", in Blau and Merton (Eds.) *Continuities in Structural Inquiry*, Newbury Park CA: Sage, pp. 353-380.
- Breiger, R. L. (1988) "The duality of persons and groups", in Wellman and Berkowitz (Eds.) *Social Structures: A Network Approach*, Cambridge: Cambridge University Press, pp. 83-98.
- Breiger, R. L., Pattison, E. P. (1986) "Cumulated social roles: The duality of persons and their algebras", *Social Networks*, 8: 215-256.
- Breiger, R.L. (1976) "Career attributes and network structure: A blockmodel study of a bio-medical research specialty", *American Sociological Review*, 41: 117-135.
- Breiger, R.L. (1981) "Structures of Economic Interdependence among Nations", in Blau, P.M., Merton, R.K. (Eds.) *Continuities in Structural Inquiry*, pp. 335-382, Beverly Hills, CA: Sage.
- Breiger, R.L., Scott, A. B., Arabie, P. (1975) "An algorithm for clustering relational data with applications to social network analysis and comparison with multidimensional scaling", *Journal of Mathematical Psychology*, 12: 238-383.
- Brennan, T. (2008) "Postcolonial studies and globalisation theory", in Krishnaswamy, R., Hawley, C. (Eds.) *The Postcolonial and the Global*, Minneapolis: University of Minnesota Press.
- Buckley, P. (1990) "Problems and developments in the core theory of international business", *Journal of International Business Studies*, 21(4).

- Buckley, P., Casson, M. (1976) *The Future of the Multinational Enterprise*, London: Macmillan.
- Bull, H. (1977) *The Anarchical Society*, New York: Columbia University Press.
- Burbach, R., Robinson, W.I. (1999) "The fin de siècle debate: Globalisation as epochal shift", *Science and Society*, 63(1): 10-67.
- Burkhardt, M. E., Brass, D.J. (1989) *Changing patterns or patterns of change: A longitudinal investigation of the interplay of technology, structure, and power*, Pennsylvania State University, mimeo.
- Burkhardt, M. E., Brass, D.J. (1990) "Changing patterns or patterns of change: the effects of a change in technology on social network structure and power", *Administrative Science Quarterly*, 35(1).
- Burt, R. S. (1980) "Models of network structure", *Annual Review of Sociology*, 6: 79-141.
- Burt, R. S. (1983a) "Cohesion versus structural equivalence as a basis for network subgroups", Chapter 13 in Burt and Minor (Eds.) *Applied network analysis: A methodological introduction*, Beverly Hills: Sage.
- Burt, R. S. (1983b) *Corporate Profits and Cooptation: Networks of Market Constraints and Directorate ties in the American Economy*, New York: Academic Press.
- Burt, R. S. (1983c) "Distinguishing relational contents", in Burt and Minor (Eds.) *Applied Network Analysis: A Methodological Introduction*, Beverly Hills: Sage, pp. 35-74.
- Burt, R. S. (1992) *Structural Holes: The Social Structure of Competition*. Cambridge, MA: Harvard University Press.
- Burt, R., Minor, M.J. (Eds.) (1983) *Applied Network Analysis: A Methodological introduction*, Beverly Hills: Sage.
- Burt, R.S. (1976) "Position in networks", *Social Forces*, 55: 93-122.
- Burt, R.S. (1982) *Toward a structural theory of action: Network models of social structure, perception, and action*, New York: Academic Press.
- Burt, R.S. (1987) "Social contagion and innovation", *American Journal of Sociology*, 92: 1287-1335.
- Burt, R.S., Christman, K.P., Kilburn, H.C. (1981) "Testing a structural theory of corporate cooperation: Interlocking directorate ties as a strategy for avoiding market constraints on profit", *American Sociology Review*, 45.
- Burton, J. (1972) *World Society*, Cambridge: Cambridge University Press.
- Burton, J. (1995) "Privatisation and regulation in the USA and the UK: Some comparisons and contrasts", in MacAvoy, P. (Ed.) *Deregulation and Privatisation in the United States*, Edinburg: David Hume Institute, pp. 148-154.
- Cairncross, A. (1975) *Home and Foreign Investment: 1870-1913*, New York: Harvester Press.
- Cantwell, J. (1995) "Multinational corporations and innovative activities", in Molero, J. (Ed.) *Technological Innovation, Multinational Corporations and New International*

Competitiveness: The Case of Intermediate Countries, Harwood Academic Publishers.

Carrington, P. J., Heil G.H. (1981) "COBLOC: A hierarchical method for blocking network data", *Journal of Mathematical Sociology*, 8: 103-131.

Carrington, P. J., Heil, G. H., Berkowitz, S. D. (1979-80) "A goodness-of-fit index for blockmodels", *Social Networks*, 2: 219-234.

Carroll, W., Fox, J., Ornstein, M. (1977) *The Network of Directorate Interlocks among the Largest Canadian Firms*, Downsview, Ontario: Institute for Behavioral Research, York University.

Cartwright, D. (1979) "Balance and clusterability: An overview", in P. Holland and S. Leinhardt (Eds.) *Perspectives on social network research*, New York: Academic Press, pp. 25-50.

Cartwright, D., Harary F. (1956) "Structural balance: A generalization of Heider's theory", *Psychological Review*, 63: 277-92.

Casson, M. (1987) *The Firm and the Market: Studies in Multinational Enterprise and the Scope of the Firm*, Oxford: Blackwell.

Castells, M. (1996) *The Information Age: Economy, Society, and Culture*, Vol.1, *The Rise of the Network Society*, Cambridge: Blackwell Publishers.

Castells, M. (1997) *The Information Age: Economy, Society and Culture*, Vol. 2: *The Power of Identity*, Blackwell Publishers.

Castells, M., Henderson, J. (1987) "Techno-economic restructuring, socio-political processes and spatial transformation: A global perspective", in Henderson, J., Castells, M. (Eds.) *Global Restructuring and Territorial Development*, London: Sage.

Caves, R. (1998) "Research on international business: Problems and prospects", *Journal of International Business Studies*, 29(1).

Chakrabarti, A. (2001) "The determinants of foreign direct investment: Sensitivity analyses of cross-country regressions", *Kyklos*, 54 (1): 89-114.

Charron, N. (2006) "Clash of Civilizations Revisited: A Quantitative Test of Huntington's Civilizations Theory during the Post-Cold War Era: 1989-2001", Paper presented at the annual meeting of the International Studies Association, San Diego, USA, available on URL

[http://www.allacademic.com/meta/p124430\\_index.html](http://www.allacademic.com/meta/p124430_index.html), [September, 2009].

Chase-Dunn, C., Grimes, P. (1995) "World-systems analysis", *Annual Review of Sociology*, 21: 387-417.

Chase-Dunn, C., Hall, D. T. (Eds.) (1991) *Core/Periphery Relations in Precapitalist Worlds*, Boulder: Westview Press.

Chavez, D. (Ed.) (2006) *Beyond the Market: The Future of Public Services*, TNI Public Services Yearbook 2005/6, Trans National Institute (TNI) / Public Services International Research Unit (PSIRU).

Chen, H., Chen, T. (1998) "Network linkages and location choice in foreign direct investment", *Journal of International Business Studies*, 29(3).

Chesnais, F. (1995) "World oligopoly, rivalry between "global" firms and global corporate competitiveness", in Molero, J. (Ed.) *Technological Innovation*,



Multinational Corporations and New International Competitiveness: The Case of Intermediate Countries, Harwood Academic Publishers.

Chortareas, G. E., Pelagidis T. (2004) "Trade flows: a facet of regionalism or globalisation?", *Cambridge Journal of Economics*, 28: 229-252.

Christopoulos, D. (2004) Network Dependence of Political Entrepreneurs, Presentation at Sunbelt XXIV International Social Network Conference, Portoroz, Slovenia.

Clark, G., Feldman, M., Gertler, M. (Eds.) (2003) *The Oxford Handbook of Economic Geography*, Oxford: Oxford University Press.

Claudio, L. (1984) *The Internationalization of Production, Multinational Corporations and Brazil, 1964-1979*, Centre for Development Studies of the University of Swansea, Monographs Series, Monograph No. XXI.

Clawson, D., Neustadtl, A. (1989) "Interlocks, PACs, and corporate conservatism", *American Journal of Sociology*, 94: 749-73.

Clawson, D., Neustadtl, A., Bearden, J. (1986) "The logic of business unity: Corporate contributions to the 1980 congressional elections", *American Sociological Review*, 51: 797-811.

Clifton, J., Comin, F., Fuentes, D. (2003) *Privatisation in the European Union: Public Enterprises and Integration*, Dordrecht, London, Boston: Kluwer Academic Publishers.

Coase, R.H. (1937) "The nature of the firm", *Economica*, 4: 386-405.

Coerzen A. (2005) *Networks and Location: Organising the Diversified Multinational Corporation for Value Creation*, Palgrave Macmillan.

Coleman, D. C. (1980) *Courtaulds: an Economic and Social History*, Oxford: Clarendon, Vol. 2: 137-47.

Coleman, J., Katz, E., Menzel, H. (1957) "The diffusion of an innovation among physicians", *Sociometry*, 20: 253-270.

Coleman, W.D., Geoffrey Underhill, R.D. (1998) *Domestic Politics, Regional Economic Co-operation and Global Economic Integration*, London: Routledge.

Combes, P., Lafourcade M. (2005) "Transport costs: measures, determinants, and regional policy implications for France", *Journal of Economic Geography*, 5(3): 365-379.

Cook, K. (1982) "Network structures from an exchange perspective", in Marsden, P., Lin, N. (Eds.) *Social Structure and Network Analysis*, Beverly Hills: Sage.

Cook, P., Uchida, Y. (2003) "Privatisation and economic growth in developing countries", *Journal of Development Studies*, 39(6): 121-154.

Corry, D., Le Grande, J., Radcliffe, R. (1997) *Public/Private Partnerships: A Marriage of Convenience or a Permanent Commitment?* Institute for Public Policy Research.

Coughlin, C.C., Terza, J.V., Arromdee, V. (1991) "State characteristics and the location of foreign direct investment within the United States", *Review of Economics and Statistics*, Vol. 73.

Coutrot, T., Husson, M. (1993) *Les Destins du Tiers Monde*, Paris: Nathan.

- Coyne, E. (1997) "Segmenting the market. An "old" approach that holds "new" promise for the FDI-attraction process in developing countries", The Organisation of International business, Conference Proceedings, 24 Annual Conference, April, Vol. 2, Leeds University Business School, pp. 737-757.
- Crafts, N., Venables, A. (2002) "Globalisation in history: A geographical perspective", CEPDP, 524, Centre for Economic Performance, London School of Economics and Political Science, London, UK.
- Crane, Diana (1969) "Social structure in a group of scientists: A test of the 'Invisible college' hypothesis", *American Sociological Review*, 34, 335-352.
- Culem, C.G. (1988) "The locational determinants of direct investment among industrialised countries", *European Economic Review*, 32(4).
- Daniels, P. (1993) *Service Industries in the World Economy*, Oxford: Blackwell.
- Davidson, R., Harel, D. (1996) Drawing Graphs Nicely Using Simulated Annealing, *ACM, Transactions on Graphics*, Vol. 15(4): 301-331.
- Davies, H. (1977) "Technology Transfer through Commercial Transactions", *Journal of Industrial Economics*, December.
- Davis, A., Gardner, B., Gardner, M. (1941) *Deep South: A Social Anthropological Study of Caste and Class*, Chicago, Ill: The University of Chicago.
- Davis, J. (1963) "Structural balance, mechanical solidarity, and interpersonal relations", *American Journal of Sociology*, 68: 444-62.
- Davis, J. (1967) "Clustering and structural balance in graphs", *Human Relations*, 30: 181-187.
- Di Mauro, F. (2000) "The impact of economic integration in FDI and exports: A gravity approach", CEPS Working Document no. 156, Brussels: Center for European Policy Studies.
- Di Mauro, F. (2000) "The impact of economic integration in FDI and exports: A gravity approach", CEPS Working Document no. 156, Brussels: Centre for European Policy Studies.
- Dicken, P. (1992) "The changing global map of production and trade", in Dicken, P., *Global Shift: The Internationalization of Economic Activity*, pp. 16-46.
- Dicken, P. (2003) *Global Shift: Reshaping the Global Economic Map in the 21 Century*, London: Sage Publications.
- Dicken, P., Peck, J, Tickell, A. (1997) "Unpacking the global", in Lee, R., Wills, J. (Eds,) *Geographies of Economies*, London: Arnold, pp. 158-66.
- Dixit, A., Kyle, A. (1986) "The use of protection and subsidies for entry promotion and deterrence", *American Economic Review*, Vol. 75.
- Dixit, A., Stiglitz, J. (1977) "Monopolistic competition and optimum product diversity", *American Economic Review*, 67: 297-308.
- Dobek, M. (1993) *The Political Logic of Privatisation: Lesson from Great Britain and Poland*, Westport, London: Praeger.
- Doreian, P. (1974) "On the connectivity of social networks", *Journal of Mathematical Sociology*, 3: 245-258.

- Doreian, P. (1988) "Equivalence in a social network", *Journal of Mathematical Sociology*, 13: 243-282.
- Dorrenbacher, C. (2000) *Measuring Corporate Internationalisation. A Review of Measurement Concepts and their Use*, Discussion Paper FS 100-10, Wissenschaftszentrum Berlin für Sozialforschung.
- Doyle, M. (1986) *Empires*, Ithaca: Cornell University Press.
- Dumenil, G., Levy, D. (2001) "Costs and benefits of neoliberalism: A class analysis", *Review of International Political Economy* (8) 4: 578-607.
- Dunning, J. (Ed.) (2000) *Regions, Globalisation, and The Knowledge-Based Economy*, Oxford: Oxford University Press.
- Dunning, J. (1958) *American Investment in British Manufacturing Industry*, London: Allen & Unwin.
- Dunning, J. (1992) *Multinational Enterprise and the Global Economy*, Wokingham: Addison Wesley.
- Dunning, J. (1996) "The nature of transnational corporations and their activities", in *Transnational Corporations and World Development*, London: International Thomson Business Press.
- Dunning, J. H. (1983) "Changes in the level and structure of international production: the last one hundred years", in Mark Casson (Ed.) *The Growth of International Business*, London: Allen & Unwin, pp. 84-139.
- Dunning, J., Rugman, A. (1985) "The influence of Hymer's dissertation on the theory of foreign direct investment", *American Economic Review*, May.
- Durkheim, E. (1984 (1895)) *The Division of Labour in Society*, Basingstoke: Macmillan.
- Eades, P. (1984) "A heuristic for graph drawing", *Congressus Numeratum*, 42: 149-160.
- Eisenstadt, S. (1981) "Cultural Orientation and center-periphery in Europe in a comparative perspective", in Torsvik, P. (Ed.) *Mobilisation Center-Periphery Structures and Nation Building*, Universitetsforlaget.
- Eldridge, C. (1978) *Victorian Imperialism*, London, Sydney, Toronto: Hodder & Stoughton.
- Emirbayer, M., Goodwin, J. (1994) "Network analysis, culture, and the problems of agency", *American Journal of Sociology*, 99: 1411-54.
- Encyclopaedia Britannica (1974) 15th Edition, Vol. II, Encyclopaedia Britannica, Inc.
- Erikson, B. (1988) "The relational basis of attitudes", in Wellman and Berkowitz (Eds.) *Social structures: A network approach*, Cambridge: Cambridge University Press, pp. 99-122.
- Ervin, J., Smith, Z. (2008) *Globalisation: A Reference Handbook*, California: ABC-CLIO, Inc.
- Estrin, S. (Ed.) (1994) *Privatisation in Central & Eastern Europe*, New York: Longman Publishing.

- Estrin, S., Brada, J., Geeb, A., and Singh, J. (1995) *Restructuring and Privatisation in Central Eastern Europe, Case Studies of Firms in Transition*, Armonk, New York, London: M.E Sharpe.
- Evans, T., Doupnik, T. (1986) "Foreign exchange risk management under standard53.83", Financial Accounting Standards Board, Stamford: CT.
- Everett, M. (1982) "A graph theoretic blocking procedure for social networks", *Social Networks*, 4: 147-167.
- Everett, M. (1982) "Graph theoretic blockings K-Plexes and K-cutpoints", *Journal of Mathematical Sociology*, 9: 75-84.
- Everett, M., Borgatti, S. (1998) "Analyzing clique overlap", *Connections*, 21(1): 49-61.
- Everett, M., Nieminen, J. (1980) "Partitions and homomorphisms in directed and undirected graphs", *Journal of Mathematical Sociology*, 7: 91-111.
- Fairbrother, P., Paddon, M., Teicher, J. (Eds.) (2002) *Privatisation, Globalisation and Labour: Studies from Australia*, Annandale, NSW: The Federation Press.
- Fama, E., Jensen, M. (1983) "Separation of ownership and control", *Journal of Law and Economics*, Vol. 26: 301-326.
- Farazmand, A. (2002) "Privatization and globalization: A critical analysis with implications for public management education and training", *International Review of Administrative Sciences*, Vol. 68, 3: 355-371.
- Feinberg, S.E., Wasserman, S. (1981) "Categorical data analysis of single sociometric relations", in Leinhardt, S. (Ed.) *Sociological Methodology*, San Francisco: Jossey-Bass.
- Fernandez, R. M., Roger, V. G. (1994) "A dilemma of state power: Brokerage and influence in the national health policy domain", *American Journal of Sociology*, 99: 1455-91.
- Ferris, J., Grady, E. (1989) "Contracting out: For what? With whom?" *Public Administration Review*, Vol. 46, 1: 46-52.
- Ferro, M. (1997) *Colonization: A Global History*, London & New York: Routledge.
- Fijita, M. (1993) "Monopolistic competition and urban systems", *European Economic Review*, 37 (2-3) (Apr.): 308-15.
- Fijita, M. (1993) "Monopolistic competition and urban systems", *European Economic Review*, 37 (2-3) (Apr.): 308-15.
- Fischer, C. (1982) *To Dwell among Friends: Personal Networks in Town and City*, Chicago: University of Chicago Press.
- Fischer, M. (1991) "New laws in Eastern Europe set terms for resitution, *Business International*", Vol. 38, 31: 5.
- Fiskel, J. (1980) "Dynamic evolution in societal networks", *Journal of Mathematical Sociology*, 7: 27-46.
- Foreman-Peck, J., Millward, R. (1994) *Public and Private Ownership of British Industry 1820-1990*, Oxford: Calendon Press.



- Foss, N. (Ed.) (1997) *Resources, Firms and Strategies: A Reader in the Resource-Based Perspective*, Oxford: Oxford University Press.
- Foucault, M. (1981) *Power/Knowledge: Selected Interviews and Other Writings*, New York: Random House.
- Frank, O. (1980) "Transitivity in stochastic graphs and digraphs", *Journal of Mathematical Sociology*, 7: 199-213.
- Frank, O., Hallinan, M., Nowicki, K. (1985) "Clustering of dyad distributions as a tool in network modelling", *Journal of Mathematical Sociology*, 11: 47-64.
- Frankel, J. (2001) *Globalisation of the Economy*, National Bureau of Economic Research, Working Paper No. 7858.
- Freeman, C., Hagedorn, J. (1992) *Globalisation of Technology*, Commission of the European Communities.
- Freeman, L. C. (1989) "Social networks and the structure experiment", Chapter 1 in Freeman L. C. et al. (Eds.) *Research Methods in Social Network Analysis*, Fairfax: George Mason University Press
- Freeman, L. C. (2000) "Visualizing social networks", *Journal of Social Structure*, 1(1).
- Freeman, L.C. (1979) "Centrality in social networks: Conceptual clarification", *Social Networks*, 1: 215-239.
- Freeman, L.C. (1984) "Turning a profit from mathematics: The case of social networks", *Journal of Mathematical Sociology*, 10: 343-360.
- Freeman, L.C., White, D.R. (1993) "Using Galois Lattices to represent network data", *Sociological Methodology*, 23: 127-146.
- French, J., John R. (1956) "A formal theory of social power", *Psychological Review*, 63: 181-194.
- Frieden, J. (2000) *Global Capitalism, its Fall and Rise in the Twentieth Century*, New York & London, WW. Norton & Company.
- Frieden, J., Rogowski, R. (1996) "The Impact of the International Economy on National Policies", in Keohane, R., Milner, H. (Eds.) *Internationalization and Domestic Policies*, Cambridge: Cambridge University Press.
- Friedkin, N. E. (1986) "A formal theory of social power", *Journal of Mathematical Sociology*, 12: 103-126.
- Friedman, J., Gerlowski, D.A., Silberman, J. (1992) "What attracts foreign multinational corporations? Evidence from Branch Plant Location in the United States", *Journal of Regional Science*, 32(4).
- Friedman, M. & Friedman, R. (1962) *Capitalism and Freedom*, Chicago: University of Chicago Press.
- Friedmann, H. (1988) "Form and substance in the analysis of the world economy", in Wellman and Berkowitz (Eds.) *Social structures: A Network Approach*, Cambridge: Cambridge University Press, pp. 304-326.
- Friedmann, J., Alonso, W. (Eds.) (1967) *Regional Development and Planning: A Reader*, Cambridge: The MIT Press.

- Frischtak, C., Newfarmer, S. (1993) "Introduction: Market Structure and Industrial Performance", in Frischtak, C. and Newfarmer, S. (Eds.) *Transnational Corporations: Market Structure and Industrial Performance*, United Nations Library on Transnational Corporations, Vol. 15, London: Routledge.
- Froggatt, A. (2002) *Monitoring Market Concentration in Europe's Energy Sector*, EU Enlargement Watch.
- Fruchterman, T., Edward, M.J., Reingold, M. (1991) "Graph drawing by force directed placement", *Software-Practice and Experience*, 21 (11): 1129-1164.
- Fujita, M., Krugman, P., Venables, A. (1999) *The Spatial Economy, Cities, Regions, and International Trade*, Cambridge and London: The MIT Press.
- Fujita, M., Krugman, P., Venables, A. (1999) *The Spatial Economy*, MIT.
- Galaskiewicz, J., Wasserman, S. (1981) "Change in a regional corporate network", *American Sociological Review*, 46: 475-84.
- Garrett, G. (1995) "Capital mobility, trade, and the domestic politics of economic policy", *International Organization*, 49: 657-687.
- Garrett, G. (1998) *Partisan Politics*, Cambridge: Cambridge University Press.
- Garrison, W. (1959a) "Spatial structure of the economy", I *Annals of the Association of American Geographers*, 49: 232-9.
- Garrison, W. (1959b) "Spatial structure of the economy", II *Annals of the Association of American Geographers*, 49: 471-82.
- Garrison, W. (1960) "Spatial structure of the economy", III *Annals of the Association of American Geographers*, 50: 357-73.
- Garrison, W., Marble, D. (1957) "The spatial structure of agricultural activities", *Annals of the Association of American Geographers*, 47: 137-44.
- Gertler, M. (1997) "The invention of regional culture", in Lee, R., Wills, J. (Eds.) *Geographies of Economies*, London: Arnold, pp. 47-58.
- Ghuri, P., Buckley, P. (2002) *Globalization and the End of Competition: A Critical Review of Rent-Seeking Multinationals*, in Havila, V., Forsgren, M. and Håkanson, H. (Eds.) *Critical Perspectives on Internationalisation*, New York: Pergamon.
- Ghose, A. K. (2004) "Global inequality and international trade", *Cambridge Journal of Economics*, 28: 29-252.
- Ghoshal, S., Bartlett C. A. (1990) "The multinational corporation as an interorganisational network", *The Academy of Management Review*, 15(4): 603-625.
- Ghoshal, S., Nohria, N. (1997) *The Differentiated Network: Organizing Multinational Corporations for Value Creation*, San-Francisko: Jossey-Bass Business & Management.
- Giddens, A. (1990) *The Consequences of Modernity*, Cambridge: Polity.
- Giddens, A. (1999) *The Third Way: The Renewal of Social Democracy*, Malden: Polity Press.
- Giddens, A. (2002) *Runaway World*, Profile Books.

- Gilpin, R. (1987) *The Political Economy of International Relations*, Princeton: Princeton University Press.
- Gilpin, R. (2000) *The Challenge of Global Capitalism: The World Economy in the 21<sup>st</sup> Century*, Princeton: Princeton University Press.
- Goldmann, K. (1994) *The Logic of Internationalisation, Coercion and Accommodation*, London & New York: Routledge.
- Goles, E., Martinez, S. (1999) *Cellular Automata and Complex Systems*. Boston: Kluwer Academic Publishers.
- Gordon, R. (1994) *Internationalisation, Multinationalization, Globalisation, Contradictory World Economies and New Spatial Division of Labour*, Santa Cruz, CA: University of California for the Study of Global Transformations, Working Paper 94.
- Gould, J. (2005) Course "Business Environment", University of Greenwich.
- Gould, R. V. (1991) "Multiple networks and mobilization in the Paris Commune, 1871", *American Sociological Review*, 56: 716-29.
- Gould, R. V. (1993a) "Collective action and network structure", *American Journal of Sociology*, 58: 182-96.
- Gould, R. V. (1993b) "Trade cohesion, class unity, and urban insurrection: Artisanal activism in the Paris Commune", *American Journal of Sociology*, 98: 721-54.
- Gouri, G. (Ed.) (1991) *Privatisation and Public Enterprise, The Asia-Pacific Experience*, Oxford & IBH Publishing Co.
- Graham, M. (1998) "Market structure and the multinational enterprise", *Journal of International Business Studies*, 29(1).
- Gramsci, A. (1990) *Turemnie Tetradi (Prison Notes)*, Moscow: Izdatelstvo Politicheskoy Literaturi.
- Granovetter, M. (1973) "The strength of weak ties", *American Journal of Sociology*, 78: 1360-80.
- Granovetter, M. (1985) "Economic action and social structure: the problem of embeddedness", *American Journal of Sociology*, 91: 481-510.
- Granovetter, M. (1994) *Getting a Job*, Cambridge, MA: Harvard University Press.
- Greenwood, J., Pyper, R., Wilson, D. (2002) *New Public Administration in Britain*, Third Edition, London and New York: Routledge.
- Greider, W. (1997) *One World Ready or Not: The Manic Logic of Global Capitalism*, New York: Simon and Shuster.
- Grimwade, N. (2000) *International Trade: New Patterns of Trade, Production and Investment*, Second edition, London: Routledge.
- Grub, P., Lin, J. (1991) *Foreign Direct Investment in China*, Westport: Quorum Books.
- Gutowitz, H. (Ed.) (1991) *Cellular Automata: Theory and Experiment*, Cambridge: MIT Press.
- Haber, H. (1994) *Beyond Postmodern Politics*, New York: Routledge.

- Hage, P., Harary, F. (1983) *Structural Models in Anthropology*, Cambridge: Cambridge University Press.
- Hagedoorn, J. (1993) "Understanding the rationale of strategic technology partnering: Inter-organisational modes of co-operation and sectoral differences", *Strategic Management Journal*, Vol. 14.
- Hagedoorn, J., Schakenraad, J. (1990) "Inter-firm partnerships and cooperative strategies in core technologies", in Freeman, C., Soete, L. (Eds.) *Explorations in the Economics of Technological Change*, London: Pinter.
- Hagedoorn, J., Schakenraad, J. (1992) "Leading companies and networks of strategic alliances in information technologies", *Research Policy*, 22
- Hagerstrand, T. (1968) "A monte carlo approach to diffusion", in Berry, B.J.L, Marble, D.F. (Eds.) *Statistical Analysis*, Prentice-Hall, N.J.
- Haggard, S. (1990) *Pathways from the Periphery: The Politics of Growth in the Newly Industrializing Countries*, Ithaca, NY: Cornell University Press
- Haggett, P., Cliff, A., Frey, A. (1977) *Locational Analysis in Human Geography*, 2nd edition, London: Edward Arnold.
- Hall, D. (1997) *Restructuring and Privatisation in the Public Utilities - Europe*, PSIRU report, available on URL <http://www.psiru.org/publicationsindex.asp> [August, 2009].
- Hall, D. (1998) "Trends in energy privatisation in central and eastern Europe", PSIRU Report, available on URL <http://www.psiru.org/publicationsindex.asp> [August, 2009].
- Hall, D. (2006a) "A global review of multinational corporations in the water and electricity sectors", *Public Services Yearbook 2005/6*, available on URL <http://www.tni.org/books/yearb05corporations.pdf> [December, 2006].
- Hall, D. (2006b) "Trade unions and reform of public utilities: International perspective", in Hall, D., Popov, V., *Reform of Public Utilities and Trade Unions: Russian and International Perspective*, Report on ALSWU Conference.
- Hall, D., Lobina, E. (2005) *Efficiency and Public Sector Water*, PSIRU Report.
- Hall, D., Lobina, E. (2006) *From a Private Past to a Public Future? – Solving the Problems of Water in England and Wales*, PSIRU.
- Hall, P. (1995) "Towards a general urban theory", in Brotchie (Ed.) *Cities in Competition: Productive and Sustainable Cities for the 21<sup>st</sup> Century*, Sydney: Longman, pp. 3-32.
- Hallerberg, M., Basinger, S. (1998) "Internationalization and changes in tax policy in OECD Countries", *Comparative Political Studies*, 31: 321-352.
- Hamel, G. (1991) "Competition for competence and inter-partner learning within international strategic alliances", *Strategic Management Journal*, 12.
- Hanneman, R. (2001) *Introduction to Social Network Methods*, Department of Sociology, University of California, Riverside.
- Hanushek, E., Jackson, J. E. (1977) *Statistical Methods for Social Scientists*, New York: Academic Press.
- Harary, F. (1969) *Graph Theory*, Reading, MA: Addison-Wesley.



- Harary, F. (1971) "Demiarcs: An atomistic approach to relational systems and group dynamics", *Journal of Mathematical Sociology*, 1: 195-205.
- Harary, F., Kimmel, H.J. (1979) "Matrix measures for transitivity and balance", *Journal of Mathematical Sociology*, 6: 199-210.
- Harary, F., Norman, R., Cartwright, D. (1965) *Structural Models*, New York: Wiley.
- Harasim, L. (1993) *Global Networks*, MIT Press.
- Hargreaves-Heap, S., Hughes, K. (1990) "Strategic uncertainty and Multinationality", *Economic Notes*, 3(2).
- Harik, I., Sullivan, D. (Eds) *Privatisation and Liberalisation in the Middle East*, Bloomington and Indianapolis: Indian University Press.
- Harris, C. D. (1954) "The market as a factor in the localization of production", *Annals of the Association of American Geographers*, 44: 315-348.
- Harris, N. (1986) *The End of the Third World: Newly Industrilised Countries and the Decline of an Ideology*, London: Tauris: Penguin.
- Hartsfield, N., Ringel, G. (1994) *Pearls in Graph Theory: A Comprehensive Introduction, Revised and Augmented*, Boston: Academic Press.
- Harvey, D. (1989) *The Condition of Postmodernity*, Oxford: Blackwell.
- Harvey, D. (1999) *The Limits to Capital, New Edition*, London & New York: Verso.
- Harvey, D. (2003) *The New Imperialism*, Oxford: Oxford University Press.
- Harvey, D. (2005) *A Brief History of Neoliberalism*, Oxford: Oxford University Press.
- Havila, V., Forsgren, M., Hakansson, H. (Eds.) (2002) *Critical Perspectives on Internationalisation*, Oxford: Elsevier Science Ltd.
- Hay, C. (2003) *What Globalisation Got to Do with it? Inaugural Lecture*, University of Birmingham.
- Hay, C. (2004) "Common trajectories, variable places, divergent outcomes? Models of European capitalism under conditions of complex economic interdependence", *Review of International Political Economy*, (11) 2: 231-262.
- Haynes, K.E., Stewart Fotheringham (1984) *Gravity and Spatial Interaction Models*, Sage: Beverly Hills.
- Heider, F. (1979) "On balance and attribution", in Holland, P. and S. Leinhardt *Perspectives on Social Network Research*, New York: Academic Press, pp. 11-24.
- Held, D. (2007) *Globalization Theory: Approaches and Controversies*, New York: Cambridge University Press.
- Held, D. (Ed.) (1991) *Political Theory Today*, Cambridge: Polity Press.
- Held, D. (Ed.) (2005) *Debating Globalization*, Cambridge: Polity Press.
- Held, D., McGrew, A., Goldblatt, D., Perraton, J. (1999) *Global Transformations: Politics, Economics and Culture*, Cambridge: Polity Press.
- Hennart, J. (1989) "Can the *new forms of investment* substitute for the *old forms*? A transaction costs perspective", *Journal of International Business Studies*, Summer, pp. 211-234.

- Hertner, P., Jons, G. (Eds.) (1986) *Multinationals: Theory and History*, Aldershot: Gower.
- Hill, C. (2007) *International Business: Competing in the Global Marketplace*, McGraw Hill, Irwin.
- Hirst P., Thompson, G. (1996) *Globalisation in Question: The International Economy and the Possibilities of Governance*, Cambridge: Polity Press.
- Hirst P., Thompson, G. (2000) *Globalisation in Question: The International Economy and the Possibilities of Governance*, Second Edition, Cambridge: Polity Press.
- Hirst, P., Grahame, T. (1995) "Globalization and the future of the nation state", *Economy and Society*, 24: 409-442.
- Hobson, J. (1902) *Imperialism: A Study*, London: James Nisbet & Co Limited.
- Hobson, J. (1995) *Imperialism: A Study*, (Reprint), Ann Arbor: University of Michigan Press.
- Hofstede, G. (1996) *Cultures and Organisations: Software of the Mind*, London: HarperCollins.
- Hoivik, T., Gleditsch, N.P. (1975) "Structural parameters of graphs: A theoretical investigation", in Blalock et al. (Eds.) *Quantitative Sociology*, New York: Academic Press.
- Holland, P.W., Leinhardt, S. (1976) "Local structure in social networks", in Heise, D. (Ed.) *Sociological Methodology*, San-Francisco: Josey-Bass, pp. 1-45.
- Holland, P.W., Leinhardt, S. (1977) "A dynamic model for social networks", *Journal of Mathematical Sociology*, 5: 5-20.
- Holland, P.W., Leinhardt, S. (Eds.) (1979) *Perspectives on Social Network Research*, New York: Academic Press.
- Hood, N. (2003) *The Multinational Subsidiary, Management, Economic Development and Public Policy*, London: Palgrave Macmillan
- Hoogvelt, A. (2001) *Globalisation and the Postcolonial World: The New Political Economy of Development*, Second Edition, Baltimore: The John Hopkins University Press.
- Horaguchi, H., Toyne, B. (1990) "Setting the record straight: Hymer, internalisation theory and transaction cost economics", *Journal of International Business Studies*, Vol. 21.
- Howard, L. (1988) "Work and community in industrializing India", in Wellman and Berkowitz (Eds.) *Social structures: A network approach*, Cambridge: Cambridge University Press, pp. 185-197.
- Howell, N. (1988) "Understanding simple social structure: Kinship units and ties", in Wellman and Berkowitz (Eds.) *Social Structures: A Network Approach*, Cambridge: Cambridge University Press, pp. 62-82.
- Hsiao, C. (2001), "Efficient estimation of dynamic panel data models—with an application to the analysis of foreign direct investment to developing countries", *Lecture of the Econometric Society Far Eastern Meeting*, Kobe, Japan.
- Hsiao, C. (2001), "Efficient estimation of dynamic panel data models—with

- Hubbell, C. (1965) "An input-output approach to clique identification", *Sociometry*, 28: 377-399.
- Hughes, K., Oughton, C. (1992) "Foreign and domestic multinational presence in the UK", *Applied Economics*, Vol. 24, July.
- Huntington, S. (1993) "The Clash of Civilizations?", *Foreign Affairs*, Vol. 72 (3): 22-49.
- Huntington, S. (1996) *The Clash of Civilizations and the Remaking of the World Order*, N.Y: Simon and Shuster.
- Hutch, J. (1988) "Privatisation and the consumer", in Ramanadham, V. (Ed.) (1988) *Privatisation in the UK*, Routledge: London and New York.
- Hymer, S. (1960, published in 1976) *The International Operations of National Firms: A Study of Foreign Direct Investment*, Cambridge: MIT Press.
- Hymer, S. (1968) "The large multinational 'corporation': An analysis of some motives for international integration of business", *Revue Economique*, 6, translated from the French by Nathalie Vacherot.
- Hymer, S. (1976, originally written in 1960) *The International Operations of National Firms: a Study of Foreign Direct Investment*, Ph.D. dissertation, Massachusetts Institute of Technology, Cambridge: MIT Press.
- Hymer, S. (1987) "The internationalisation of capital", *Journal of Economic Issues*, Lincoln (Nebraska), Vol. VI (1): 91-111.
- Hymer, S., Rowthorn, R. (1970) "The multinational corporation and international oligopoly", in Kindelberger C. (Ed.) *The International Corporation* Cambridge: MIT Press.
- Jacobs, J. (1996) *Edge of Empire: Postcolonialism and the City*, London & New York: Routledge.
- Janos, H. (2002) *Globalisation, Multinational Corporation and Economics*, Budapest: Akademiai Kiado.
- Jemison, D., Sitkin, S. (1986) "Corporate acquisitions: A process perspective", *Academy of Management Review*, 11: 145-163.
- Johanson, J., Vahine, J. (1977) "The internationalisation process of the firm - A model of knowledge development and increasing foreign market commitments", *Journal of International Business Studies*, 8: 23-32.
- Johnson, C. (1988) *Privatisation and Ownership*, Lloyds Bank Annual Review, Vol. 1, London and New York: Pinter Publishers.
- Johnson, J.C., Richardson, D., Richardson, J. (2002) *Exploring Network Interactions in 3D Space: Link Analysis and Visualization*, Dagstuhl Seminar 01271, June 2001, Wadern, Germany.
- Jones, G. (1984) "The expansion of British multinational manufacturing, 1890-1939", in Okochi A., Inoue T. (Eds.) *Overseas Business Activities*, Tokyo.
- Jones, G. (1985) *The Gramophone Company, 1898-1939*, *Business History Review*, pp. 89-93.

- Jones, G. (1996) *The Evolution of International Business: an Introduction*, New York: Routledge.
- Jones, G. (2005) *Multinationals and Global Capitalism: From the Nineteenth to the Twenty First Century*, Oxford: Oxford University Press.
- Jones, G. (Ed.) (1986) *British Multinationals: Origins, Management and Performance*, Business History Series, Gower Publishing Company Limited.
- Josifides, P. (1997) "Methods of measuring media concentration", *Media Culture and Society*, 19(3): 643-663.
- Jungnickel, R. (2002) *Foreign-Owned Firms; Are They Different?* London: Palgrave Macmillan.
- Kamada, T., Kawai, S. (1989) "An algorithm for drawing general undirected graphs", *Information Processing Letters*, 31(1): 7-15.
- Kaplinsky, R. (2008) *Globalisation, Poverty and Inequality: Between a Rock and a Hard Place*, Cambridge: Polity Press.
- Keller, W. (2000) "Geographical location of international technology diffusion", *American Economic Review*, 92: 120-42.
- Kiely, R. (2005) *The Clash of Globalisations: Neo-liberalism, the Third Way and Anti-Globalisation*, Leiden & Boston: Brill.
- Kim, S., Eui-Hang, S. (2002) "A longitudinal analysis of globalisation and regionalisation in international trade: A social network approach", *Social Forces*, 81(2): 445-468.
- Kim, W. S., Lyn, E.O. (1988) "Foreign direct investment theories, entry barriers, and reverse investments in US manufacturing industries", *Journal of International Business Studies*, 18(2).
- King, A. (1991) *Culture, Globalisation and the World System: Contemporary Conditions for the Representation of Identity*, Basingstoke: Macmillan.
- Kirkby, M.J., Naden, P.S., Burt, T.P., Butcher, D.P. (1993) *Computer Simulation in Physical Geography*, Wiley, Chichester, 2nd edition.
- Klerks, P. (1999) *The Network Paradigm Applied to Criminal Organisations: Theoretical nitpicking or a relevant doctrine for investigators? Recent developments in the Netherlands*, The Hague, the Netherlands, available on URL <http://www.insna.org/Connections-Web/Volume24-3/Klerks.web.pdf> [November, 2006].
- Knoke, D., Burt, R.S. (1983) "Prominence", Chapter 10 in Burt and Minor (Eds.) *Applied Network Analysis: A Methodological Introduction*, Beverly Hills: Sage.
- Knoke, D., Kuklinski, J. H. (1981) *Network Analysis*, Beverly Hills: Sage.
- Knoke, D., Rogers, D.L. (1979) "A blockmodel analysis of interorganizational networks", *Sociology and Social Research*, 64: 28-52.
- Kogut, B. (1989) "The stability of joint ventures: Reciprocity and competitive rivalry", *Journal of Industrial Economics*, Vol. 37.
- Kogut, B., Zander, U. (1992) "Knowledge of the firm, combinative capabilities, and the replication of technology", *Organization Science*, 3(3): 383-397.



- Kogut, B., Zander, U. (1993) "Knowledge of the firm and the evolutionary theory of the multinational corporation", *Journal of International Business Studies*, 24(4).
- Kokh, A. (1998) *The Selling of the Soviet Empire: Politics and Economics of Russia's Privatisation – Revelations of the Principal Insider*, Liberty Publishing House.
- Kolde, E.J. (1985) *Environment of International Business*, Kent, Boston, Massachusetts
- Krackhardt, D. (1989) *Graph Theoretical Dimensions of Informal Organizations*, Washington, D.C. presented at the Academy of Management meetings.
- Krempel, L, Plümper, T. (2003) "Exploring the dynamics of international trade by combining the comparative advantages of multivariate statistics and network visualizations", *Journal of Social Structure*, 4(1) February.
- Krempel, L. (1999) "Visualizing networks with spring embedders: Two-mode and valued data", *American Statistical Association, Proceedings of the Section of Statistical Graphics*, Alexandria, VA, pp. 36-45.
- Krempel, L. (2003) *Netzwerkvisualisierung: Prinzipien und Elemente einer graphischen Technologie zur multidimensionalen Exploration sozialer Strukturen*.
- Krempel, L., Plümper, T. (1999) "International division of labor and global economic processes: An analysis of the international trade in automobiles", *Journal of World-Systems Research*, 5: 390-402.
- Krugman, P. (1991) "Increasing returns and economic geography", *Journal of Political Economy*, 99: 483-499.
- Krugman, P. (1991) *Geography and Trade*, Leuven: Leuven University Press.
- Krugman, P. (1992) *Geography and Trade*, Cambridge: MIT Press.
- Krugman, P. (1994) *Rethinking international trade*, Cambridge: MIT Press.
- Krugman, P. (1995a) "Growing World Trade: Causes and Consequences", *Brookings Papers on Economic Activity*, 1: 327-377
- Krugman, P. (1995b) *Development, Geography and Economic Theory*, Cambridge: MIT Press.
- Krugman, P. (1998) "Space: The final frontier", *Journal of Economic Perspectives*, 12: 161-174.
- Krugman, P. (2003) "New economic geography", in Clark, G., Feldman, M., Gertler, M. (Eds.) *The Oxford Handbook of Economic Geography*, Oxford: Oxford University Press.
- Krugman, P., Venables, A. (1995) "Globalisation and the inequality of nations", *Quarterly Journal of Economics*, 110: 857-880.
- Kudina, A. (2005) "Towards assessment of the relative role of political stability on a country's propensity to attract FDI", *Challenges of Organisations in Global Markets*, British Academy of Management Conference, Oxford, Said Business School.
- Kutschker (1993) *Dynamische Internationalisierungsstrategie*, Diskussionsbeitrag Nr. 41, Wirtschaftswissenschaftliche Fakultät Ingolstadt, Katholische Universität Eichstatt, Ingolstadt.

- Kuznets, S. (1967) "Quantitative aspects of the economic growth of nations: X-levels and structure of foreign trade: Long term trends", *Economic Development and Cultural Change*, 15 (2): 1-45.
- Larbi, G. (1999) *The New Public Management Approach and Crisis States*, United Nation Research Institute for Social Development.
- Laumann, E. (1973) *Bonds of Pluralism: The Form and Substance of Urban Social Networks*, New York: Wiley.
- Laumann, E. O., et al. (1994) *The Social Organization of Sexuality: Sexual Practices in the United States*, Chicago: University of Chicago Press.
- Laumann, E. O., Marsden, P.V. (1982) "Microstructural analysis in interorganizational systems", *Social Networks*, 4: 329-48.
- Laumann, E. O., Marsden, P.V., Prensky, D. (1983) "The boundary specification problem in network analysis", in Burt and Minor (Eds.) *Applied network analysis: A methodological introduction*, Beverly Hills: Sage, pp. 18-34.
- Laumann, E.O., Marsden, P.V., Galaskiewicz, J. (1977) "Community influence structures: Extension and replication of a network approach", *American Journal of Sociology*, 83: 594-631.
- Lawrence, R.Z. (1996) *Single World, Divided Nations?* Brookings Institution, Washington.
- Le Grand, J., Robinson, R. (Eds.) (1984) *Privatisation and the Welfare State*, London: Allen and Unwin.
- Leach, E. (1982) *Social Anthropology*, Oxford: Oxford University Press.
- Leavitt, H. J. (1951) "Some effects of certain communication patterns on group performance", *Journal of Abnormal and Social Psychology*, 46: 38-50.
- Lechner, F., Boli, J. (Eds.) (2004) *The Globalisation Reader*, Oxford: Blackwell Publishing.
- Lee, R., Wills, J. (Eds.) (1997) *Geographies of Economies*, London: Arnold.
- Lee, R., Wills, J. (Eds.) (1997) *Geographies of Economies*, London: Arnold.
- Leinhardt, S. (Ed.) (1977) *Social Networks: A Developing Paradigm*, New York: Academic Press.
- Lenin, V. (1917) *Imperialism, the Latest Stage of Capitalism*, Peterburg: Parus Publishers.
- Letto-Gillies, G. (1998) "Different conceptual frameworks for the assessment of the degree of internationalization: An empirical analysis of various indices for the top 100 transnational corporations", *Transnational Corporations*, 7(1): 17-39.
- Lever, W. (1997) "Economic globalisation and urban dynamics –II", in Moulaevt, F., Scott, A. (Eds.) *Cities, Enterprises and Society on the Eve of the 21<sup>st</sup> Century*, London: Pinter.
- Levine, J. H. (1972) "The sphere of influence", *American Sociological Review*, 37: 14-27.

- Levine, J. H., Spadaro, J. (1988) "Occupational mobility: A structural model", in Wellman and Berkowitz (Eds.) *Social Structures: A Network Approach*, Cambridge: Cambridge University Press, pp. 452-476.
- Lobina, E., Hall, D. (2001) "UK Water privatisation – a briefing", PSIRU Report, available on URL <http://www.psiru.org/publicationsindex.asp> [August, 2009].
- Logue, D. (1995) "The strategy for privatisation in the United States", in MacAvoy, P. (Ed.) *Deregulation and Privatisation in the United States*, Edinburg: David Hume Institute, pp. 88-108.
- Lomnitz, L., Scheinbaum, D. (2004) *Social Networks and the Process of "Spontaneous" Privatisation in Post-Communist Hungary*, Presentation at Sunbelt XXIV International Social Network Conference, Portoroz, Slovenia.
- Lopez-De-Silanes, Sheifer, A., Vishny, R. (1997) "Privatisation in the United States", *Rand Journal of Economics*, Vol. 28.
- Lorrain, F., White, H.C. (1971) "The structural equivalence of individuals in social networks", *Journal of Mathematical Sociology*, 1: 49-80.
- Louch, H., Hargittai E., Centeno M.A. (1999) "Phone calls and fax machines: The limits to globalization", *The Washington Quarterly*, 22:2 83-100.
- Luce, R.D., Perry, A.D. (1949) "A method of matrix analysis of group structure", *Psychometrika*, 20: 319-327.
- Lundvall, B. (1988) "Innovation as an interactive process: From user-producer interaction to the national system of innovation", in Dosi, G, Freeman, C., Silverberg, G., Solte, L. (Eds.) *Technological Change and Economic Theory*, London: Pinter, pp. 349-69.
- Luxemburg, R. (1951) *The Accumulation of Capital*, (1913, Reprint), New Haven: Yale University Press.
- MacAvoy, P. (Ed.) (1995) *Deregulation and Privatisation in the United States*, Edinburg: David Hume Institute, pp. 88-108.
- Mackinnon, D, Cumbers, A. (2007) *An Introduction to Economic Geography Globalisation, Uneven Development and Place*, Essex: Pearson Education Limited.
- Mandel, M.J. (1983) "Local roles and social networks", *American Sociological Review*, 48: 376-386.
- Mansfield, E., Pollins, B. (Eds.) (2003) *Economic Interdependence and International Conflict/ New Perspectives on an Enduring Debate*, USA: The University of Michigan Press.
- Marsden, P., Lin, N. (Eds.) (1982) *Social Structure and Network Analysis*, Beverly Hills: Sage.
- Marte, A. (2006) *Evaluating and Optimizing Global Leadership Through Dynamic Social Network Analysis*, Research Project, University of Zurich (available on <http://www.research.unizh.ch/p8277.htm>).
- Martin, S., Parker, D. (1999) *The Impact of Privatisation/ Ownership and Corporate Performance in the UK*, London and New York: Routledge, *Industrial Economic Strategies for Europe*.

- Martusevich, R., Börkey, P. (2004) Overview of Domestic and International Private Companies Operating in the Utilities Sector in Russian Federation, OECD, Paris.
- Marwell, G., Oliver, P., Pahl, R. (1988) "Social networks and collective action: A theory of the critical mass.III", *American Journal of Sociology*, 94: 502-34
- Marx, K. (1954) *Capital: A Critique of Political Economy*, Vol. I. The Process of Capitalist Production, London: Lawrence and Wishart.
- Marx, K. (1966) *Capital: A Critique of Political Economy* Vol. 3, The process of capitalist production as a whole.
- Marx, K. (1967) *Capital: A Critique of Political Economy*, Vol. 2, The process of circulation of capital, Moscow: Progress Publishers.
- Marx, K. (1976) *Capital: A Critique of Political Economy*, Vol. I, Penguin Books.
- Marx, K., Engels, F. (1932) *The German Ideology: Critique of Modern German Philosophy According to Its Representatives Feuerbach, B. Bauer and Stirner, and of German Socialism According to Its Various Prophets*, Cheltenham: Edward Elgar Publishing.
- Marx, K. (1977) *Selected Writings*, Oxford: Oxford University Press.
- Mayer, T.F. (1984) "Parties and networks: Stochastic models for relationship networks", *Journal of Mathematical Sociology*, 10: 51-103.
- Mazlish, B. (2006) *The New Global History*, New York & London: Routledge.
- McCallister, L., Fischer, C.S. (1983) A procedure for surveying personal networks, in Burt and Minor (Eds.) *Applied Network Analysis: A Methodological Introduction*, Beverly Hills: Sage, pp. 75-88.
- McCallum, J. (1995) "National borders matter: Canada-US regional trade patterns", *The American Economic Review*, pp. 615-623.
- McCullough, J., Steubner, T. (1985) *Project Inception Report: Management support for Town Panchayats Project*, Kathmandu: Ministry of Panchayat and Local Development.
- McDonald, D. (2009) *Electric Capitalism*, London: Earthscan.
- McDonald, F. Tuselmann, H., Wheeler, C. (Eds.) (2002) *International Business: Adjusting to New Challenges and Opportunities*, London: Palgrave.
- Menard, G., Shirley, M. (Eds.) (2005) *Handbook of New Institutional Economics*, Springer.
- Milanovic, B. (2003) "The two faces of globalisation: Against globalisation as we know it", *World Development*, 31: 667-83.
- Mingione, E. (1991) *Fragmented Societies*, Oxford: Blackwell.
- Minor, M.J. (1983) "New directions in multiplexity analysis", Chapter 11 in Burt and Minor (Eds.) *Applied Network Analysis: A Methodological Introduction*, Beverly Hills: Sage.
- Minor, M.J. (1983) "Panel data on ego networks: A longitudinal study of former heroin addicts", Chapter 4 in Burt and Minor (Eds.) *Applied Network Analysis: A Methodological Introduction*, Beverly Hills: Sage.



- Mintz, B., Schwartz, M. (1981) "Interlocking directorates and interest group formation", *American Sociological Review*, 46: 851-69.
- Mintz, B., Schwartz, M. (1985) *The Power Structure of American Business*, Chicago: University of Chicago Press.
- Mitchell, C. (1969) *Social Networks in Urban Situations: Analyses of Personal Relationships in Central African Towns*, Manchester: Manchester University Press.
- Mittelman, J. H., Pasha K. Mustapha (1997) *Out From Underdevelopment Revisited: Changing Global Structures and the Remaking of the Third World*, 2<sup>nd</sup> ed., Basingstoke.
- Mittelman, J.H. (Ed.) (1996) *Globalization: Critical Reflections*, Boulder, CO.: Lynne Rienner.
- Mizruchi, M.S. (1989) "Similarity of political behavior among American corporations", *American Journal of Sociology*, 95: 401-24.
- Mizruchi, M.S., Mariolis, P., Schwartz, M., Mintz, B. (1986) "Techniques for disaggregating centrality scores in social networks", in Nancy Tuma (Ed.) *Sociological Methodology*, San-Francisco: Jossey-Bass, pp. 26-48.
- Mommer, B. (2002) *Global Oil and the Nation State*, Oxford: Oxford University Press.
- Monye, S. (1997) "Exercising effective control over externalised operations: The case of business franchising", in *The Organisation of International Business, Conference Proceedings*, Leeds University Business School, Vol. 2: 690-709.
- Moody, J. (2004) *Social Network Analysis*, Presentation, American Sociological Association, San-Francisco, August 2004.
- Moody, J. (2005) *The Network Structure of Sociology Production*, Presentation.
- Moran, M. (2003) *The British Regulatory State/ High Modernism and Hyper-Innovation*, Oxford: Oxford University Press.
- Morrill, R., Gaile, G. L., Thrall, G. I. (1988) *Spatial Diffusion*, Newbury Park: Sage Publications.
- Morrill, R., Garrison, W. (1960) "Projections of interregional patterns of trade in wheat and flour", *Economic Geography*, 36: 116-26.
- Morrison, J. (2005) *The International Business Environment//Global and Local Marketplaces in a Changing World*, Second Edition, NY: Palgrave Macmillan.
- Munkler, M. (2007) *Empires*, Cambridge: Polity Press.
- Murray, R. (1971) "Internationalisation of capital and the nation state", *New Left Review*, May-June, 67: 84-109.
- Murray, R. (Ed.) (1981) *Multinationals beyond the Market: Intra-firm Trade and the Control of Transfer Pricing*, Brighton: Harvester Press.
- Neary, P. (2007) "Trade costs and foreign direct investment", Working Paper, available on <http://www.economics.ox.ac.uk/members/peter.neary/papers/pdf/fdicosts.pdf> (October, 2007).
- Nelson, R., Winter, S. (1982) *An Evolutionary Theory of Economic Change*, Cambridge: Harvard University Press.

- Nemeth, R., Smith, D. (1985) "Internaitonal trade and world-system structure: A multiple network analysis", *Review (Fernard Braudel Center)*, 8: 517-560.
- Neustadt, A., Clawson, D. (1988) "Corporate political groupings: Does ideology unify business political behavior?", *American Sociological Review*, 53: 172-90.
- Norlen, K., Lucas, G., Gebbie, M., and Chuang, J. (2002) *Travis: Extraction, Visualization and Analysis of the Telecommunications and Media Ownership Network*, Presentation at the University of Berkeley (available on URL <http://denali.berkeley.edu/eva/its-slides.pdf>).
- North, D. (1995) "The new institutional economics and the third world development", in Harriss, J., Hunter, J., Lewis, C. (Eds.) *The New Institutional Economics and the Third World Development*, London and New York: Routledge.
- North, D. (2005) "Understanding the Process of Institutional Change," Princeton University Press.
- Nystuen, J., Dacey, M. (1961) "A graph theory interpretation of nodal regions", *Paper and Proceedings of the Regional Science Association*, 7: 29-42.
- O'Brien, R. (1992) *Global Financial Integration: The End of Geography*, London: Pinter.
- Obstfeld, Maurice & Kenneth, Rogoff (1996) *Foundations of International Macroeconomics*, Cambridge: MIT Press.
- OECD (1994) *Assessing Structural Reforms: Lessons for the Future*, Paris.
- Olie, R. (1994) "Shades of culture and institutions in international mergers", *Organisation Studies*, 15(3).
- Oliver, Melvin (1988) "The urban black community as network: Toward a social network perspective", *Sociological Quarterly*, 29: 623-645.
- Oman, C. (1984) *New Forms of International Investment in Developing Countries*, Paris: OECD Developing Studies.
- Orr, D., Ulen, T. (1993) "The role of trust and the law in privatisation", *Quarterly Review of Economics and Finance*, Vol. 33: 135-155.
- Padgett, J.F., Ansell, C.K. (1993) "Robust action and the rise of the Medici, 1400-1434", *American Journal of Sociology*, 98: 1259-1319.
- Palloix, C. (1975) *L'internationalisation du capital*, coll. *Economie et socialisme*, no. 23, François Maspéro, Paris.
- Palloix, C., "Imperialisme et mode d'accumulation international du capital", *Revue Tiers Monde*, tome XV.
- Palma, G. (1978) "Dependency: a formal theory of underdevelopment or a methodology for the analysis of concrete situations of underdevelopment", *World Development*, Pergamon Press Ltd, 6 (7/8): 881-924.
- Parker, D., Saal, D. (Eds.) (2003) *International Handbook on Privatization*, Cheltenham: Edward Elgar.
- Parsons, T. (1966) *Societies*, Englewood Cliffs: Prentice Hall.
- Peay, E.R. (1976) "A note concerning the connectivity of social networks", *Journal of Mathematical Sociology*, 4: 319-321.

- Peay, E.R. (1982) "Structural models with qualitative values", *Journal of Mathematical Sociology*, 8: 161-192.
- Peck, J. (2004) "Geography and public policy: constructions of neoliberalism", *Progress in Human Geography*, 28 (3): 392–405.
- Penn and Shoen Associates (1991) *Democracy, Economic Reform and Western Assistance in Czechoslovakia, Hungary and Poland: A Comparative Public Opinion Survey*, New York: Freedom House.
- Penrose, E. (1959) *The Theory of the Growth of the Firm*, Oxford: Oxford University Press.
- Perlmutter, H.V., Heenan, D.A. (1974) "How multinational should your top managers be?", *Harvard Business Review*, 52(6): 121-132.
- Perlmutter, H.V., Heenan, D.A. (1979) *Multinational Organization Development*, Reading: Addison-Wesley.
- Perraton, J., Goldbatt, D., Held, D. McGrew, A. (1997) "The Globalisation of economic activity", *New Political Economy*, 2: 257-277.
- Perriard, M. (1995) *Towards a Measure of Globalisation*, Institute of Economic and Social Sciences, University Fribourg Working paper No. 250, Fribourg.
- Pfister, U., Suter, C. (1987) "International financial relations as part of the world-system", *International Studies Quarterly*, 31(3): 239-272.
- Pirie, M. (1988) *Privatisation*, Aldershot: Wildwood House Limited.
- Platt, D. (Ed.) (1977) *Business Imperialism 1840-1930: An Inquiry Based on British Experience in Latin America*, Oxford: The Clarendon Press.
- Podobnik, B. (1999) *Global Energy Shifts: States, Firms and Social Unrest in the Evolution of Commercial Energy Industries*, Ph.D dissertation, Sociology, Johns Hopkins University.
- Pollard, S. (1985) *Capital Exports 1870 -1913* *Economic History Review*, 38(4).
- Poor Choices: The Limits of Competitive Markets in the Provision of Essential Services to Low Income Consumers (2008) Energywatch.
- Popov, V. (2004) *Report on Russian Water Companies*, PSIRU.
- Popov, V. (2006) "In Search for Efficiency: An Overview of the Reform of Public Utilities in the UK", *Reform of the Public Sector: Issues of Efficient Management*, International Conference, School of Management, SPbGU.
- Porter, M. (1990) *The Competitive Advantage of Nations*, New York: Free Press.
- Porter, M. (1998) *On Competition*, Boston: Harvard Business Review.
- Portes, R., Rey, H. (1999) "The determinants of cross-border equity flows", NBER Working Paper no. 7336, Cambridge, Mass.: National Bureau of Economic Research.
- Potter, R., Binns, T., Elliott, J., Smith, D. (2008) *Geographies of Development: An Introduction to Development Studies*, Third Edition, Pearson Education Limited.
- Poulantzas, N. (1974) "Internationalisation of capitalist relations and the nation-state", *Economy and Society*, Vol. 3.
- Poulantzas, N. (1975) *Classes in Contemporary Capitalism*, London: NLB.

- Prahalas, C.K., Doz, Y.L. (1987) *The Multinational Mission: Balancing Local Demands and Global Vision*, London: Free Press.
- Pred, A. (1966) *The Spatial Dynamics of Urban Industrial Growth: 1800-1914*, Cambridge: MIT Press.
- Proposed American National Standard - Working Document Knowledge Management – Metrics Candidate Metrics, Global Knowledge Economics Council 3/27/2002.
- Radygin, A. (1995) *Privatisation in Russia: Hard Choices, First Results, New Targets*, Centre for Research into Communist Economies.
- Ramanadham, V. (Ed.) (1988) *Privatisation in the UK*, Routledge: London and New York.
- Rammamurti, R., Vernon, R. (Eds.) (1991) *Privatisation and Control of State-Owned Enterprises*, Washington: Economic Development Institute of the World Bank, EDI Development Studies.
- Rapoport, A. (1963) "Mathematical models of social interaction", in R. Luce, R. Bush and E. Galanter (Eds.) *Handbook of Mathematical Psychology*, Vol. II, New York: Wiley, pp. 493-579.
- Ravenhill, J. (2008) *Global Political Economy*, Second Edition, Oxford: Oxford University Press.
- Rice, R. E., Aydin, C. (1991) "Attitudes toward new organizational technology: Network proximity as a mechanism for social information processing", *Administrative Science Quarterly*, Vol. 36: 219-244.
- Richardson, G. (1960) *Information and Investment: A study in the Working of the Competitive Economy*, Oxford: Clarendon Press.
- Roberts R. B. (1982) *European Direct Investment in the USA before World War 1*, London.
- Robinson, D. R. (1984) *Internationalization of Business: An Introduction*, The Dryden Press.
- Robinson, W.I. (2002) "Globalization as a macro-structural-historical framework of analysis: The case of Central America", *New Political Economy*, 7(2): 221-249.
- Robinson, W.I. (2002) "Remapping development in light of globalisation: From a territorial to a social cartography", *Third World Quarterly*, 23(6): 1047-1071.
- Robock, S.H., Simmonds, K. (1989) *International Business and Multinational Enterprises*, 4th edition, Irwin, Homewood, Illinois.
- Rodriguez, J., Cardenas, J., and Oltra, C. (2004) *Networks of Economic Power in Europe*, Presentation at XXIV International Sunbelt Conference, Protorz, Slovenia.
- Rogers, E.M. (1979) "Network analysis of the diffusion of innovations", in P. Holland, P. & Leinhardt, S. (Eds.) *Perspectives on Social Network Research*, pp. 137-164.
- Rokkam, S., Urwin, D. (Eds.) (1982) *The Politics of Territorial Identity. Studies in European Regionalism*, London: Sage Publications.
- Rolfe, R. Ricks, D., Pointer, M., and McCarthy, M. (1993) "Determinants of FDI preferences of MNCs", *Journal of International Business Studies*, 24(2).



- Rolfe, R., White, R. (1992) "The influence of tax incentives in determining the location of foreign direct investment in developing countries", *Journal of American Taxation Association*, 13(2): 39-57.
- Rondinelli, D., Iacono, M. (1996) *Policies and Institutions for Managing Privatisation: International Experience*, Geneva, Tourin: International Training Centre of the ILO.
- Rosenau, J. (1980) *The Study of Global Interdependence*, New York: Nicholas.
- Ross, R., Trachte, K. (1990) *Global Capitalism: The New Leviathan*, Albany State University of New York Press.
- Roskam, E. (2006) *Winners or Losers? Liberalising Public Services*, International Labour Office, Geneva.
- Roth, M.S., Dakhli, M. (2001) "Regional trade agreements as structural networks: Implications for foreign direct investment decisions", *Connections*, 23(1): 60-71.
- Rowlands, M., Mogens Larsen, Kristiansen, K. (1987) *Center and periphery in the ancient world*, Cambridge: Cambridge University Press.
- Roy, W. (1983) *The Interlocking Directorate Structure of the United States*, *American Sociological Review*, 42: 248-57.
- Rueber, G., Crookell, H., Emerson, M, and Gallais-Hamono, G. (1973) *Private Foreign Investment in Development*, Oxford: Clarendon Press.
- Rugman, A., Hodgetts, R. (2003) *International Business*, Pearson Education Limited.
- Rugman, A., Verbeke, A. (2004) "A perspective on regional and global strategies of multinational enterprise", *Journal of International Business Studies*, 35: 3-18.
- Russett, B. (1968) "Delineating international regions", in J. Singer (Ed.) *Quantitative International Politics: Insights and Evidence*, New York: The Free Press, pp.317-52.
- Russett, B., Oneal, J., Cox, M. (2000) "Clash of civilisations, or realism and liberalism Deja Vu? Some Evidence", *Journal of Peace Research*, 37 (5): 583-608.
- Said, E. (1993) *Culture and Imperialism*, London: Chatto.
- Said, E. (2000) "The Clash of Ignorance", *The Nation*, October 2001, available at URL <http://www.thenation.com/doc/20011022/said> [September, 2009].
- Sailer, L.D. (1978) "Structural equivalence: Meaning and definition, computation and application", *Social Networks*, 1: 73-90.
- Saskia Sassen-Koob, (1997) "Issues of core and periphery: Labour migration and global restructuring", in Henerson, J. and Castells, M. (Eds.) *Global Restructuring and Territorial Development*, Sage Publications.
- Sassen, S. (1991) *The Global City: New York, London, Tokyo*, Princeton: Princeton University Press.
- Sathe, S., Handley-Schachler, M. (2006) "Social and cultural factors in FDI flows: evidence from the Indian states", *World Review of Entrepreneurship, Management and Sustainable Development*, (2) 4: 323-334.
- Savas, E. (1982) *Privatizing the Public Sector*, New York: Chatham House.
- Saxenian, A. (1994) *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*, Cambridge: Harvard University Press.

- Schildkrout, E.S. (1987) *The Golden Stool: Studies of the Asante Center and Periphery*, New York: American Museum of Natural History.
- Schmidt, R. (1981) Zur Messung des Internationalisierungsgrades von Unternehmen, in: Wacker, W., Haussmann, H., Kumar, B. (Eds.): *Internationale Unternehmensführung. Managementprobleme international tätiger Unternehmen*, Berlin: Erich Schmidt Verlag, pp. 57-70.
- Scholte, J. (2005) *Globalisation: A Critical Introduction*, New York: Palgrave Macmillan.
- Scott, A. (1997) "Introduction: Globalization: social process or political rhetoric?" in Alan Scott (Ed.) *The Limits of Globalization: Case and Arguments*, London: Routledge.
- Scott, A. (2003) "Economic geography: The great half-century", in Clark, G., Feldman, M., Gertler, M. (Eds.) *The Oxford Handbook of Economic Geography*, Oxford: Oxford University Press, pp. 18-44.
- Scott, J. (1991) *Social Network Analysis: A Handbook*, Newbury Park, CA: Sage Publications.
- Scott, J. (2000) *Social Network Analysis: A Handbook*, London: Sage Publications.
- Seidman, S.B. (1985) "Structural consequences of individual position in nondyadic social networks", *Journal of Mathematical Psychology*, 29: 367-386.
- Semitiel García, M. (2006) *Social Capital, Networks and Economic Development: An Analysis of Regional Productive Systems*, Edward Elgar Publishing.
- Sen, S., Kasibhatla, K., and Stewart, D. (2007) "Debt overhang and economic growth—the Asian and the Latin American experiences", *Economic Systems*, 31 (1): 3-11.
- Shaw, S., Toye, J. (1978) "Fiscal incentives for firms in some developing countries: Survey and critique", in Toye, J. (Ed.) *Taxation and Economic Development*, London: Frank Cass.
- Sherman, S. (2003) "The attacks of September 11 in Three Temporalities", *Journal of World-System Research*, IX (1): 141-169.
- Shils, E. (1975) *Center periphery: essays in marcosociology*, Chicago: University of Chicago Press.
- Sklair, L. (2001) *The Transnational Capitalist Class*, Oxford: Blackwell.
- Sklair, L. (2002) *Globaliation: Capitalism & its Alternatives*, Third Edition, Oxford: Oxford University Press.
- Smith, D.A., White, D.R. (1992) "Structure and dynamics of the global economy: Network analysis of international trade 1965-1980", *Social Forces*, 70(4): 857-893.
- Snyder, D., Kick, E.L. (1979) "Structural position in the world system and economic growth 1955-1970: A multiple-network analysis of transnational interactions", *American Journal of Sociology*, 84: 1096-1126.
- Snyder, L. (Ed.) (1962) *The Imperialism Reader*, New York, Toronto, London: D.Van Nostrand Company, Inc.

- Solomon, L.D. (1978) *Multinational Corporations and the Emerging World Order*, New York: Kennikat Press.
- Sonquist, S.A., Koenig, T. (1975) "Interlocking directorships in the top US corporations", *Insurgent Sociologist*, 5.
- Soros, G. (1998) *The Crisis of Global Capitalism (Open Society Endangered)*, New York: Public Affairs.
- Speth, J. (1996) "Global inequality: 358 billionaires vs 2.3 billion people", *New Perspectives Quarterly*, Vol. 13, 4: 32-33.
- Stark, D., Vedres, B. (2001) "Pathways of property transformation: Enterprise network careers in Hungary 1988-2000", *Outline of Analytic Strategy*.
- Stark, R., Bainbridge, W.S. (1980) "Networks of faith: Interpersonal bonds and recruitment to cults and sects", *American Journal of Sociology*, 85: 1376-95.
- Steiber, S.R. (1979) "The world system and world trade: an empirical exploration of conceptual conflicts", *Sociological Quarterly*, 20: 23-36.
- Steingart, G. (2008) *The War for Wealth: The True Story of Globalization*, McGraw-Hill.
- Stephenson, H. (1972) *The Coming Clash: the Impact of the International Corporation on the Nation State*, London: Weidenfeld and Nicolson.
- Stiglitz, J. (2002) *Globalization and its Discontents*, London: Allen Lane.
- Stiglitz, J. (2006) *Making Globalization Work: The Next steps to Global Justice*, Allen Lane.
- Stiglitz, J. (2008) *Moving Beyond Market Fundamentalism to a More Balanced Economy*, Presentation at International Congress Center, Sevilla, September 2008.
- Stoker, G. (1998) "Governance as theory: Five propositions", *International Social Science Journal*, 155: 17-28.
- Strong, K., Weber, J. (2004) "Embedded cultural values and international transaction cost advantages", *International Journal of Value Based Values*, 7 (3): 207-218.
- Stuckler, D., King, L., McKee, M. (2009) "Mass privatisation and the post-communist mortality crisis: a cross-national analysis", *The Lancet*, Early Online Publication, 15 January 2009, available on [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(09\)60005-2/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(09)60005-2/fulltext), accessed on 15 January, 2009.
- Sullivan, D. (1994) "Measuring the degree of internationalization of a firm", *Journal of International Business Studies*, 25(2): 325-342.
- Sullivan, J. (2002) *The Future of Corporate Globalization; From the Extended Order to the Global Village*, Guorum Books.
- Swann, D. (1988) *The Retreat of the State: Deregulation and Privatisation in the UK and US*, London, New York, Toronto, Sydney, Tokyo: Harvester.
- Tavares, A., Teixeira, A. (2006) *Multinationals, Clusters and Innovation: Does Public Policy Matter?* Palgrave Macmillan.
- Teece, D. (1977) "Technology transfer by multinational firms: The resource costs of transferring technological know-how", *Economic Journal*, 87: 242-61.

- Teece, D., Pisano, G., Shuen (1997) "A dynamic capabilities and strategic management", in Foss, N. (Ed.) *Resources, Firms and Strategies, A Reader in the Resource-Based Perspective*.
- Tepperman, L. (1988) "Collective mobility and the persistence of dynasties", in Wellman and Berkowitz (Eds.) *Social Structures: A Network Approach*, Cambridge: Cambridge University Press, pp. 405-429.
- Terpstra, V., David, K. (1991) *The Cultural Environment of International Business*, Cincinnati: South-Western Publications.
- The Welfare Impact of British Privatisation, 1979-1997, Papers and Proceedings, First Milan European Economy Workshop, Milan, June, 2002.
- Therborn G. (2000) "Globalisation", *International Sociology*, 15(2): 151-79.
- Thomas, R.W., Huggett, R. J. (1980) *Modeling in Geography: A Mathematical Approach*, London: Harper & Row.
- Thomas, S. (2008) "Energy", Chapter in *Poor Choices: The Limits of Competitive Markets in the Provision of Essential Services to Low Income Consumers (2008)* Energywatch, pp. 211-279.
- Thomsen, S. (2005) *Encouraging Public-Private Partnerships in the Utilities Sector: The Role of Development Assistance*, Research Paper for OECD Conference "Investment for African Development: Making it Happen".
- Tichy, N. M., Tushman, M. L., Fombrun, C. (1979) "Social network analysis for organizations", *Academy of Management Review*, 4(4): 507-519.
- Tickell, A., Peck, J. (2003) "Making global rules: globalization or liberalisation?" in Jamie Peck and Henry Wai-chung Yeung (Eds.) *Remaking the Global Economy*, London: Sage.
- Tilly, C. (1988) Misreading, then reading, nineteenth-century social change, in Wellman and Berkowitz (Eds.) *Social Structures: A Network Approach*, Cambridge: Cambridge University Press, pp. 332-358.
- Toffoli, T. (1987) *Cellular Automata Machines: A New Environment for Modeling*, Cambridge: MIT Press.
- Torsvik, P. (Ed.) (1981) *Mobilisation Center-Periphery Structures and Nation Building*, Universitetsforlaget.
- Transnational Corporations and World Development (1996)* International Thomson Business Press.
- Travers, J., Milgram, S. (1969) "An experimental study of the small world problem", *Sociometry*, 32: 425-443.
- Trkulja, J. (2005) *Geographic Factors as Determinants of Foreign Direct Investment in Eastern Europe's Transitioning Economies*, Thesis, Macalester College.
- Tugendhat, C. (1972) *The Multinationals*, Harmondsworth: Penquin Books.
- Turk, Herman (1970) "Interorganizational networks in urban society: Initial perspectives and comparative research", *American Sociological Review*, 35: 1-20.



- Tusicisny, A. (2004) "Civilisational Conflicts: More Frequent, Longer, and Bloodier", *Journal of Peace Research*, 41 (4): 485–498.
- Uehara, E. (1990) "Dual exchange theory, social networks, and informal social support", *American Journal of Sociology*, 96: 521-57.
- UNCTAD (2000) *Least Developed Countries 1999 Report*, Geneva: United Nations Conference on Trade and Development.
- United Nations Conference on Trade and Development (1997) *World Investment Report 1997: Transnational Corporations, Market structure and competition Policy*, United Nations.
- Urwin, D.W., Rokkan, S. (1982) *Politics of Territorial Identity: Studies in European Regionalism*, London: Sage Publications.
- Urwin, W. D., Eisenstadt, S.N. (1981) "Cultural orientation and center-periphery in Europe in a comparative perspective", in Torsvik, P. (Ed.) *Mobilizing Center-Periphery Structures and Nation Building*, Universitetsforlaget.
- Usher, D. (1977) "The economics of tax incentives to encourage investment in developing countries", *Journal of Development Economics*, June, pp. 119-161.
- Uzzi, B. (1997) "Social structure and competition in interfirm networks: the paradox of embeddedness", *Administrative Science Quarterly*, 42(1): 35-67.
- Van Beers, C. (1998) "Labor standards and trade flows of OECD countries", *The World Economy*, 21(1).
- Varge, E., Mendelsohn, L. (1940) *New Data for V.I.Lenin's Imperialism*, New York: International Publishers.
- Vedres, B. (1997) "The constellations of economic power: The position of political actors, banks and large corporations in the network of directorate interlocks in Hungary", *Connections*, 23(1): 44-59.
- Veltz, P. (1996) *Mondialisation, Villes at Territoires: L'Economie d'Archipel*, Paris, Presses Universitaires de France.
- Veltz, P. (1997) "The dynamics of production systems, territories and cities", in Moulavey, F., Scott, A. (Eds.) *Cities, Enterprises and Society on the Eve of the 21<sup>st</sup> Century*, London: Pinter.
- Venables, A. (1995) "Economic integration and the location of firms", *American Economic Review Papers and Proceedings*, 85(2): 296-300.
- Vernon, R. (1966) "International investment and international trade in the product cycle", *Quarterly Journal of Economics*, 80: 190-207.
- Vickers, J., Wright, V. (1989) *The Politics of Privatisation in Western Europe*, London: Frank Cass.
- Vickers, J., Yarrow, G. (1988) *Privatisation: An Economic Analysis*, Cambridge and London: The MIT Press.
- Wade, R. (1996) "Globalisation and its limits: Reports of the death of the national economy are greatly exaggerated", in Berger, S, Dore, R. (Eds.) *National Diversity and Global Capitalism*, London: Sage, pp. 99-114.

- Wade, R. (2004) "Is globalisation reducing poverty and inequality?" *World Development*, Vol. 32, 4: 567-89.
- Wallerstein, I. (1979) *The Capitalist World-Economy*, Cambridge: Cambridge University Press.
- Wallerstein, I. (1980) "The future of the capitalist world system", in Hopkins & Wallerstein (Eds.) *Processes of the World-System*, Beverly Hills: Sage Publications.
- Wallerstein, I. (1984) "Three instances of hegemony in the history of the world economy", *International Journal of Comparative Sociology*, 24 (1-2): 100-108.
- Wallerstein, I.M. (1974) *The Modern World System: Capitalist Agriculture and the Origins of the European World Economy in the 16th Century*, New York: Academic Press.
- Wasserman, S., Faust, K. (1994) *Social Network Analysis: Methods and Applications*, Cambridge: Cambridge University Press.
- Waters, M. (1995) *Globalisation*, London and New York: Routledge.
- Weber, M. (1978) *Economy and Society*, Berkeley: University of California Press.
- Weiss, L. (1997) "Globalization and the myth of powerless state", *New Left Review*, 225: 3-27.
- Wellman, B. (1979) "The community question: The intimate networks of East Yorkers", *American Journal of Sociology*, 84: 1201-31.
- Wellman, B. (1988) "Networks as personal communities", in Wellman and Berkowitz (Eds.) *Social Structures: A Network Approach*, New York: Cambridge University Press, pp. 130-184.
- Wellman, B. (1988) "Structural analysis: From method and metaphor to theory and substance", in Wellman and Berkowitz (Eds.) *Social structures: A Network Approach*, Cambridge: Cambridge University Press, pp. 19-61.
- Wellman, B., Berkowitz, S.D. (1988) "Introduction: Studying social structures", in Wellman and Berkowitz (Eds.) *Social Structures: A Network Approach*, Cambridge: Cambridge University Press, pp. 1-14.
- Wellman, B., Berkowitz, S.D. (Eds.) (1988) *Social Structures: A Network Approach*, Cambridge: Cambridge University Press.
- Wellman, B., Carrington, P.J., Hall, A. (1988) "Networks as personal communities", in Wellman and Berkowitz (Eds.) *Social Structures: A Network Approach*, Cambridge: Cambridge University Press, pp. 130-184.
- Wellman, B., Scot Wortley (1990) "Different strokes from different folks: Community ties and social support," *American Journal of Sociology*, 96: 558-88.
- Westlake, J. (2009) *Chapters on the Principles of International Law*, Bibliobazaar, first published in 1894.
- White, D.R., McCann, H.G. (1988) "Cites and fights: Material entailment analysis of the eighteenth-century chemical revolution", in Wellman and Berkowitz (Eds.) *Social Structures: A Network Approach*, Cambridge: Cambridge University Press, pp. 359-379.

- White, H. (1988) "Varieties of markets", in Wellman and Berkowitz (Eds.) *Social Structures: A Network Approach*, Cambridge: Cambridge University Press, pp. 226-260.
- White, H., Boorman, S., Breiger, R. (1976) "Social structure from multiple networks: Blockmodels of roles and positions", *American Journal of Sociology*, 81: 730-780.
- Whitfield, D. (2001) *Public Services Or Corporate Welfare? Rethinking the Nation State in the Global Economy*, Sterling VA, London: Pluto Press.
- Williams, P., Christman, L. (1993) *Colonial Discourse and Post-Colonial Theory: A Reader*, New York: Columbia University Press.
- Williamson, J. (1994) *The Political Economy of Policy Reforms*, Washington: Institute for International Economics.
- Williamson, O. (1975) *Markets and Hierarchies: Analysis and Antitrust Implications*, NY: The Free Press.
- Williamson, O. (1979) "Transaction-cost economics: The governance of contractual relations", *The Journal of Law and Economics*, 22: 233-261.
- Williamson, O. (2000) "The new institutional economics: Taking stock, looking ahead", *Journal of Economic Literature*, Vol. 38 (3): 595-613.
- Wiltshire, K. (1987) *Privatisation: The British Experience*, Melbourne: Committee for Economic Development of Australia & Longman Cheshire.
- Winship, C. Mandel, M. (1983) "Roles and positions: A critique and extension of the blockmodeling approach", in Samuel Leinhardt (Ed.) *Sociological Methodology 1983-1984*, San Francisco: Jossey-Bass, pp. 314-344.
- Winter, S. (1987) "Knowledge and Competence as Strategic Assets", in Teece, D. (Ed.) *The Competitive Challenge: Strategies For Industrial Innovation and Renewal*, Harper and Bow.
- Wirth, M. (1977) "Towards a critique of state monopoly capitalism", *Economy and Society*, 3(3): 284-313.
- Wolf, M. (2004) *Why Globalisation Works: The Case for the Global Market Economy*, New Haven and London: Yale University Press.
- Wolfram, S. (1986) *Theory and Applications of Cellular Automata*, Singapore: World Scientific.
- Wood, E. (2002) *The Origin of Capitalism: A longer view*, London & New York: Verso.
- Woodward, N. (1988) "Managing` cultural change on privatisation", in Ramanadham, V. (Ed.) *Privatisation in the UK*, Routledge: London and New York.
- Woolf, L. (1921) *Economic Imperialism*, London: The Labour Publishing Co, Ltd.
- World Investment Report 2004: Shift towards Services, Geneva: United Nations.
- Wright, D. (1990) *A Study of the Employment Effects and Other Benefits of Collaboration between Multinational Enterprises and Small-Scale Enterprises*, Geneva: ILO.

- Wu, L. (1983) "Local blockmodel algebras for analyzing social networks", in Samuel Leinhardt (Ed.) *Sociological Methodology 1983-84*, San Francisco: Jossey-Bass, pp. 104-120.
- Yamagishi, T., Cook, K.S. (1993) "Generalized exchange and social dilemmas", *Social Psychology Quarterly*, 56: 235-48.
- Yamin, M. (1991) "A Reassessment of Hymer's Contribution to the Theory of the Transnational Corporation", in Pitelis, C., Sugden, R. (Eds.) *The Nature of the Transnational Firm*, London: Routledge.
- Yamin, M. (1996) "Understanding "strategic alliances": The limits of transaction cost economics", in Coombs, R., Saviotti, R.A., Walsh, V. (Eds.) *Technological Collaborations: The Dynamics of Cooperation in Industrial Innovation*, Cheltenham Edward Elgar.
- Young, R. (1990) *White Mythologies: Written History and the West*, London & New York: Routledge.
- Young, R. (1994) *Colonial Desire: Hybridity in Theory, Culture and Race*, London: Routledge.
- Young, R. (2003) *Postcolonialism: A Very Short Introduction*, Oxford: Oxford University Press.
- Young, S. (1987) "Business strategy and the internationalisation of business: Recent approaches", *Managerial and Decision Economics*, 6(1): 21-35.

### Internet Sources:

- Cato Institute (2006) *Definitions of Globalisation*, <http://www.cato.org.current/globalization/index.html> [October, 2006]
- Centrality & Prestige*, [http://www.soc.umn.edu/~knoke/pages/Centrality\\_and\\_Prestige.doc](http://www.soc.umn.edu/~knoke/pages/Centrality_and_Prestige.doc) [November, 2006].
- Corporate Actors*, <http://www.tni.org/books/yearb05corporations.pdf> [December, 2006].
- European Countries*, [http://europa.eu.int/abc/governments/index\\_en.htm#members](http://europa.eu.int/abc/governments/index_en.htm#members) [February, 2004].
- Freeman, L., White, D. (1993) "Using Galois Lattices to represent network data", *Sociological Methodology*, 23: 127-146, <http://eclectic.ss.uci.edu/~drwhite/usingGalois.htm> [December, 2006].
- Hanneman, R., Riddle, M. *Introduction to Social Network Methods*, <http://www.faculty.ucr.edu/~hanneman/nettext/> [March, 2007].
- <http://www.cbl.cees.edu/~ulan/ntwk/network.html> [September, 2002].
- <http://www.contrib.andrew.cmu.edu/~krack/mitchell.html> [September, 2002].
- <http://zeeb.library.cmu.edu:7850/JoSS/bonacich/Bonacich.htm> [October, 2002].



<http://zeeb.library.cmu.edu:7850/JoSS/images/fig27.gif> [December, 2002].

<http://zeeb.library.cmu.edu:7850/JoSS/images/fig32B.ppt> [December, 2002].

<http://zeeb.library.cmu.edu:7850/JoSS/lotharkrempel/index.html> [October, 2002].

*Journal of World-Systems Research*, <http://jwsr.ucr.edu/index.php> [December, 2006].

Klerks, P., Smeets, E. (1999) "The network paradigm applied to criminal organisations: Theoretical nitpicking or a relevant doctrine for investigators? Recent developments in the Netherlands", *Connections*, 24(3): 53-65, <http://www.insna.org/Connections-Web/Volume24-3/Klerks.web.pdf> [November, 2006].

*Mutlinet*, <http://www.sfu.ca/~richards/Multinet/Pages/multinet.htm> [December, 2006].

*Negopy*, <http://www.sfu.ca/~richards/Pages/negopy.htm> [December, 2006].

*PSIRU Reports*, <http://www.psiru.org/publicationsindex.asp> [June, 2006].

*PSIRU*, <http://www.psiru.org> [December, 2006].

*Social Structure*, [http://www.sociology.ohio-state.edu/jwm/presentations/soc\\_Struc\\_II.ppt#22](http://www.sociology.ohio-state.edu/jwm/presentations/soc_Struc_II.ppt#22) [August, 2006].

Stark, D., Vedres, B. (2001) *Pathways of Property Transformation: Enterprise Network Careers in Hungary, 1989-2000*, <http://www.socialnetwork.hu/cikkek/pathways.pdf> [November, 2006].

*World Atlas: Maps and Geography of the World*, <http://geography.about.com/library/maps/blindex.htm> [December, 2006].

## APPENDICES

### *Appendix 1 Companies under Study (Electricity Sector)*

<b>Parent Group</b>	<b>Country</b>	<b>Company</b>	<b>Country</b>
AEP	USA	AEP (Philippines)	Philippines
AEP	USA	ARTO	USA
AEP	USA	Citipower	Australia
AEP	USA	CSW	USA
AEP	USA	Pacific Hydro	Australia
AEP	USA	Pushan Power Plant	China
AES	USA	AES (Kazakhstan)	Kazakhstan
AES	USA	AES (Puerto Rico)	PuertoRico
AES	USA	AES (San Nicolás)	Argentina
AES	USA	AES Electric	UK
AES	USA	AES Honduras	Honduras
AES	USA	AES Kelanitissa (Private) Limited	SriLanka
AES	USA	AES Parana	Argentina
AES	USA	Batty	UK
AES	USA	Borsod	Hungary
AES	USA	CEMIG	Brazil
AES	USA	CESCO	India
AES	USA	CLESA	ElSalvador
AES	USA	Destec (Australia)	Australia
AES	USA	Destec (Germany)	Germany
AES	USA	Destec (UK)	UK
AES	USA	Drax Power	UK
AES	USA	Ecogen	Australia
AES	USA	EDEES	DominicanRepublic
AES	USA	Edelap	Argentina
AES	USA	Eden	Argentina
AES	USA	Edes	Argentina
AES	USA	EGE Bayano	Panama
AES	USA	EGE Chiriqui	Panama
AES	USA	Ekibastuz	Kazakhstan
AES	USA	Electropaulo	Brazil
AES	USA	Fifoots Point	UK
AES	USA	Gener	Chile
AES	USA	Hefei Prosperity Lake	China
AES	USA	Jiaozuo Aluminum Power	China
AES	USA	Kilroot	UK
AES	USA	Leninorgorsk	Kazakhstan
AES	USA	Maritza Iztock	Bulgaria
AES	USA	Medway	UK
AES	USA	Mt. Stuart	Australia
AES	USA	OPG	India
AES	USA	Quebrada de Ullum	Argentina
AES	USA	Rio Juramento	Argentina
AES	USA	San Juan (Argentina)	Argentina

AES	USA	Silk Road (distribution)	Kazakhstan
AES	USA	Sul	Brazil
AES	USA	Tau Power	Kazakhstan
AES	USA	Tau Power/Altai	Kazakhstan
AES	USA	Telasi	Georgia
AES	USA	Tiete	Brazil
AES	USA	Tiszai Eromu	Hungary
AES	USA	Tiszai Eromu II	Hungary
AES	USA	Uruguaiana	Brazil
AES	USA	Wuhu Grassy	China
AES	USA	Yangcheng Sun City	China
Aquila	USA	Midlands Electricity	UK
BG	UK	British Gas (power)	UK
BG	UK	Genting Sanyen Power	Malaysia
BG	UK	Premier Power	UK
Bowin Power	Thailand	Chonburi	Thailand
Centrica	UK	Energy America	USA
CFLCL	Brazil	Energipe	Brazil
CHILECTRA	Chile	Costanera	Argentina
CHILECTRA	Chile	Edesur	Argentina
Chubu Electric	Japan	UPDC	Thailand
Cinergy	USA	Czechpol Energy	CzechRepublic
Cinergy	USA	Midlands Electricity	UK
CLP	HongKong	CLP&Powergen	HongKong
CLP	HongKong	Egco	Thailand
CLP	HongKong	Ho Ping	Taiwan
CLP	HongKong	Mangalore power project	India
CLP&Powergen	HongKong	BLCP	Thailand
CLP&Powergen	HongKong	GPEC	India
CLP&Powergen	HongKong	Yallourn Energy	Australia
CMS Energy	USA	Al Taweelah A2	UAE
CMS Energy	USA	AMATA-EGCO (Thailand)	Thailand
CMS Energy	USA	Arroyito	Argentina
CMS Energy	USA	CPEE	Brazil
CMS Energy	USA	CT Mendoza	Argentina
CMS Energy	USA	El Chocon	Argentina
CMS Energy	USA	Ensenada	Argentina
CMS Energy	USA	GMR Vasavi	India
CMS Energy	USA	GVK	India
CMS Energy	USA	Jamaica Private Power	Jamaica
CMS Energy	USA	Jorf Lasfar	Morocco
CMS Energy	USA	Loy Yang A	Australia
CMS Energy	USA	National Power Supply	Thailand
CMS Energy	USA	Neyveli	India
CMS Energy	USA	SENECA	Venezuela
CMS Energy	USA	Takoradi II	Ghana
CMS Energy	USA	Takoradi Power	Ghana
CMS Energy	USA	TIDCO	India
CMS Energy	USA	Toledo Power	Philippines
CMS Energy	USA	YPF-La Plata	Argentina
Costanera	Argentina	CBA	Argentina
CPFL	Brazil	RGE	Brazil

CSW	USA	Altamira	Mexico
CSW	USA	Altamira	Mexico
CSW	USA	CSW (USA)	USA
CSW	USA	SEEBOARD	UK
CSW	USA	Vale	Brazil
Destec (UK)	UK	Destec (Netherlands)	Netherlands
Destec (UK)	UK	Indian Queens	UK
Destec (UK)	UK	Kingston	Canada
Destec (UK)	UK	Los Mina	Dominican Republic
Dominion	USA	ARTO	USA
Duke Energy	USA	Duke Power Co.	USA
EdF	France	ATEL	Switzerland
EDF	France	Azito	Coted'Ivoire
EDF	France	Dalkia Holding	France
EdF	France	Demasz	Hungary
EdF	France	Edasz	Hungary
EdF	France	Edenor	Argentina
EDF	France	EdF (Suez)	Egypt
EdF	France	Granninge	Sweden
EDF	France	Gz	France
EDF	France	Rybnik Power	Poland
EDF	France	Sutton Bridge Power	UK
Edison International	USA	Ecoelectrica	Puerto Rico
Edison International	USA	Majuba Power	South Africa
Edison International	USA	Mission Energy	UK
EdP	Portugal	Eegsa	Guatemala
EdP	Portugal	Iberdrola	Spain
EdP	Portugal	INVESTCO	Brazil
EdP	Portugal	REN	Portugal
El Paso Corporation	USA	EPG	USA
Elsam	Denmark	IVO/Elsam	Germany
Endesa	Spain	CODENSA	Colombia
Endesa	Spain	Costanera	Argentina
Endesa	Spain	EDELNOR	Peru
Endesa	Spain	EMGESA	Colombia
Endesa	Spain	ENERSIS	Chile
Endesa	Spain	NRE	Netherlands
Endesa Chile	Chile	San Isidro	Chile
Endesa Chile	Chile	Taltal Power	Chile
ENERSIS	Chile	CHILECTRA	Chile
ENERSIS	Chile	CODENSA	Colombia
ENERSIS	Chile	Costanera	Argentina
ENERSIS	Chile	Edesur	Argentina
ENERSIS	Chile	EMGESA	Colombia
ENERSIS	Chile	Endesa Chile	Chile
ENI	Italy	Enipower	Italy
Enron	USA	Bahia las Minas	Panama
Enron	USA	Calife	Venezuela
Enron	USA	Cuiaba	Brazil
Enron	USA	ECEA	Argentina
Enron	USA	Ecoelectrica	Puerto Rico
Enron	USA	Elektro	Brazil



Enron	USA	Enron (China)	China
Enron	USA	Enron (Italy)	Italy
Enron	USA	Enron (Nepal)	Nepal
Enron	USA	Enron (Nigeria)	Nigeria
Enron	USA	Enron (Palestine)	Israel
Enron	USA	Enron (Philippines)	Philippines
Enron	USA	Enron (Spain)	Spain
Enron	USA	Enron Development Piti	Philippines
Enron	USA	Enron Europe	UK
Enron	USA	Enron Gaza	Palestine
Enron	USA	Enron Power	UK
Enron	USA	Enron Servios	Brazil
Enron	USA	Enron Wind Corp	USA
Enron	USA	Enron/UES	Russia
Enron	USA	ENS	Poland
Enron	USA	Kraftwerk Bitterfeld	Germany
Enron	USA	Portland General Electric	USA
Enron	USA	Puerto Plata	Dominican Republic
Enron	USA	Puerto Quetzal	Guatemala
Enron	USA	Sarlux JMV	Italy
Enron	USA	Tractebel (Monterey)	Mexico
Enron Power	UK	Teeside Power	UK
Entergy	USA	Central Buenos Aires	Argentina
Entergy	USA	Costanera	Argentina
Entergy	USA	Damhead Creek	UK
Entergy	USA	Entergy-BP	UK
Entergy	USA	Hub River	Pakistan
Entergy	USA	Maritza East III	Bulgaria
Entergy	USA	Saltend	UK
Entergy	USA	San Isidro	Chile
eon	Germany	Edasz	Hungary
Eon	Germany	Powergen	UK
Eon	Germany	Ruhrgas	Germany
Eon	Germany	Vychodoceske Energetika	Czech Republic
EPG	USA	CBA	Argentina
EPG	USA	Costanera	Argentina
EPG	USA	East Asia Power	Philippines
EPG	USA	ECKG	Czech Republic
EPG	USA	EECL	UK
EPG	USA	Ema Power	Hungary
EPG	USA	Fauji Kabirwala	Pakistan
EPG	USA	Fife Power	UK
EPG	USA	Haripur Power	Bangladesh
EPG	USA	Manaus Power	Brazil
EPG	USA	PPN	India
EPG	USA	Rio Negro Power	Brazil
EPG	USA	Samalayuca Power	Mexico
EPSA	Colombia	CET	Colombia
FirstEnergy	USA	Brooklyn	Canada
FirstEnergy	USA	CRISA	Spain
FirstEnergy	USA	EGSA	Bolivia
FirstEnergy	USA	Emdersa	Argentina

FirstEnergy	USA	Energis (Portugal)	Portugal
FirstEnergy	USA	MICDOS	Spain
FirstEnergy	USA	Midlands Electricity	UK
FirstEnergy	USA	Pinamucan	Philippines
FirstEnergy	USA	Termobarranquilla	Colombia
FirstEnergy	USA	Trakya	Turkey
FirstEnergy	USA	Uch	Pakistan
FondElec	USA	CFLCL	Brazil
Fortum	Finland	Fingrid	Finland
Fortum	Finland	Grangemouth CHP	UK
Fortum	Finland	Gullspang Kraft	Sweden
Fortum	Finland	IVO (Finland)	Finland
Fortum	Finland	IVO/Elsam	Germany
Fortum	Finland	Karlskoga Energi & Miljö	Sweden
Fortum	Finland	Kinnekulle Energi	Sweden
Fortum	Finland	Läänemaa Elektrivõrk	Estonia
Fortum	Finland	UPDC	Thailand
GdF	France	MEG International	Canada
Grupo Gloria	Peru	Hidrandina	Peru
Guaraniana	Brazil	Coelba	Brazil
Hafslund	Norway	SKS Espana	Spain
Hong Kong Electric	HongKong	UPDC	Thailand
H-Power	Thailand	Bowin Power	Thailand
H-Power	Thailand	Industrial Power	Thailand
Hydro-Quebec	Canada	MEG International	Canada
Hydro-Quebec	Canada	SOGEL	Guinea
Hydro-Quebec	Canada	Vivendi Environnement (Tangiers)	Morocco
Iberdrola	Spain	Cosern	Brazil
Iberdrola	Spain	EdP	Portugal
Iberdrola	Spain	Eegsa	Guatemala
Iberdrola	Spain	Electropaz	Bolivia
Iberdrola	Spain	Enipower	Italy
Iberdrola	Spain	Guaraniana	Brazil
International Power	UK	EOP	CzechRepublic
International Power	UK	Kot Addu	Pakistan
International Power	UK	Malakoff	Malaysia
International Power	UK	Pelican Point	UK
International Power	UK	PT Tanjung Jati	Indonesia
International Power	UK	TNP	Thailand
International Power	UK	Whitegate	Ireland
Inversora Electrica Andina	Chile	Electroandina	Chile
MEC	USA	Northern Electric	UK
MEC	USA	Teeside Power	UK
MEC	USA	Yorkshire Electricity	UK
Mission Energy	UK	First Hydro	UK
Mission Energy	UK	Gulf Power	Thailand
Mission Energy	UK	Tri Energy	Thailand
National Grid	UK	CEC	Zambia
National Grid	UK	Citelec	Argentina
National Grid	UK	Granite State Electric Company	USA
National Grid	UK	Massachusetts Electric Company	USA

National Grid	UK	Narragansett Electric Company	USA
National Grid	UK	National Grid (Karnataka)	India
National Grid	UK	National Grid (Pakistan)	Pakistan
National Grid	UK	NEES	USA
National Grid	UK	New England Power Company	USA
NRG	USA	Aguaytia	Peru
NRG	USA	Alto Cachapoal	Chile
NRG	USA	Cahua	Peru
NRG	USA	Cobee	Bolivia
NRG	USA	Collinsville	Australia
NRG	USA	Csepel	Hungary
NRG	USA	Dr. Bird	Jamaica
NRG	USA	ECKG	CzechRepublic
NRG	USA	EDL	Australia
NRG	USA	EECL	UK
NRG	USA	Elcosa	Honduras
NRG	USA	Energia Pacasmayo	Peru
NRG	USA	Flinders	Australia
NRG	USA	Gladstone	Australia
NRG	USA	Loy Yang A	Australia
NRG	USA	NRG (Colombia)	Colombia
NRG	USA	NRG (West Java)	Indonesia
NRG	USA	PGC	Canada
NUON	Netherlands	Blyth Offshore	UK
NUON	Netherlands	NUON (China)	China
Pacific Gas & Electric	USA	US Gen	USA
Powergen	UK	Blyth Offshore	UK
Powergen	UK	CLP&Powergen	HongKong
Powergen	UK	East Midlands Electricity	UK
Powergen	UK	GTEC	India
Powergen	UK	Powergen International	UK
Powergen	UK	TPG Wind Ltd	UK
Powergen	UK	YCL	UK
Reliant Energy	USA	CORELCA	Colombia
Reliant Energy	USA	EDESE	Argentina
Reliant Energy	USA	EPSA	Colombia
Reliant Energy	USA	Houston (El Salvador)	ElSalvador
Ruhrgas	Germany	Gazprom	Russia
RWE	Germany	ATEL	Switzerland
RWE	Germany	Elmu	Hungary
RWE	Germany	Emasz	Hungary
RWE	Germany	Matra	Hungary
RWE	Germany	Mosenergo	Russia
RWE	Germany	PRE Holding	CzechRepublic
RWE	Germany	RWE (Antwerp)	Belgium
RWE	Germany	RWE (Pescara)	Italy
RWE	Germany	RWE Energie	Germany
SAUR	France	EDM	Mali
SAUR	France	SOGEL	Guinea
Scottish Power	UK	Manweb	UK
Scottish Power	UK	Scottish Power (UK)	UK
Southern Company	USA	CEMIG	Brazil

Southern Company	USA	CEPA (China)	China
Southern Company	USA	CEPA (Philippines)	Philippines
Southern Company	USA	Edenor	Argentina
Southern Company	USA	Toledo Power	Philippines
Southern Company	USA	UPDC	Thailand
Southern Company	USA	WPD	UK
Suez	France	Tractebel	Belgium
SWALEC	UK	Teeside Power	UK
SWEB	UK	Teeside Power	UK
Tomen	Japan	Enron Development Piti	Philippines
Tomen	Japan	PT Tanjung Jati	Indonesia
Tomen	Japan	UPDC	Thailand
Tomen	Japan	UPDC	Thailand
Tractebel	Belgium	APC	Kazakhstan
Tractebel	Belgium	Cana Brava	Brazil
Tractebel	Belgium	Enersur	Peru
Tractebel	Belgium	Ennis Power Station	USA
Tractebel	Belgium	Generg	Portugal
Tractebel	Belgium	Gerasul	Brazil
Tractebel	Belgium	H-Power	Thailand
Tractebel	Belgium	Inversora Electrica Andina	Chile
Tractebel	Belgium	Tractebel (Monterey)	Mexico
Tractebel	Belgium	West Windsor Power	Canada
Tractebel	Belgium	Wise County Power	USA
Transalta	Canada	Parkeston Power	Australia
Transalta	Canada	Southern Cross	Australia
Transalta	Canada	Southern Cross II	Australia
Transalta	Canada	Transalta New Zealand	NewZealand
Transalta New Zealand	NewZealand	Transalta (Auckland)	NewZealand
Transalta New Zealand	NewZealand	Transalta (Taranaki)	NewZealand
TXU	USA	Texas Utilities (China)	China
TXU	USA	TU Electric	USA
TXU	USA	TXU Electric Ltd	Australia
TXU	USA	TXU Nordic Energy Oy	Finland
Union Fenosa	Spain	Chiriqui	Panama
Union Fenosa	Spain	EDEN (Dominican)	DominicanRepublic
Union Fenosa	Spain	EDES (Dominican)	DominicanRepublic
Union Fenosa	Spain	Energias Especiales	Spain
Union Fenosa	Spain	Guatemala Distribuidores	Guatemala
Union Fenosa	Spain	Iberafrica-Power	Kenya
Union Fenosa	Spain	Meralco	Philippines
Union Fenosa	Spain	Metro-oeste	Panama
Union Fenosa	Spain	Red Chisinau	Moldova
Union Fenosa	Spain	TDE	Bolivia
Union Fenosa	Spain	Union Fenosa (Ecuador)	Ecuador
Union Fenosa	Spain	Union Fenosa (South Africa)	SouthAfrica
Union Fenosa	Spain	Union Fenosa ACEX (Mexico)	Mexico
Union Fenosa	Spain	Union Fenosa Generacion	Spain
		Inversora Electrica de Buenos Aires	Argentina
United Utilities	UK	Norweb distribution	UK
United Utilities	UK	Norweb International	UK

Vattenfall	Sweden	Gornoslaski Zaklad	Poland
Vattenfall	Sweden	Hafslund	Norway
Vattenfall	Sweden	Heinola Energia	Finland
Vattenfall	Sweden	Keski-Suomen Valo	Finland
Vattenfall	Sweden	Nouukoping Energi	Sweden
Vattenfall	Sweden	Revon Sahko	Finland
Vattenfall	Sweden	Vasa Energy	Germany
Vattenfall	Sweden	Vattenfall (Sverige)	Sweden
VBC	Brazil	CPFL	Brazil
VBC	Brazil	RGE	Brazil
Vivendi	France	Vivendi Environnement	France
Vivendi Environnement	France	Dalkia Holding	France
Vivendi Environnement	France	Vivendi Environnement (Tangiers)	Morocco
Xcel Energy	USA	NRG	USA
YTL	Malaysia	YTL Power	Malaysia
YTL Power	Malaysia	Electranet	Australia



## Appendix 2 Centralities

### Appendix 2.1 Symmetrical Centralities for Electricity Sector

Diagonal valid? NO  
 Model: SYMMETRIC  
 Input dataset: D:\pv\Internationalisation of Public  
 Utilities\INPUTS\inputElandE

		1	2	3
		Degree	NrmDegree	Share
68	USA	48.000	69.565	0.179
59	Spain	20.000	28.986	0.075
67	UK	17.000	24.638	0.063
21	France	13.000	18.841	0.049
4	Belgium	11.000	15.942	0.041
23	Germany	11.000	15.942	0.041
8	Canada	8.000	11.594	0.030
20	Finland	6.000	8.696	0.022
64	Thailand	6.000	8.696	0.022
1	Argentina	5.000	7.246	0.019
9	Chile	5.000	7.246	0.019
61	Sweden	5.000	7.246	0.019
28	HongKong	5.000	7.246	0.019
55	Portugal	5.000	7.246	0.019
6	Brazil	4.000	5.797	0.015
2	Australia	4.000	5.797	0.015
13	CzechRepublic	3.000	4.348	0.011
45	Netherlands	3.000	4.348	0.011
52	Peru	3.000	4.348	0.011
11	Colombia	3.000	4.348	0.011
25	Guatemala	3.000	4.348	0.011
31	Indonesia	3.000	4.348	0.011
54	Poland	3.000	4.348	0.011
41	Mexico	3.000	4.348	0.011
43	Morocco	3.000	4.348	0.011
53	Philippines	3.000	4.348	0.011
29	Hungary	3.000	4.348	0.011
36	Japan	3.000	4.348	0.011
30	India	3.000	4.348	0.011
15	DominicanRepublic	3.000	4.348	0.011
34	Italy	3.000	4.348	0.011
5	Bolivia	2.000	2.899	0.007
10	China	2.000	2.899	0.007
51	Panama	2.000	2.899	0.007
62	Switzerland	2.000	2.899	0.007
37	Kazakhstan	2.000	2.899	0.007
58	SouthAfrica	2.000	2.899	0.007
57	Russia	2.000	2.899	0.007
49	Pakistan	2.000	2.899	0.007
48	Norway	2.000	2.899	0.007
39	Malaysia	2.000	2.899	0.007
26	Guinea	2.000	2.899	0.007
12	Coted'Ivoire	1.000	1.449	0.004
42	Moldova	1.000	1.449	0.004
3	Bangladesh	1.000	1.449	0.004
46	NewZealand	1.000	1.449	0.004
35	Jamaica	1.000	1.449	0.004
40	Mali	1.000	1.449	0.004

14	Denmark	1.000	1.449	0.004
50	Palestine	1.000	1.449	0.004
16	Ecuador	1.000	1.449	0.004
17	Egypt	1.000	1.449	0.004
18	ElSalvador	1.000	1.449	0.004
19	Estonia	1.000	1.449	0.004
38	Kenya	1.000	1.449	0.004
56	PuertoRico	1.000	1.449	0.004
22	Georgia	1.000	1.449	0.004
7	Bulgaria	1.000	1.449	0.004
24	Ghana	1.000	1.449	0.004
60	SriLanka	1.000	1.449	0.004
44	Nepal	1.000	1.449	0.004
27	Honduras	1.000	1.449	0.004
63	Taiwan	1.000	1.449	0.004
47	Nigeria	1.000	1.449	0.004
65	Turkey	1.000	1.449	0.004
66	UAE	1.000	1.449	0.004
32	Ireland	1.000	1.449	0.004
33	Israel	1.000	1.449	0.004
69	Venezuela	1.000	1.449	0.004
70	Zambia	1.000	1.449	0.004

## Appendix 2.2 Non Symmetrical Centralities for Electricity Sector

FREEMAN'S DEGREE CENTRALITY MEASURES

-----  
 Diagonal valid? NO  
 Model: ASYMMETRIC  
 Input dataset: D:\pv\Internationalisation of Public  
 Utilities\INPUTS\inputElandE

		1	2	3	4
		OutDegree	InDegree	NrmOutDeg	NrmInDeg
		-----	-----	-----	-----
68	USA	47.000	2.000	68.116	2.899
59	Spain	18.000	3.000	26.087	4.348
67	UK	14.000	5.000	20.290	7.246
21	France	13.000	0.000	18.841	0.000
4	Belgium	9.000	2.000	13.043	2.899
23	Germany	7.000	4.000	10.145	5.797
20	Finland	5.000	2.000	7.246	2.899
8	Canada	4.000	4.000	5.797	5.797
61	Sweden	4.000	2.000	5.797	2.899
28	HongKong	4.000	1.000	5.797	1.449
55	Portugal	3.000	3.000	4.348	4.348
36	Japan	3.000	0.000	4.348	0.000
45	Netherlands	2.000	2.000	2.899	2.899
9	Chile	2.000	3.000	2.899	4.348
39	Malaysia	1.000	1.000	1.449	1.449
14	Denmark	1.000	0.000	1.449	0.000
48	Norway	1.000	1.000	1.449	1.449
12	Coted'Ivoire	0.000	1.000	0.000	1.449
19	Estonia	0.000	1.000	0.000	1.449
3	Bangladesh	0.000	1.000	0.000	1.449
17	Egypt	0.000	1.000	0.000	1.449
2	Australia	0.000	4.000	0.000	5.797
6	Brazil	0.000	4.000	0.000	5.797
7	Bulgaria	0.000	1.000	0.000	1.449
25	Guatemala	0.000	3.000	0.000	4.348
18	ElSalvador	0.000	1.000	0.000	1.449
27	Honduras	0.000	1.000	0.000	1.449
11	Colombia	0.000	3.000	0.000	4.348
29	Hungary	0.000	3.000	0.000	4.348
5	Bolivia	0.000	2.000	0.000	2.899
31	Indonesia	0.000	3.000	0.000	4.348
15	DominicanRepublic	0.000	3.000	0.000	4.348
16	Ecuador	0.000	1.000	0.000	1.449
34	Italy	0.000	3.000	0.000	4.348
35	Jamaica	0.000	1.000	0.000	1.449
1	Argentina	0.000	5.000	0.000	7.246
37	Kazakhstan	0.000	2.000	0.000	2.899
30	India	0.000	3.000	0.000	4.348
22	Georgia	0.000	1.000	0.000	1.449
40	Mali	0.000	1.000	0.000	1.449
41	Mexico	0.000	3.000	0.000	4.348
42	Moldova	0.000	1.000	0.000	1.449
43	Morocco	0.000	3.000	0.000	4.348
44	Nepal	0.000	1.000	0.000	1.449
10	China	0.000	2.000	0.000	2.899
46	NewZealand	0.000	1.000	0.000	1.449
47	Nigeria	0.000	1.000	0.000	1.449
13	CzechRepublic	0.000	3.000	0.000	4.348
49	Pakistan	0.000	2.000	0.000	2.899
50	Palestine	0.000	1.000	0.000	1.449
51	Panama	0.000	2.000	0.000	2.899
52	Peru	0.000	3.000	0.000	4.348
53	Philippines	0.000	3.000	0.000	4.348

54	Poland	0.000	3.000	0.000	4.348
38	Kenya	0.000	1.000	0.000	1.449
56	PuertoRico	0.000	1.000	0.000	1.449
57	Russia	0.000	2.000	0.000	2.899
58	SouthAfrica	0.000	2.000	0.000	2.899
24	Ghana	0.000	1.000	0.000	1.449
60	SriLanka	0.000	1.000	0.000	1.449
26	Guinea	0.000	2.000	0.000	2.899
62	Switzerland	0.000	2.000	0.000	2.899
63	Taiwan	0.000	1.000	0.000	1.449
64	Thailand	0.000	6.000	0.000	8.696
65	Turkey	0.000	1.000	0.000	1.449
66	UAE	0.000	1.000	0.000	1.449
32	Ireland	0.000	1.000	0.000	1.449
33	Israel	0.000	1.000	0.000	1.449
69	Venezuela	0.000	1.000	0.000	1.449
70	Zambia	0.000	1.000	0.000	1.449

## Appendix 3 Densities for Continents

BLOCK DENSITIES OR AVERAGES

-----

Input dataset: C:\Program Files\Ucinet  
6\DataFiles\2007\Water\inpwaterandw2007

Row

Block	Old Code	Members:
-----	-----	-----
1	1	Belgium Bulgaria CzechRepublic France FrenchOverseasTerritories Germany Hungary Ireland Israel Italy Lithuania Netherlands Norway Poland Portugal Romania Russia Slovakia Slovenia Spain Sweden Switzerland Turkey UK
2	2	Armenia Bangladesh China HongKong India Indonesia Japan Jordan Korea Malaysia Philippines Singapore Thailand UAE VietNam
3	3	Canada Mexico USA
4	4	Argentina Belize Bolivia Brazil Chile Colombia Cuba DominicanRepublic Ecuador Panama Peru PuertoRico TrinidadandTobago Uruguay Venezuela
5	5	Australia NewZealand
6	6	Algeria BurkinaFaso Cameroon CapeVerde CentralAfricanRepublic Chad Congo Coted'Ivoire Djibouti Egypt Gabon Gambia Ghana Guinea Morocco Mozambique Nigeria Senegal SouthAfrica Tunisia Uganda Zimbabwe

Column

Block	Old Code	Members:
-----	-----	-----
1	1	Belgium Bulgaria CzechRepublic France FrenchOverseasTerritories Germany Hungary Ireland Israel Italy Lithuania Netherlands Norway Poland Portugal Romania Russia Slovakia Slovenia Spain Sweden Switzerland Turkey UK
2	2	Armenia Bangladesh China HongKong India Indonesia Japan Jordan Korea Malaysia Philippines Singapore Thailand UAE VietNam
3	3	Canada Mexico USA
4	4	Argentina Belize Bolivia Brazil Chile Colombia Cuba DominicanRepublic Ecuador Panama Peru PuertoRico TrinidadandTobago Uruguay Venezuela
5	5	Australia NewZealand
6	6	Algeria BurkinaFaso Cameroon CapeVerde CentralAfricanRepublic Chad Congo Coted'Ivoire Djibouti Egypt Gabon Gambia Ghana Guinea Morocco Mozambique Nigeria Senegal SouthAfrica Tunisia Uganda Zimbabwe

Imported from J:\Internationalisation of Public  
Utilities\INPUTS\INPUTSUSEDINTHESESIS\WATER\inpwaterandw2007.txt



Density / average value within blocks

		1	2	3	4	5	6
		1	2	3	4	5	6
1	1	0.0688	0.0639	0.1250	0.0722	0.0833	0.0492
2	2	0.0028	0.0000	0.0000	0.0000	0.0000	0.0000
3	3	0.0139	0.0000	0.5000	0.0444	0.0000	0.0000
4	4	0.0000	0.0000	0.0000	0.0238	0.0000	0.0000
5	5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Standard Deviations within blocks

		1	2	3	4	5	6
		1	2	3	4	5	6
1	1	0.2532	0.2446	0.3307	0.2589	0.2764	0.2164
2	2	0.0526	0.0000	0.0000	0.0000	0.0000	0.0000
3	3	0.1170	0.0000	0.5000	0.2061	0.0000	0.0000
4	4	0.0000	0.0000	0.0000	0.1525	0.0000	0.0000
5	5	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6	6	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Use MATRIX>TRANSFORM>DICHOTOMIZE procedure to get binary image matrix.  
 Density table(s) saved as dataset Density Standard deviations saved as  
 dataset DensitySD Actor-by-actor pre-image matrix saved as dataset  
 DensityModelContinentsWater  
 Output generated: 06 Jul 07 10:36:46

## Appendix 4 *EI Index for Continents (Water)*

Adjacency dataset: C:\Program Files\Ucinet  
 6\DataFiles\2007\Water\inpwaterandw2007  
 Attribute: waterattributecontinents coi  
 # of Permutations: 5000  
 Random seed: 4510  
 Individual E-I scores: waterIndE-I

Warning: This procedure ignores direction of ties.  
 Warning: Row Attribute vector has been recoded.  
 Here is a translation table:

Old Code		New Code
=====		=====
1	=>	1
2	=>	2
3	=>	3
4	=>	4
5	=>	5
6	=>	6

Density matrix

		1	2	3	4	5	6
		1	2	3	4	5	6
		-----	-----	-----	-----	-----	-----
1	1	0.134	0.064	0.125	0.072	0.083	0.049
2	2	0.064	0.000	0.000	0.000	0.000	0.000
3	3	0.125	0.000	0.667	0.044	0.000	0.000
4	4	0.072	0.000	0.044	0.048	0.000	0.000
5	5	0.083	0.000	0.000	0.000	0.000	0.000
6	6	0.049	0.000	0.000	0.000	0.000	0.000

268 ties.

Whole Network Results

		1	2	3	4
		Freq	Pct	Possible	Density
		-----	-----	-----	-----
1	Internal	88.000	0.328	1442.000	0.061
2	External	180.000	0.672	5038.000	0.036
3	E-I	92.000	0.343	3596.000	0.555

Max possible external ties: 5038.000  
 Max possible internal ties: 1442.000

E-I Index: 0.343  
 Expected value for E-I index is: 0.555

Max possible E-I given density & group sizes: 1.000  
 Min possible E-I given density & group sizes: -1.000

Re-scaled E-I index: 0.343

Permutation Test  
 Number of iterations = 5000

	1	2	3	4	5	6	7
	Obs	Min	Avg	Max	SD	P >= Ob	P <= Ob
1 Internal	0.328	0.649	0.778	0.970	0.047	1.000	0.000
2 External	0.672	0.030	0.222	0.351	0.047	0.000	1.000
3 E-I	0.343	0.299	0.556	0.940	0.094	0.998	0.005

Group level E-I Index

	1	2	3	4
	Interna	Externa	Total	E-I
1 1	74.000	88.000	162.000	0.086
2 2	0.000	23.000	23.000	1.000
3 3	4.000	11.000	15.000	0.467
4 4	10.000	28.000	38.000	0.474
5 5	0.000	4.000	4.000	1.000
6 6	0.000	26.000	26.000	1.000

Individual Level E-I Index

	1	2	3	4	
	Intern	Extern	Total	E-I	
1	Algeria	0.000	1.000	1.000	1.000
2	Argentina	0.000	5.000	5.000	1.000
3	Armenia	0.000	1.000	1.000	1.000
4	Australia	0.000	2.000	2.000	1.000
5	Bangladesh	0.000	1.000	1.000	1.000
6	Belgium	2.000	0.000	2.000	-1.000
7	Belize	0.000	1.000	1.000	1.000
8	Bolivia	0.000	2.000	2.000	1.000
9	Brazil	0.000	5.000	5.000	1.000
10	Bulgaria	3.000	0.000	3.000	-1.000
11	BurkinaFaso	0.000	1.000	1.000	1.000
12	Cameroon	0.000	1.000	1.000	1.000
13	Canada	1.000	2.000	3.000	0.333
14	CapeVerde	0.000	1.000	1.000	1.000
15	CentralAfricanRepublic	0.000	1.000	1.000	1.000
16	Chad	0.000	1.000	1.000	1.000
17	Chile	0.000	3.000	3.000	1.000
18	China	0.000	2.000	2.000	1.000
19	Colombia	4.000	2.000	6.000	-0.333
20	Congo	0.000	1.000	1.000	1.000
21	Coted'Ivoire	0.000	1.000	1.000	1.000
22	Cuba	0.000	1.000	1.000	1.000
23	CzechRepublic	2.000	0.000	2.000	-1.000
24	Djibouti	0.000	1.000	1.000	1.000
25	DominicanRepublic	1.000	0.000	1.000	-1.000
26	Ecuador	2.000	1.000	3.000	-0.333
27	Egypt	0.000	2.000	2.000	1.000
28	France	20.000	42.000	62.000	0.355
29	FrenchOverseasTerritories	1.000	0.000	1.000	-1.000
30	Gabon	0.000	1.000	1.000	1.000
31	Gambia	0.000	1.000	1.000	1.000
32	Germany	5.000	1.000	6.000	-0.667
33	Ghana	0.000	1.000	1.000	1.000
34	Guinea	0.000	1.000	1.000	1.000
35	HongKong	0.000	2.000	2.000	1.000
36	Hungary	2.000	0.000	2.000	-1.000

37	India	0.000	1.000	1.000	1.000
38	Indonesia	0.000	2.000	2.000	1.000
39	Ireland	1.000	0.000	1.000	-1.000
40	Israel	1.000	0.000	1.000	-1.000
41	Italy	2.000	3.000	5.000	0.200
42	Japan	0.000	2.000	2.000	1.000
43	Jordan	0.000	1.000	1.000	1.000
44	Korea	0.000	1.000	1.000	1.000
45	Lithuania	1.000	0.000	1.000	-1.000
46	Malaysia	0.000	2.000	2.000	1.000
47	Mexico	1.000	3.000	4.000	0.500
48	Morocco	0.000	2.000	2.000	1.000
49	Mozambique	0.000	2.000	2.000	1.000
50	Netherlands	1.000	0.000	1.000	-1.000
51	NewZealand	0.000	2.000	2.000	1.000
52	Nigeria	0.000	1.000	1.000	1.000
53	Norway	2.000	0.000	2.000	-1.000
54	Panama	2.000	2.000	4.000	0.000
55	Peru	0.000	1.000	1.000	1.000
56	Philippines	0.000	2.000	2.000	1.000
57	Poland	2.000	0.000	2.000	-1.000
58	Portugal	3.000	4.000	7.000	0.143
59	PuertoRico	0.000	2.000	2.000	1.000
60	Romania	2.000	0.000	2.000	-1.000
61	Russia	1.000	0.000	1.000	-1.000
62	Senegal	0.000	1.000	1.000	1.000
63	Singapore	0.000	1.000	1.000	1.000
64	Slovakia	1.000	0.000	1.000	-1.000
65	Slovenia	1.000	0.000	1.000	-1.000
66	SouthAfrica	0.000	2.000	2.000	1.000
67	Spain	3.000	10.000	13.000	0.538
68	Sweden	1.000	0.000	1.000	-1.000
69	Switzerland	1.000	0.000	1.000	-1.000
70	Thailand	0.000	2.000	2.000	1.000
71	TrinidadandTobago	0.000	1.000	1.000	1.000
72	Tunisia	0.000	1.000	1.000	1.000
73	Turkey	2.000	0.000	2.000	-1.000
74	UAE	0.000	2.000	2.000	1.000
75	UK	14.000	28.000	42.000	0.333
76	USA	2.000	6.000	8.000	0.500
77	Uganda	0.000	1.000	1.000	1.000
78	Uruguay	0.000	2.000	2.000	1.000
79	Venezuela	1.000	0.000	1.000	-1.000
80	VietNam	0.000	1.000	1.000	1.000
81	Zimbabwe	0.000	1.000	1.000	1.000

Individual E-I values saved as dataset waterIndE-I

-----  
Running time: 00:00:01  
Output generated: 05 Jul 07 18:38:58  
Copyright (c) 1999-2000 Analytic Technologies

## Appendix 5 Centralities for Water Companies

### FREEMAN'S DEGREE CENTRALITY MEASURES

-----  
 Diagonal valid? NO  
 Model: ASYMMETRIC  
 Input dataset: J:\Internationalisation of Public Utilities\inwatercount4fina

		1	2	3	4
		OutDegree	InDegree	NrmOutDeg	NrmInDeg
24	France	47.000	0.000	72.308	0.000
61	UK	23.000	1.000	35.385	1.538
56	Spain	11.000	1.000	16.923	1.538
62	USA	5.000	4.000	7.692	6.154
47	Portugal	4.000	1.000	6.154	1.538
16	Colombia	4.000	2.000	6.154	3.077
32	Italy	2.000	1.000	3.077	1.538
11	Canada	1.000	2.000	1.538	3.077
43	Panama	1.000	2.000	1.538	3.077
1	Algeria	0.000	1.000	0.000	1.538
9	Bulgaria	0.000	2.000	0.000	3.077
3	Armenia	0.000	1.000	0.000	1.538
5	Bangladesh	0.000	1.000	0.000	1.538
2	Argentina	0.000	3.000	0.000	4.615
15	China	0.000	2.000	0.000	3.077
6	Belgium	0.000	1.000	0.000	1.538
17	Congo	0.000	1.000	0.000	1.538
18	Coted'Ivoire	0.000	1.000	0.000	1.538
19	Cuba	0.000	1.000	0.000	1.538
4	Australia	0.000	2.000	0.000	3.077
21	DominicanRepublic	0.000	1.000	0.000	1.538
22	Ecuador	0.000	3.000	0.000	4.615
7	Bolivia	0.000	2.000	0.000	3.077
20	CzechRepublic	0.000	1.000	0.000	1.538
25	Germany	0.000	2.000	0.000	3.077
26	Guinea	0.000	1.000	0.000	1.538
27	HongKong	0.000	2.000	0.000	3.077
12	CapeVerde	0.000	1.000	0.000	1.538
13	CentralAfricanRepublic	0.000	1.000	0.000	1.538
30	Indonesia	0.000	2.000	0.000	3.077
31	Israel	0.000	1.000	0.000	1.538
8	Brazil	0.000	5.000	0.000	7.692
33	Japan	0.000	1.000	0.000	1.538
34	Jordan	0.000	1.000	0.000	1.538
35	Lithuania	0.000	1.000	0.000	1.538
36	Malaysia	0.000	2.000	0.000	3.077
37	Mexico	0.000	4.000	0.000	6.154
38	Morocco	0.000	1.000	0.000	1.538
39	Mozambique	0.000	2.000	0.000	3.077
40	NewZealand	0.000	1.000	0.000	1.538
41	Nigeria	0.000	1.000	0.000	1.538
42	Norway	0.000	1.000	0.000	1.538
10	BurkinaFaso	0.000	1.000	0.000	1.538
44	Peru	0.000	1.000	0.000	1.538
45	Philippines	0.000	2.000	0.000	3.077
46	Poland	0.000	2.000	0.000	3.077
14	Chile	0.000	3.000	0.000	4.615
48	PuertoRico	0.000	2.000	0.000	3.077
49	Romania	0.000	1.000	0.000	1.538
50	Russia	0.000	1.000	0.000	1.538
51	Senegal	0.000	1.000	0.000	1.538
52	Singapore	0.000	1.000	0.000	1.538
53	Slovakia	0.000	1.000	0.000	1.538
54	Slovenia	0.000	1.000	0.000	1.538
55	SouthAfrica	0.000	1.000	0.000	1.538
23	Egypt	0.000	1.000	0.000	1.538
57	Switzerland	0.000	1.000	0.000	1.538
58	Thailand	0.000	2.000	0.000	3.077
59	Tunisia	0.000	1.000	0.000	1.538
60	Turkey	0.000	2.000	0.000	3.077
28	Hungary	0.000	1.000	0.000	1.538
29	India	0.000	1.000	0.000	1.538



63	Uganda	0.000	1.000	0.000	1.538
64	Uruguay	0.000	1.000	0.000	1.538
65	Venezuela	0.000	1.000	0.000	1.538
66	VietNam	0.000	1.000	0.000	1.538

DESCRIPTIVE STATISTICS

	1	2	3	4
	OutDegree	InDegree	NrmOutDeg	NrmInDeg
1 Mean	1.485	1.485	2.284	2.284
2 Std Dev	6.486	0.857	9.978	1.319
3 Sum	98.000	98.000	150.769	150.769
4 Variance	42.068	0.735	99.569	1.739
5 SSQ	2922.000	194.000	6915.977	459.172
6 MCSSQ	2776.485	48.485	6571.562	114.757
7 Euc Norm	54.056	13.928	83.162	21.428
8 Minimum	0.000	0.000	0.000	0.000
9 Maximum	47.000	5.000	72.308	7.692

Network Centralization (Outdegree) = 71.101%  
Network Centralization (Indegree) = 5.491%

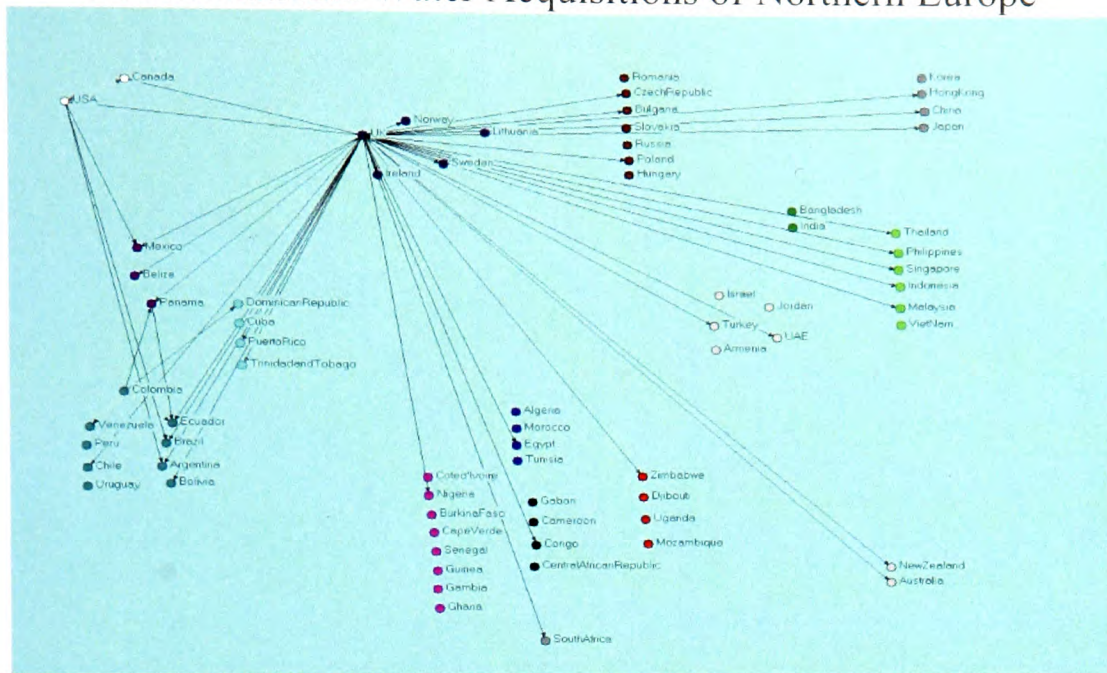
NOTE: For valued data, both the normalized centrality and the centralization index may be larger than 100%.

Actor-by-centrality matrix saved as dataset FreemanDegreewater2

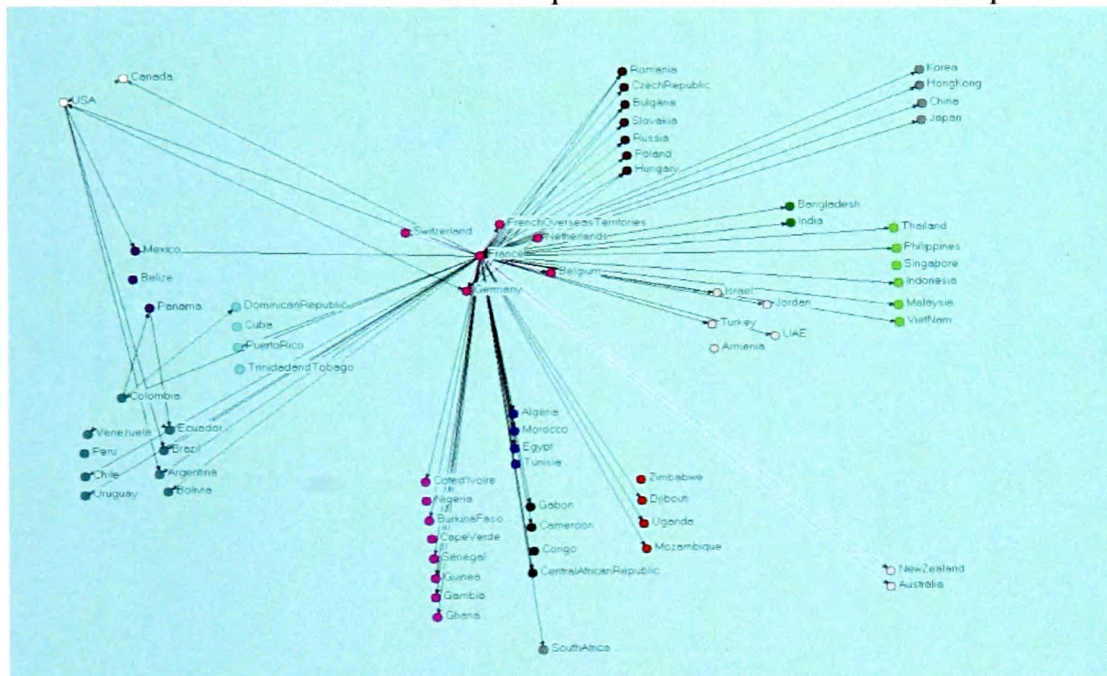
-----  
Running time: 00:00:01  
Output generated: 16 Jul 07 13:01:28  
Copyright (c) 1999-2000 Analytic Technologies

# Appendix 6 International Water Acquisitions of Selected European Regions

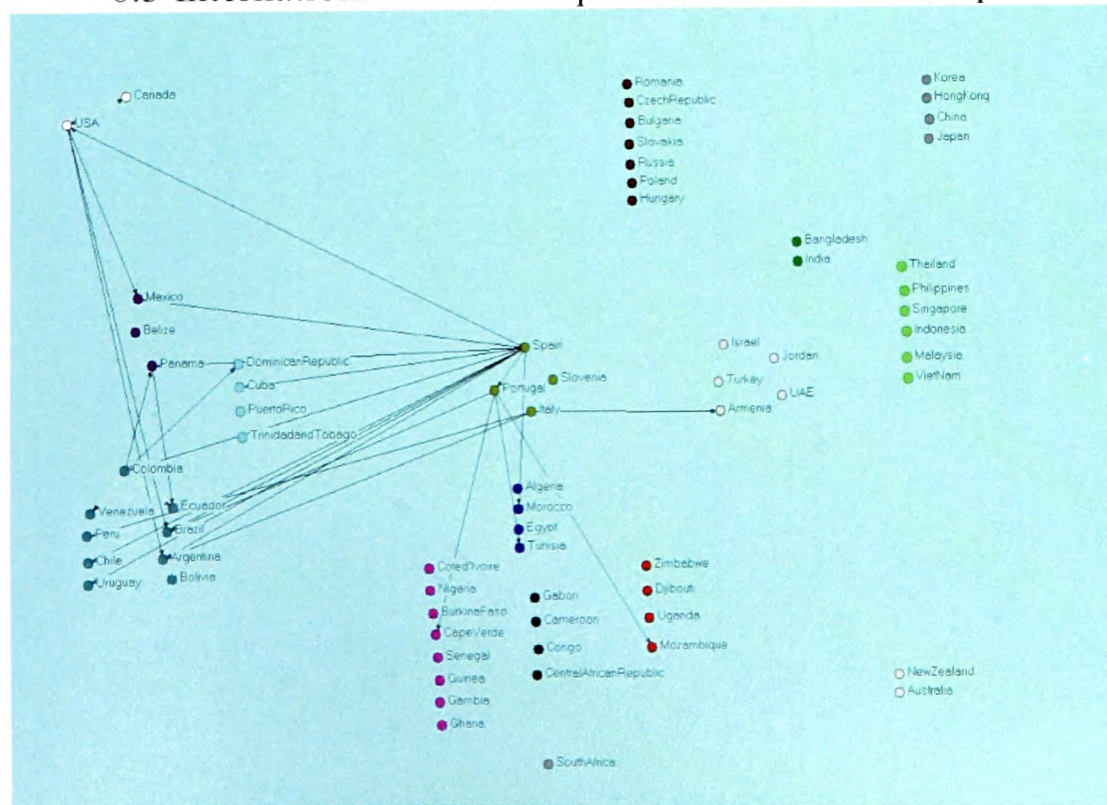
## 6.1 International Water Acquisitions of Northern Europe



## 6.2 International Water Acquisitions of Western Europe



## 6.3 International Water Acquisitions of South Europe





82 Mali  
 83 Mauritius  
 84 Mexico  
 85 Moldova  
 86 Monaco  
 87 Morocco  
 88 Mozambique  
 89 Nepal  
 90 Netherlands  
 91 New Zealand  
 92 Niue  
 93 Nigeria  
 94 Norway  
 95 Oman  
 96 Pakistan  
 97 Palestine  
 98 Panama  
 99 Paraguay  
 100 Peru  
 101 Philippines  
 102 Poland  
 103 Portugal  
 104 Puerto Rico  
 105 Qatar  
 106 Romania  
 107 Russia  
 108 Saudi Arabia  
 109 Senegal  
 110 Singapore  
 111 Slovakia  
 112 Slovenia  
 113 South Africa  
 114 Spain  
 115 Sri Lanka  
 116 Sweden  
 117 Switzerland  
 118 Taiwan  
 119 Tanzania  
 120 Thailand  
 121 Togo  
 122 Trinidad and Tobago  
 123 Tunisia  
 124 Turkey  
 125 Turkmenistan  
 126 UAE  
 127 UK  
 128 USA  
 129 Uganda  
 130 Ukraine  
 131 Uruguay  
 132 Venezuela  
 133 Vietnam  
 134 Zambia  
 135 Zambwa  
 136 Zimbabwe

