# MILITARY EXPENDITURE AND ECONOMIC DEVELOPMENT

## THE CASE OF GREECE: 1952-1987

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ABSTRACT

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Throughout the post-war period, Greece has allocated between five and six per cent of her annual Gross Domestic Product to defence. On many occasions she had the highest defence burden in NATO and Europe. There is evidence that the level, form and content of this defence expenditure have been determined by a combination of both external and internal factors. Greek military spending needs to be understood in relation to external security concerns and in particular in terms of her relations with Turkey. Membership of NATO, U.S. foreign policies and internal security factors have also influenced military expenditure. There is no substantial evidence to suggest that military expenditure has so far been used as a tool of economic policy. Dependency on imported weapons systems will not be substantially reduced by domestic arms production. It will merely be replaced by another form of dependency. Neither will domestic arms production generate appreciable backward and forward linkages which could pull the country out of the present economic crisis. The peculiarities of Greek development have created long term dependency on imported technology and capital goods which will not be reduced by arms production. Foreign military transfers have been instrumental in forging these dependency links and keeping the country open to foreign capital to operate under free and unregulated conditions. The links between military expenditure and economic growth are first established at the theoretical level. They are then estimated in the context of a growth model both directly and indirectly through the effect on savings and investment. The growth rate is treated as a function of both exogenous and endogenous variables and the impact of defence spending is estimated by two stage least squares in a series of equations. The results indicate that military expenditure has adversely affected growth in the period 1953-84 mainly through the crowding out of investment.

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CHAPTER 1

**INTRODUCTION**

The main purpose of this study is to examine the relationship between defence expenditure and the growth performance of the Greek economy in the period 1952 to 1987.

There are three main reasons for choosing the year 1952 as the starting point of the study. Firstly, data on military expenditure and information on other related variables are not readily available before the early 1950s. Secondly, Greece became a member of NATO in that particular year. Starting our examination from 1952 the study concentrates on the period during which Greece was a full member of the Western Military Alliance and is reasonable to expect this to have had a bearing on the levels and structure of Greek military expenditure. Finally, with the Greek Civil War having ended in the late 1940s, the early 1950s signaled the start of a qualitative different socioeconomic and political development process of the country.

There are several good reasons for singling out Greece for such a study. Firstly, Greek military spending has been substantial during this period. Greece, a member of NATO, has regularly allocated a larger proportion of gross domestic product to defence than any other member of the Alliance. On average this was between five to six percent of GDP, and this, despite the

fact that Greece has one of the lowest per capita incomes in NATO. Greek military spending increased threefold between 1953 and 1973 and since 1974 it has doubled as a result of the Turkish invasion of Cyprus and the ongoing hostile relationships between the two countries, both members of NATO. It is reasonable to assume that the high levels of military spending have used up scarce resources that could have otherwise been used for other purposes such as education, health and social welfare or indeed investment in more productive activities. In spite of the sheer volume of resources allocated by Greece to defence the matter has received little attention in previous studies on Greek development.

Secondly, the growth performance of the Greek economy in terms of GNP/GDP has been quite impressive up to the mid-seventies. Since then the country has entered a deep economic crisis from which she still has to recover. It is possible that high levels of military expenditure may have contributed to continuous balance of payments problems and to a deteriorating external debt situation, and have generally retarded growth.

Thirdly, the military have, up to 1974, played an important role in the development of the country. During much of this period not only were they the main guardians of the status quo established after the conservative victory in the Civil War, but they have actually taken over the government for seven years from 1967 to 1974.

Fourthly, in the light of the improving international climate and the efforts to limit the enormous stockpiles of both nuclear and conventional arms accumulated over many years, the issue of

the cost of armaments is once again raised. This is of particular interest in the case of Greece given her high levels of military expenditure.

Finally, given the strategic importance of Greece within NATO as an important strategic link with Turkey and her proximity to strategically sensitive areas such as the Middle East, the wider implications of her military capacity need to be considered. The strategic importance of Greece is manifested in the presence of important US military facilities and installations on her territory and the fact that the Aegean Sea is for NATO military planners an advantageous terrain for defence against a southward push of Warsaw Pact forces in a generalised conflict. Thus, what goes on in Greece is of particular interest to the West. This was highlighted in the past with the Truman Doctrine.

Several studies have been made on the impact of military spending on the performance of economies with contradictory results. The results of most studies so far seem to indicate a net negative impact of defence spending on the economy but on the other hand some studies have reached results that appear to show a positive impact on growth. Most studies on the issue are generally concerned with groups of countries rather than individual cases. However, due to the large heterogeneity of military expenditure and its different components as well as differences between countries, it is probably more appropriate to try to evaluate its impact in specific cases rather than groups of countries. This may help us gain a greater understanding of the issues involved, the channels through which growth may be affected, and thus reach more concrete results. The

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task, however, is not particularly easy since defence spending is only but one variable in a complex economic situation and its impact may vary with the general state of the economy, the way that such spending is financed, whether arms procurement is from internal or external sources, and other policies of the government. Furthermore, military expenditure includes numerous elements, each of which may potentially have a different impact on the economy.

The present study will attempt to evaluate the impact of defence expenditure on the growth performance of the Greek economy during the post-war period. However, we believe that no economic problem can be understood in isolation from its social, political, international and even cultural aspects. This is particularly true in the case of Greece. For example it is not possible to address the question of the growth of military spending without examining the internal security aspect of the role of the Greek armed forces which by itself raises issues concerning the nature and role of the state and state apparatuses. Similarly, the interests of the military as a distinct social group also need to be addressed. Finally, international factors such as relations with Turkey and membership of NATO have to be examined. Current relations with Turkey cannot however be isolated from the historical context of their development and years of suspicions and hostile feelings between the two countries. The study, therefore, of the impact of military expenditure on the growth performance of the Greek economy in the post-war period, is possible only in the context of such sociopolitical factors operating in Greek society and of

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wider international conditions.

Thus, the present study begins with an outline of the growth and development of the Greek economy in the post-war period which is given in chapter two. The discussion of the post-war development of Greece is not concentrated only on economic aspects but also draws attention to important political and, to a lesser extent, social aspects of this development. The considerable economic growth of the country up to the mid-70s and the subsequent economic crisis since then are discussed. At the same time, attention is drawn not only to the levels of military expenditure during this period, but also to the role of the Greek military and to the economic, political and military dependency ties with the West. This discussion in chapter two is intended to help our understanding of the background issues in the subsequent analyses of a) the factors influencing Greek military expenditure; b) the impact of external military relations with particular reference to the role of arms transfers; c) the effects of the establishment of an arms industry and whether this can stimulate economic growth through backward and forward linkages given the capital and human endowments of the Greek economy and d) the impact that military expenditure may have had on the economy's performance given her specific characteristics. The chapter ends with a discussion on wider aspects and issues concerning development and with a general evaluation of Greek development drawing attention to certain limitations of this particular model of development.

Chapter three looks at the sources of military data and draws attention to issues concerning their reliability and accuracy.

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It then proceeds to look at world levels of military expenditure and briefly discusses aspects of this as well as recent developments. It ends with a detailed look at Greek military expenditure and other related data, drawing together the information and data on Greek defence spending from the previous chapter. It is also shown that, when compared with other countries and in particular other NATO members, Greece has regularly allocated more resources to defence than any other member.

Having looked at world and Greek levels of military expenditures, we then turn to see how the subject has been addressed in economic theory. Chapter four offers a summary of the relevant economic literature concerning defence spending and militarism. We look at the contributions on the subject by a number of writers and at how the question of military expenditure is addressed by the main schools of thought.

In chapter five the factors that influence and determine military spending are examined and their applicability in the case of Greece is evaluated and tested. This is done using regression analysis where possible. It is shown that military expenditure in Greece has been influenced by a combination of both internal and external factors; and that the relative importance of the various factors has changed over the years in line with domestic and external developments.

Chapter six looks at the efforts of the past few years to establish and develop an arms industry in Greece. The main industries within this sector are surveyed offering the necessary background information for a more general evaluation of the

impact of the defence sector on the Greek economy. Drawing on the experience of other similar cases the likely economic, political and military consequences are then considered. It is attempted to establish by means of regression analysis whether arms production as a form of import substitution has so far had any impact on the rest of the economy through backward and forward linkages with other sectors and the generation of inter-industrial demand. The belief that this sector can act as leading sector in the economy is questioned.

In chapter seven we address the role of military transfers with particular reference to US and other Western military aid to Greece during the post-war period. It is argued that such assistance need to be looked at not only in terms of political, military and strategic considerations but also in terms of economic factors, namely the aim to keep the country open for capitalist penetration. Thus the relationship between military assistance and foreign investment is examined and its impact on the development of the economy discussed. This is based on the discussion in chapter two concerning the role of foreign capital in the development process of Greece and the structure of the economy.

Chapter eight reviews the literature on the relationship between military expenditure and economic growth and looks at the empirical results of other studies on the subject. It then proceeds to estimate the effect that military spending may have had on growth in the case of Greece for the post-war period. This is done using both ordinary least squares and two stage least squares in the context of a growth model.

Finally, in chapter nine we draw together the findings of our study. Concluding comments are made on the aspects of military expenditure and how defence spending has affected the growth performance of the Greek economy in the post-war period. On the basis of the results of our study and the current situation we argue that in the near future at least Greece will continue to allocate substantial resources to defence which will probably have a high opportunity cost and retard growth.

CHAPTER 2

# THE POST WAR DEVELOPMENT OF GREECE

## 2.1 Introduction
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Greece in economic and political terms belongs to the Western
world and it is a part of the European capitalist periphery. She
is a member of both EEC and NATO having joined them in 1981 and
1952 respectively. Broadly speaking most studies of Greece (Dovas
1980, Negreponti-Delivani 1985, Babanasis & Soulas 1976, Samaras
1982 and others) describe her as being a capitalist country with
a middle level of development. Many writers, such as Fotopoulos
(1975,1985), also stress what they consider to be one of most
important characteristics of modern Greece; that is her high
degree of dependency on advanced capitalist countries in
economic, political and military terms. A further important
characteristic of the country, little emphasised if at all in
most studies, is the fact that throughout the post-war period
she has allocated on average more than 5% of GDP to defence,
often the highest in NATO. This has increased further in the
last fifteen years to about 6.5% of GDP on average. She also has
the highest ratio among NATO members of armed forces per thousand
inhabitants or as a percentage of the economically active
population and often, more than a quarter of all government

expenditure is for military purposes.

The modern Greek state[1] has a history of 165 years since the National Revolution of 1821 when Greece gained liberation from the Ottoman empire after 400 years of Turkish occupation. At the time, the newly born Greek state occupied only about 47,5 thousand square kilometers and had a population of about 753 thousand, according to 1828 data (Dovas 1980).

Today, Greece covers an area of 132 thousand square kilometers and has a population of about 10 million. Perhaps indicative of the peculiarities of the country's socioeconomic development is the fact that almost half as many Greeks live abroad due to high levels of emigration. Furthermore, one third of her population is currently concentrated in the Athens-Piraeus region which also offers almost 46% of industrial employment and produces more than half of the country's GDP.

This section is a critical survey of the post-war development of Greece aiming to provide the necessary background information that will help our understanding of the main theme of this study. Where necessary, reference may be made to pre-war events from which post war characteristics may have been inherited. At the same time, throughout this economic and sociopolitical survey, attention will be drawn to the levels of military spending and other related data, as well as factors that may have influenced defence spending.

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## 2.2 The Effects of War and Occupation
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The Second World War and the years of Occupation were a
tremendous blow for Greece. About 5.5% of the total population
perished, national income fell vertically, and the economy was
left in ruins. This however was not the most important impact
of the War and Occupation. The state of the Greek economy at the
end of the War was not much different of that of other
participants.

The most important impact of those years is to be found in
the changes that occurred in the Greek political scene. These
were fundamental changes with long term effects. During the years
of Occupation, the Greek government and the two major bourgeois
parties, which were organised on clientelistic lines and
dominated for a long period the political scene, were totally
disorganised. The King, the government and most major bourgeois
politicians fled to Egypt during the occupation years. The Left
and mainly the Communist Party (KKE) managed to mobilise the
urban and rural population and build a big and strong resistance
movement, the National Liberation Front (EAM). By the time the
occupation forces withdrew most of the Greek territory was under
the direct control of KKE and EAM and they were the single
biggest political force at the time, with a very strong military
wing ELAS. In the years that followed, 1945-49, while most
countries were engaged in the reconstruction of their economies,
Greece was torn apart by civil war. The Civil War ended with the
total victory of the right wing forces and the royalists that
returned from Egypt.

This victory, was to a large extent due to the massive assistance provided by Britain and the US to the right wing forces. This period, was also marked by beginning of a new era of dependency for Greece. As a result of the changes in the international scene and the emergence of the US as the undisputed leader of the capitalist world, Greece, with the declaration of the Truman Doctrine[2], passed under the US sphere of influence.

Foreign dependence of course, was nothing new. Greece had already a long history of foreign influence, dependence and intervention. This can be directly traced back to the early days of national independence. Morton (1938) writes that "the revolt of the Greeks against Turkish rule opened the Eastern Question that runs so tortuously through the history of the 19th century. Here Austria and Russia were on opposite sides and Canning (the British Foreign Secretary) saw in intervention in Greece a method of splitting the Holly Alliance ... both Britain and France were careful that the new Greek state should not be under Russian control" (p.385). Thus, "emerging from its struggle for independence ... Greece found itself strapped into a dependency role in foreign affairs. The Great Powers considered the Greek inhabited area of the Balkans a valuable piece of real estate" (Papacosma, 1985, p.189). As a result, the three Great Powers - France, Britain and Russia - became the guarantors of the newly born Greek state in order to secure their interests in the area. As Svoronos (1986) observes, the extent of their influence is reflected in the names of the three main Greek political parties of the period: the French Party, the English Party and the Russian Party. Each one of them represented the interests of each

power in the region. The ties of dependency, evident throughout the history of the modern Greek state, were in a sense institutionalised and sewn-in in Greek politics right from the early days of her existence. The declaration of the Truman Doctrine in March 1947 simply signified a change of dependence in line with the new international conditions; it marked the beginning of a shift of the centre of gravity from the old Imperial Powers of Europe to the US which emerged as the most powerful capitalist country and the new centre of imperialism after World War II. The immediate purpose of the Truman Doctrine, was to ensure that, countries which were previously under British influence would come under US influence after British withdrawal, and thus remain within the Western sphere of dominance.

One of the first implications of the Truman Doctrine was the direct US involvement in Greece as well as her neighbour Turkey. In effect it "proclaimed an American protectorate over Greece and Turkey" (Baran and Sweezy, 1966, p.188).

The reasons for an active US involvement in both countries became clearer when Truman "abandoning his moral abstractions" expressed the strategic factors involved: "It is necessary only to glance at a map to realise that the survival and integrity of the Greek nation are of grave importance in a much wider situation. If Greece should fall under the control of the Communists, the effect upon its neighbour, Turkey, would be immediate and serious. Confusion and disorder might well spread throughout the entire Middle East" (Hartmann, 1983, p.394).

The Truman Doctrine and its impact on Greece will be discussed in more detail in chapter seven as will the levels of US and

other western assistance, mostly military, to Greece during the immediate post-war years. It will be shown that this assistance played a crucial role in keeping the country afloat. But a more important result was the fact that, due to the massive amounts of external military aid, it became possible to defeat the left in the Civil War and to establish a pro-western system of government in the country. Indeed, it will be argued that an important reason for this assistance was to secure the country's western orientation not only for military and strategic reasons but also for economic reasons as well.

After the end of the Civil War, with the defeat of the Left, a quasi-parliamentary regime was established in the country with the help of the Americans: a regime of guided or limited democracy which outlawed the Communist Party and through a variety of legal and illegal mechanisms, systematically persecuted not only the defeated Left, but also liberal and anti-royalist forces. The army, the major victor of the Civil War, emerged as a strong, probably the strongest, force in the throne - parliamentary force - army triarchy which dominated Greek politics for more than twenty five years, and played an important role in the maintenance of the status-quo in the country. Differences among these three forces existed, but were kept to a minimum until the early 60s. From 1952-63 an uninterrupted rule of the right wing parliamentary force took place.

## 2.3 Guided Democracy
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The economic model of development followed during this period was the one proposed by the right wing victors of the Civil War. The political struggle during the Civil War in the late 40s was also reflected in the alternative economic strategies for development proposed by the two major political forces in Greece at the time: the left and the right. Broadly speaking one can identify two main approaches and strategies towards the question of development of the country.

The first model proposed by the right, was a typical model of an open economy integrated in the world capitalist system. The sectors that were to be targeted for development were the ones that thought to had a comparative advantage. Since Greece at the time was predominantly agricultural it was argued that the comparative advantages of the primary sector should be utilised.

The second model on the other hand, had a completely different approach to the problem of development. It proposed a rather closed economy, at least in the early stages, giving emphasis to the nationalisation of important branches, the development of heavy industry and to the diversification of the trade partners (Batsis [3] 1947). One could say that this model was typical of left wing economic thinking at the time. It reflected the dominant belief of the left that the growth of heavy industry was of vital importance to the overall economic development performance of a country.

The result of the Civil War meant the rigid implementation

of the first model. During this period, i.e 1950-63, the economy
grew at relatively high rates, and there were also qualitative
changes in the structure of the economy. The average annual rate
of growth of the GNP was 6.6%, and by 1963 the secondary sector
accounted for more than a quarter of GNP, while the share of the
primary sector declined.

Throughout this period the right wing enjoyed uninterrupted
political rule. The parliamentary block of the ruling party
during this period held certain characteristics derived from the
particular historical conditions that it emerged from. First, it
was its mistrust of parliamentary democracy itself manifested in
the extensive use of para-state and other illegal mechanisms.
Secondly, in its attempt to gain some degree of popular support,
it utilised clientelistic networks (already in existence) in all
aspects of the socioeconomic life. The so-called "rousfeti"[4]
dominated all aspects of every day life. This of course had a
negative impact on the function of the state apparatus.
Inefficiency and corruption were widespread. The third and most
important characteristic was the lack of the most basic "national
elements"[5] in its policies. Apart from the internal historical
reasons for this, the main reason is that it came to power as a
result of the US involvement and its main task was the
legitimisation of the political and economic dependence.

During this period the state controlled the financial sector
and its involvement in all the sectors of the economy was
essential in providing the necessary infrastructure and back up
to private capital in its ventures. The state budget regularly
accounted for a substantial portion of the GDP. A substantial

part of this state expenditure was military spending which regularly accounted for more than a quarter, and at times, one third of all government expenditure and about 5% of GDP (Table 2.1). This was mainly due to the rebuilding and reorganising of the armed forces that took place in this period. This however, can not be seen in isolation of the country's membership of NATO and the role of the army in propping up internal security. Both of the above will be discussed in more detail in a subsequent section. For the time being it should be noted that membership of NATO meant new commitments for the Greek armed forces and the successful control of popular pressures from below also required an increased role for the army in internal security matters. However, at the same time, the first signs of external security concerns as regards relations with Turkey are also evident. As it can be seen in table 2.1, in 1956 there is a sudden increase in defence spending. This is probably a reaction to the sudden deterioration in the relations between the two countries as a result of the emergence of the Cyprus issue and the pogroms against the Greek minorities in Constantinople and Izmir in September 1955.[6]

Table 2.1

Government Expenditure (GEX) as % of GDP,
ME as % of GEX and as % of GDP 1950-63

| Year | GEX as % of GDP | ME* (mil $) | ME as % of GEX | ME as % of GDP |
|------|-----------------|-------------|----------------|----------------|
| 1950 | 19.96 | 115 | -- | 6.0 |
| 1951 | 18.23 | 137 | -- | 5.6 |
| 1952 | 17.41 | 132 | 28.1 | 5.3 |
| 1953 | 20.14 | 126 | 27.5 | 5.2 |
| 1954 | 20.26 | 135 | 29.5 | 5.5 |
| 1955 | 19.52 | 138 | 29.4 | 5.2 |
| 1956 | 18.94 | 178 | 32.6 | 6.0 |
| 1957 | 18.66 | 157 | 29.6 | 5.1 |
| 1958 | 18.46 | 155 | 27.9 | 4.8 |
| 1959 | 19.55 | 161 | 26.4 | 4.9 |
| 1960 | 19.81 | 170 | 25.4 | 4.9 |
| 1961 | 20.30 | 165 | 23.1 | 4.3 |
| 1962 | 21.75 | 168 | 20.9 | 4.1 |
| 1963 | 20.56 | 172 | 20.8 | 3.9 |

*constant 1960
US dollars

Sources: The Greek Economy Vol III 1984
Bank of Greece, SIPRI Yearbooks,
Government Budgets

Nevertheless, in spite of all the shortcomings of the economic
policies pursued by the state, the Greek economy grew with
satisfactory rates. The standards of living also increased
significantly during this period, especially from the early 60s.
At the same time, however, income inequalities also increased
enormously. The inequalities in income were much greater than
those in the West due to the specific development process of
Greece and the characteristics of the model of development that
was followed by the ruling classes.

Furthermore, the development model and the specific political
conditions of the country were incompatible with a massive
involvement of the subordinate classes in politics because their
"autonomous" participation in the political process would have

resulted in the radical reduction of the income inequalities to say the least. An improvement in the inequalities, however, would have undermined the willingness of foreign and indigenous capital to invest. This was so because the specific development pattern followed, not only did it create such inequalities, but its success was in fact based on the existence of such inequalities. The army, as already mentioned, was one of the main agents through which these inequalities were maintained. Its role as an internal security force was important in ensuring limited workers unionisation and also hindered the participation of progressive and/or left wing organisations in the Greek political scene.

The state in order to maintain the status quo, had two alternative options: a) the political participation of the masses through vertical clientelistic political organisations controlled by the dominant classes or b) the imposition of dictatorial modes of control (Mouzelis, 1978). However, neither of the above options constitutes a permanent solution and in the case of Greece in the post-war period, despite the defeat of the Left which postponed any immediate and real threat to the status quo for a long time, the system was faced with a permanent instability. The objective of the state was that of "legitimising" the political non-participation status of the oppressive system during this period and, towards its end of the period, a lot depended on the ideological functions of the state which, however, proved to be very inadequate in attaining this objective.

The radicalisation of the students and growing labour militancy as early as the mid-50s were strong indications of the

unsuccessful function of the ideological mechanisms of the state and the inability of the dominant classes to gain real support at grass roots level. Gradually the ruling classes started losing ground in both countryside and towns. A clear sign of this was the 1958 election gains of the left wing party EDA which was supported by the illegal Communist Party. By gaining 25% of the vote it became the main opposition in parliament.

This development immediately put the whole repressive apparatus on the alert. The army and the para-state mechanism[7] was mobilised to safeguard a right wing victory in the 1961 elections with a substantial degree of falsification of the results (Meyneaux, 1975). The repressive period of 1958-61 weakened the Left and created the necessary political space for the regeneration of the Centre Party, up to then fragmented and weak as a result of the deep polarisation of the political scene between Right and Left. The Centre proclaimed numerous liberal reforms which captured the imagination of ordinary people. The reunification of the Centre under G. Papandreou (Centre Union Party) with the support of the Left effectively challenged the electoral dominance of the Right in the 1963 and 1964 elections to gain an unprecedented 53% majority in the latter.

## 2.4 Political Instability and Dictatorship

In the late 50s and especially the early 60s there was enormous pressure from the masses for political change. In the 1963-65 period, the liberal government (the Centre Union Party under G. Papandreou) came to office after gaining an

unprecedented 53% majority. Its liberalisation policies included the ending of the open political intimidation, minor checks on the growing economic inequalities, the establishment of a free educational system, the increase of state expenditure on welfare and a more independent foreign policy. There were also signs of a reorganisation of the state mechanism, improving its efficiency and the effectiveness of its policies.

The new government, however, never attempted to deliver an effective blow to the para-state or to challenge the power of the army; but its liberalisation policies were enough to alarm the army and the palace. The government was brought down after a small group of its MPs defected from the ruling party thus splitting the parliamentary majority and joined the successive governments formed by the throne in the 1965-67 period which created the necessary political instability which in turn paved the way for the military coup in April 1967. Different writers such as Mouzelis (1978, 1986), Poulantzas (1975), Katris (1974) have emphasised different factors, both internal and external, that led to the military takeover. This debate will be addressed later on when the role of the army is discussed in chapter five. Here we will only deal with the effects of the dictatorship on the economy and its economic strategy.

Overall, it can be said that the new regime accepted the existing model of development. The regime also followed most of the obligations of the country from the 1961 Association Agreement[8] despite the fact that the EEC postponed most of its obligations. The new regime not only accepted the existing model of development but it also attempted to remove all obstacles for

its full implementation. Indeed, "after a short period of hesitation, and once the colonels' credentials were fully established, private investment rose again and foreign capital continued penetrating the economy. The rate of growth soon surpassed pre-dictatorial levels and sustained an impressive acceleration" (Mouzelis, 1978, p.129). Foreign capital was provided with such concessions that some of the more scandalous agreements had to be revised in the post-74 period. Wage determination became a "free market" issue since any strike activity was forbidden. Some attempts to "liberalise" the economy were made by reducing state involvement in the trade of agricultural products and generally in price control. The military government coincided with favourable international and national conditions for economic success and growth. The rates of growth of the economy were fairly impressive (Table 2.2) and, despite the unchanged and in fact increasing income inequalities, the standards of living grew steadily.

Table 2.2

Annual Changes in GNP 1963-74 (%)

| Year | % Change | Year | % Change | Year | % Change |
|------|----------|------|----------|------|----------|
| 1963 | 10.2 | 1967 | 5.4 | 1971 | 7.1 |
| 1964 | 8.2 | 1968 | 6.7 | 1972 | 8.9 |
| 1965 | 9.4 | 1969 | 9.8 | 1973 | 7.3 |
| 1966 | 6.1 | 1970 | 8.0 | 1974 | -3.6 |

Source: The Greek Economy, Bank of Greece,
Vol III, (1984)

New consumption patterns emerged (e.g introduction of TV on a massive scale) as a result of economic and political factors. The regime attempted to use them as a substitute of the political

support which was not only lacking when it came to power but was not even able to win after the seizure of power. Indeed as Karagiorgas (1974) points out that the dictatorship actively encouraged this consumption by following an "open door" policy for imported consumer goods. This, in his opinion, resulted in "the national external debt of the country to reach 2,583 million dollars in 1972 from $ 1,107 million in 1967" and this "created a false sense of prosperity" (ibid, p.25-27). As a result of the increased imports the balance of payments deficit tripled in the space of a year from $ 367 million in 1972 to $ 1,175 million in 1973.

The changes that occurred in consumption may have had some effect on the duration of the dictatorship but could not lead to its permanent consolidation. The new economic and sociopolitical framework left unchanged the conditions that generated the political discontent in the early 60s. The world recession in 1973 which had an important effect in the Greek economy (Table 2.2 above) coincided with the internal political mobilisation an example of which are the 1972-73 student uprisings and the events of November 1973 in the Polytechnic of Athens.[9] Political and economic factors had reached a point at which the downfall of the regime was eminent. The coup in Cyprus by the Greek regime and the subsequent invasion of the island by Turkey in 1974, had a catalytic effect on the dictatorship in Athens. The regime, just before its dismissal, turned to the politicians in order to preserve the army's position in the post-74 power structure.

However, the traditional triarchy structure (throne - army -

parliament) had already become outdated. The throne, already weakened as the result of the military takeover, was officially expelled from Greek politics after the 1974 referendum. The army also had a weaker position in the post-74 power structure and its political importance gradually decreased. To a certain degree, this can be attributed to the Turkish invasion of Cyprus which was executed on pretexts offered to Turkey by the actions of the Greek military dictatorship in the island; namely the coup against Archbishop Makarios staged by Greek forces stationed in the island and their local supporters. Furthermore, the apparent inability of the Greek military to come to the aid of Cyprus, to stop the invasion or to limit Turkish territorial gains, significantly weakened their position in the political system. One would have expected that a military government would make one of its top priorities the strengthening of the armed forces, if for no other reason but to keep fellow officers "happy" and thus secure their continuous support. In fact, military expenditure increased during the years of the dictatorship, as it can be seen in table 2.3, and Greece, by 1970, had one of the highest relative defence burdens in the world, as it can be seen in table 2.4.

Table 2.3

ME as percentage of GEX and GDP
---------------------------------

| Year | ME ($ mil) (1970 prices) | ME as % of GEX | ME as % as GDP |
|------|--------------------------|----------------|----------------|
| 1963 | 211 | 20.8 | 3.9 |
| 1964 | 219 | 18.8 | 3.7 |
| 1965 | 237 | 19.2 | 3.6 |
| 1966 | 257 | 19.0 | 3.7 |
| 1967 | 331 | 21.8 | 4.5 |
| 1968 | 387 | 21.6 | 4.8 |
| 1969 | 438 | 22.8 | 4.9 |
| 1970 | 474 | 23.8 | 4.9 |
| 1971 | 501 | 23.5 | 4.9 |
| 1972 | 534 | 21.5 | 4.7 |
| 1973 | 533 | 20.6 | 4.2 |
| 1974 | 510 | 24.5 | 4.2 |

Sources: SIPRI Yearbooks and Government
Budgets (various years)

However, despite the increases in military expenditure during
the years of the dictatorship, in 1974 the Greek Armed Forces
apparently proved totally unprepared and inadequate when called
upon to perform their primary role namely to defend against an
external threat i.e to fight a war and thus to justify their
raison d'etre. In fact, the Greek Armed Forces were apparently
totally disorganised due to the mismanagement of their affairs
by the ruling clique of officers, and their almost exclusive
orientation towards internal repression rather than external
security as we will see in chapter five.

# Table 2.4

## Relative Burden of Military Expenditures, 1970

| | GROSS NATIONAL PRODUCT PER CAPITA | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| MILITARY EXPENDITURES AS % OF GNP | UNDER $100 | $100-199 | $200-299 | $300-499 | $500-999 | $1,000-1,999 | $2,000-2,999 | OVER $3,000 |
| OVER 10% | Laos<br>Vietnam, North | Cambodia<br>Vietnam, Republic of | Iraq<br>Jordan<br>Syrian Arab Republic | Albania<br>Korea, North | Saudi Arabia | Israel | | |
| 5-10% | Burma<br>Somali Republic | China, People's Republic of<br>Egypt<br>Sudan | | China (Taiwan)<br>Iran<br>Malaysia | Cuba<br>Portugal | Germany, East<br>Greece<br>Poland | Czechoslovakia<br>Soviet Union<br>United Kingdom | United States |
| 2-4.9% | Chad<br>Ethiopia<br>Guinea<br>India<br>Indonesia | Central African Republic<br>Mauritania<br>Nigeria<br>Pakistan<br>Senegal<br>Thailand<br>Yemen<br>Zaire | Congo (Brazzaville)<br>Ghana<br>Korea, Republic of<br>Morocco<br>Turkey | Algeria<br>Brazil<br>Dominican Republic<br>Peru | Argentina<br>Chile<br>Lebanon<br>Mongolia<br>South Africa, Republic of<br>Spain<br>Uruguay<br>Venezuela<br>Yugoslavia | Bulgaria<br>Hungary<br>Italy<br>New Zealand<br>Romania | Australia<br>Belgium<br>France<br>Netherlands<br>Norway | Canada<br>Denmark<br>Germany, West<br>Kuwait<br>Sweden<br>Switzerland |
| 1-1.9% | Afghanistan<br>Dahomey<br>Haiti<br>Niger<br>Upper Volta | Cameroon<br>Kenya<br>Malagasy Republic<br>Mali<br>Tanzania<br>Togo<br>Uganda | Bolivia<br>Ecuador<br>El Salvador<br>Honduras<br>Paraguay<br>Philippines<br>Rhodesia, Southern<br>Tunisia | Colombia<br>Guatemala<br>Guyana<br>Ivory Coast<br>Nicaragua<br>Zambia | Cyprus<br>Gabon<br>Trinidad & Tobago | Austria<br>Libya | Finland | |
| BELOW 1% | Malawi<br>Nepal | Ceylon<br>Sierra Leone | Liberia | | Costa Rica<br>Jamaica<br>Mexico<br>Panama | Ireland<br>Japan | Iceland | Luxembourg |

Source: ACDA Yearbook, (1976)

Under the weight of the Cyprus tragedy the dictatorship collapsed, and the country returned to parliamentary rule. Above all, however, it was historical conditions that necessitated the strengthening of the parliamentary forces and the decline of the political importance of the military. The old repressive structures of government were no longer applicable in a fast changing world and had become outdated.

## 2.5 Prolonged Economic Crisis
----------------------------------

After the fall of the military dictatorship in 1974, Greece returned to parliamentary democracy. This return was associated with significant political changes. The traditional political structure, dominated by the triarchy of palace-army-parliamentary forces which had emerged in the early post-Civil War period was outdated and was replaced. The 1974 referendum put an end to the presence of the palace in Greek politics by a 70% majority in favour of Presidential Democracy. The position of the army, despite its attempt to remain a major force in the power structure, was significantly weakened and its importance in Greek politics gradually decreased. Even the traditional parliamentary forces had become outdated. The traditional two-party structure (the conservatives and the liberal centre) that dominated the inter-war period and the 60s was replaced by a new spectrum of political forces. The conservative forces were expressed by a new party, the New Democracy Party, the founder of which (Karamanlis) hoped it would modernise Greek politics along Western European lines. However, in practice failed to introduce both in the party and in the government administration (from 1974 to 1981 when it was in power) the necessary modernisations that characterise similar conservative parties in Western Europe. The party remained organised in a non-democratic way. The clientelistic networks remained a dominant form of its relationship with the voters. The government administration and the function of the state mechanism were still characterised by traditional forms i.e. rousfeti, corruption etc but not to the

same degree as before.

The economic changes of the post-1960 period brought about significant social changes. A new social stratification emerged in which the urban working class and the intellectuals became stronger social groups. A new middle strata emerged from the more complex economic structure. The new social stratification had at the same time an urban base and these changes weakened the ability of the clientelistic networks to constitute an effective way of political control and favoured the development of political forces organised on horizontal lines. Social conflicts and tensions suppressed for many years, along with the new ones that emerged from the socio-economic changes demanded the transformation of traditional political structures. The failure of the right wing to adjust to these changes was expressed in the declining trend in its electoral voting support in the subsequent elections: from 54% in 1974 to 42% in 1977 and 37% in 1981. The other traditional political force, the liberal party of the centre, had an even faster decline from 25% in 1974 to 13% in 1977 and 3% in 1981, also due to the absence of a charismatic leader who could possibly unite the fragmented forces of the centre. The new socialist party (PASOK) captured the demands of the old and new middle strata and effectively used the dissatisfaction of other social groups (mainly the peasants). From 12% in 1974 it doubled its support to 25% in 1977 and it doubled it again to 48% in 1981 when it came to power. The Communist Party and the traditional Left which was extremely weakened in the post-Civil War period and particularly in th 60s re-entered in the post-75 political scene (for the first time

legally since the end of the Civil War) and strengthened its position as the third political force, although in a less impressive way.

During this period i.e. 1974-87, the Greek economy grew at lower rates than the previous period (Table 2.5). The growth rate of the country's economy was affected by the entering of the world economy into the recession period after 1973.

The lower rates of growth that the Greek economy experienced during this period can also be attributed (apart from the international recession) to the absolute decline of investments. In 1978 for example, total investments were lower than in 1972 (Negreponti-Delivani, 1981) and this lack of investments persisted in the 1980s. Furthermore, it should be mentioned that the economy's moderate growth was not associated with any significant structural changes. The small quantitative growth was largely due to the additional growth of the main elements of the production system that emerged in the previous period, rather than to any serious restructuring of the system itself. Perhaps the most significant change was the increase in the employment share of larger units but this was not associated so far with any major restructuring process in favour of production on a larger scale.

Table 2.5

Annual changes in GDP 1973-88 (%)
------------------------------------

| Year | % Change | Year | % Change | Year | % Change |
|------|----------|------|----------|------|----------|
| 1973 | 7.3      | 1978 | 6.7      | 1983 | 0.4      |
| 1974 | -3.6     | 1979 | 3.7      | 1984 | 2.8      |
| 1975 | 6.1      | 1980 | 1.8      | 1985 | 3.4      |
| 1976 | 6.4      | 1981 | -0.3     | 1986 | 1.3      |
| 1977 | 3.4      | 1982 | -0.2     | 1987 | -0.7     |
|      |          |      |          | 1988 | 3.5      |

Source: The Greek Economy, Bank of Greece
        Vol III, (1984) and Reports of the
        Governor (1987, 1989)

The only significant change in the industrial base of the economy was the efforts to establish and develope an arms industry. This is probably the only important new sector to be created during this period. The reasons behind the efforts of successive governments to create domestic arms production capabilities were twofold: Firstly, the main objective was/is to decrease dependence on foreign sources for arms procurement and secondly, since strategic and military reasons dictated such a move, to try to gain some economic and technological benefits. These would be in the form of forward and backward linkages with other sectors of the economy thus generating interindustrial demand and hopefully spurring growth. Furthermore, indigenous production could mean foreign exchange savings and improvements in the balance of payments position and possibly in the future gains from exports. At the same time this sector could attract advanced technology and know how which could then spill over to other more backward sectors of the economy. In short, the defence sector could become a leading sector pulling the rest of the

economy with it. The motives of this move and whether this venture has so far been successful or not and to what degree will be discussed in more detail in chapter six.

During this period the Greek economy, due to its "openness", proved vulnerable to the conditions of the world economy. The inflationary pressures created by the energy crisis were reflected in the inflation rates of this period (Table 2.6). However, besides the external factors, the internal ones are also important in explaining the high
inflation of the period.

Table 2.6

Inflation rates 1971-88
-------------------------

| Year | % Rate | Year | % Rate | Year | % Rate |
|------|--------|------|--------|------|--------|
| 1971 | 3.2 | 1977 | 12.2 | 1983 | 20.2 |
| 1972 | 4.3 | 1978 | 12.6 | 1984 | 18.4 |
| 1973 | 15.5 | 1979 | 19.0 | 1985 | 19.3 |
| 1974 | 26.9 | 1980 | 24.9 | 1986 | 23.0 |
| 1975 | 13.4 | 1981 | 24.5 | 1987 | 16.4 |
| 1976 | 13.3 | 1982 | 20.9 | 1988 | 13.5 |

Source: Reports of the Governor of the Bank of Greece (various years)

Perhaps one reason for the high inflation was the demand for wage increases in order to compensate for the real loss during the latter years of the dictatorship (Negrepondi-Delivani, 1981). High wage increases after the 1981 victory of the socialist party contributed to the inflation rates of the 80s. Similarly the lack of any comprehensive planning ability on the behalf of the Greek governments and the ineffectiveness of their anti-inflationary policies may be cited as important contributing factors. The

result was that Greece experienced higher than average rates of inflation than most OECD countries.

One can also point to a very important contributing factor to the high inflation rates was the high levels of military expenditure during this period as a result of the Turkish invasion of Cyprus in 1974 and the conflict with Turkey over the Aegean Sea. Military expenditure in Greece during 1975-84 was on average 6.6% of GDP (higher than any other NATO country). Table 2.7 shows military spending during this period as a percentage of both government expenditure and as a share of GDP, and table 2.8 shows that Greece continued to be one of the world's high military spenders. In table 2.7, noticeable is the sudden increase of defence spending in 1975 the year following the Turkish invasion of Cyprus. Similarly, the increasing debt of central government during this period, shown in table 2.9 as a percentage of GNP, could also be attributed to the high levels of military spending.

Table 2.7

ME as % of GEX and GDP

| Year | ME ($ mil) (1973 prices) | ME as % of GEX | ME as % of GDP |
|------|--------------------------|----------------|----------------|
| 1974 | 650 | 24.5 | 4.2 |
| 1975 | 1043 | 26.6 | 6.8 |
| 1976 | 1197 | 24.7 | 6.9 |
| 1977 | 1447 | 25.8 | 7.0 |
| 1978 | 1230 | 25.3 | 6.7 |
| 1979 | 1262 | 24.0 | 6.3 |
| 1980 | 1093 | 22.9 | 5.7 |
| 1981 | 1294 | 21.6 | 7.0 |
| 1982 | 1318 | 21.1 | 6.9 |
| 1983 | 1202 | 18.6 | 6.3 |
| 1984 | 1428 | 18.3 | 7.2 |
| 1985 | 1417 | 16.3 | 7.1 |
| 1986 | 1320 | 17.1 | 6.9 |

Sources: SIPRI Yearbooks and Government Budgets

## Table 2.8

## Relative Burden of Military Expenditures, 1983

| ME/GNP* (%) | GNP PER CAPITA (1982 dollars) | | | | | |
|---|---|---|---|---|---|---|
| | Under $200 | $200-499 | $500-999 | $1,000-2,999 | $3,000-9,999 | $10,000 and over |
| 10% and over | Laos†<br>Vietnam†<br>Kampuchea† | Yemen (Aden)<br>Cape Verde† | Angola<br>Yemen (Sanaa)<br>Zambia†<br>Nicaragua | Iraq<br>North Korea<br>Jordan<br>Syria<br>Mongolia† | Israel<br>Oman<br>Libya<br>Soviet Union | Saudi Arabia<br>Qatar† |
| 5-9.99% | Somalia<br>Ethiopia | China<br>Guyana†<br>Mauritania<br>Guinea†<br>Pakistan<br>Afghanistan† | Egypt<br>Morocco<br>Zimbabwe<br>Peru<br>Honduras† | Lebanon<br>Taiwan<br>Albania†<br>South Korea<br>Cuba†<br>Malaysia<br>Iran | Bulgaria<br>East Germany<br>Greece<br>Czechoslovakia<br>Singapore<br>Poland<br>United Kingdom | United Arab<br>Emirates<br>United States |
| 2-4.99% | Burma<br>Burkina Faso<br>Mali<br>Benin<br>Chad†<br>Bangladesh | Guinea-Bissau†<br>Lesotho<br>Mozambique†<br>India<br>Burundi<br>Equatorial<br>• Guinea†<br>Liberia<br>Tanzania<br>Togo<br>Senegal<br>Madagascar<br>Kenya | El Salvador<br>Thailand<br>Swaziland<br>Botswana<br>Indonesia<br>Nigeria<br>Cameroon | Turkey<br>Chile<br>South Africa<br>Yugoslavia<br>Congo<br>Portugal<br>Uruguay<br>Tunisia<br>Algeria<br>Argentina<br>Guatemala | Romania<br>Hungary<br>France<br>Cyprus<br>Belgium<br>Netherlands<br>Trinidad and<br>Tobago<br>Italy<br>Gabon<br>Suriname<br>New Zealand<br>Spain | Kuwait<br>Bahrain<br>West Germany<br>Sweden<br>Norway<br>Australia<br>Denmark<br>Canada |
| 1-1.99% | Zaire<br>Nepal | Central African<br>Republic<br>Sao Tome &<br>Principe<br>Malawi<br>Sri Lanka<br>Haiti<br>Rwanda<br>Uganda | Bolivia†<br>Philippines<br>Sudan<br>Ivory Coast<br>Papua New<br>Guinea | Panama†<br>Paraguay<br>Ecuador<br>Dominican<br>Republic<br>Jamaica<br>Fiji†<br>Colombia | Ireland<br>Austria<br>Venezuela<br>Malta<br>Japan | Switzerland<br>Finland<br>Luxembourg |
| Under 1% | | Sierra Leone<br>Niger<br>The Gambia | Costa Rica | Brazil<br>Mexico<br>Ghana†<br>Mauritius | Barbados | Iceland |

Source: ACDA Yearbook (1985)

## Table 2.9

## Central Government Debt as % of GNP 1975-84

| Year | Total Debt | Foreign Debt | Internal Debt |
|---|---|---|---|
| | ( all as percentage of GNP ) | | |
| 1974 | 19.6 | 5.5 | 14.1 |
| 1975 | 21.8 | 7.4 | 14.3 |
| 1976 | 21.4 | 6.1 | 15.4 |
| 1977 | 21.7 | 4.9 | 16.7 |
| 1978 | 28.6 | 5.1 | 23.5 |
| 1979 | 26.8 | 5.3 | 21.4 |
| 1980 | 26.8 | 6.2 | 20.5 |
| 1981 | 31.8 | 7.7 | 24.1 |
| 1982 | 35.2 | 8.9 | 26.3 |
| 1983 | 40.8 | 12.4 | 28.3 |
| 1984 | 49.4 | 16.3 | 33.1 |

Source: The Greek Economy in Figures,
Vol III, Bank of Greece, (1986)

Many have argued that most of the problems that the country's economy currently faces need serious long term planning and measures. Measures that take into consideration the rapid changes in the international economy as well as the long term implications of the country's membership of the European Community as the pace towards European integration accelerates. They have called for an evaluation and rethinking of the country's position in the international division of labour. No consensus however exists on the future development road that the country should follow (see for example: Dracatos, 1988; Aggelopoulos, 1981 and 1986; Vamvoukas, 1989). The various proposals depend a lot on the writer's assessment of the post-war development path that Greece has followed and on his/her political stance. To the debate on the country's development we now turn.

## 2.6 The Concept of Development

Since the collapse of the dictatorship and the return to full parliamentary democracy a debate has ensued on the nature of the post-war development of Greece.

The debate concerning the development of Greece is not an isolated example of disagreement between writers on the subject, but rather it is part of the wider debate on the issue of development and of what it actually comprises.

Perhaps the conventional definition is the one that views development as "a multidimensional process or set of objectives, in which the dimensions are economic, social, political and cultural in the widest sense of these terms" (Colman & Nixson

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1978, p.4). At the same time they also point out that development in this sense is not synonymous with economic growth and it is possible to envisage development with negative growth as it is also possible to have economic growth with negative development. Dowd (1967) notes that "growth is a quantitative process principally involving the extension of an already established structure, whereas development suggests qualitative changes, the creation of new economic and non-economic structures" (p.153). Similarly, Todaro (1981) perceives development "as a multidimensional process involving the reorganisation and reorientation of entire economic and social systems. In addition to improvements in incomes and output, it typically involves radical changes in institutional, social and administrative structures as well as in popular attitudes and, in many cases, even customs and beliefs" (p.56).

On the basis of the aforementioned definitions it is evident that development can be judged or measured on the basis of qualitative criteria. However, most of the measurement indicators used are quantitative ones. Attempting therefore to measure it, is particularly difficult since no quantitative indicator is capable of exactly measuring a qualitative criterion. It could be said therefore that, to a large extent, the rate and, in our case, the relative level of development are normative concepts whose definition and measurement may well depend upon the value judgments of the analysts involved. Perhaps this explains to a certain degree the disagreements that exist between the various writers on the subject.

The issue is further complicated by the fact that countries

have diverse structures and different characteristics and it is difficult to make absolute generalisations. As Baran (1957) points out "just as the advanced sector includes a multitude of areas as far apart in economic, social, political and cultural characteristics as the US and Japan, Germany and France... so the underdeveloped sector is composed of a wide variety of countries with tremendous differences between them" (p.265). With regard to this diversity of the various countries Todaro (1981, p.24) lists seven major areas of possible diversity:

1) The size of the country (geographic, population, income)

2) Historical evolution

3) Physical and human resource endowments

4) The relative importance of the public and private sectors

5) The nature of the industrial structure

6) The degree of dependence on external economic and political forces

7) The distribution of power and the institutional and political structure within the nation.

At the same time of course, those countries also share a number of common characteristics such as relative low standards of living, low productivity and a degree of dependence to advanced countries; and "in attempting to comprehend the laws of motion of both the advanced and the backward parts of the capitalist world, it is possible, and indeed mandatory, to abstract from the peculiarities of the individual cases and to concentrate on their essential common characteristics" (Baran 1957, p.265). On the other hand though, when it comes to examining specific cases it is essential for the analysis not to

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try to classify countries by all costs to one of the generalised groups but rather, it should try to approach the specific case allowing for and incorporating its peculiarities. It is on the basis of the above that we now turn to discuss on a more general level the post-war development of Greece and to attempt an overall evaluation of the Greek development process.

## 2.7 The Debate on Greek Development

On the face of it, the economic development of Greece, which was achieved without any form of comprehensive planning, can be said to have been satisfactory. If one relies purely on the various indices of economic growth s/he can come to the conclusion that Greece, practically undeveloped and devastated by the long years of the Second World War and the menace of the Civil War that followed, had reached by the late seventies, before the current economic crisis, a fairly satisfactory level of development. If one looks at GNP growth rates it can be seen that in the period 1951-86 it averaged 5.35% per year. Per capita GDP also rose from 9,843 Dr in 1950 to 46,028 Dr in 1986 (constant prices). The numbers seem to tell a fairly successful story. However, to pass judgement only on the basis of the various growth indicators it will probably lead to wrong conclusions.

To seek a more correct picture one needs to look underneath the surface of things. It is then that a fuller picture emerges on the basis of which one can attempt to draw a sketch of the Greek development model. This though is easier said than done.

As Delivani-Negreponti (1985) points out there are many difficulties in attempting to trace the fundamental directives of the development model of the Greek economy. This is mainly due to the fact that, on the whole, the economic policies of successive governments were aimed to provide short term solutions to current economic problems. There was a distinct lack of any long term planning for development with concrete goals and targets for the direction of the Greek economy. It is probably no exaggeration to say that the development of the Greek economy was left to a large extent to the factor chance. This said however, one can identify certain characteristics, and by observing the curious mosaic of measures and, most important, their results, it is possible to attempt to sketch a model of the development direction of the country in the postwar period.

Needless to say, however, that there is no consensus among the writers on the subject of the development of Greece. On a broad basis one can identify two main trends of approach to the issue.

In the first instance there are those who by using a number of economic indices such as per capita GDP, the contribution of industry to GDP, the share of industrial products in total exports etc (Table 2.10) attempt to derive the general level of development of Greece . On the basis of their examination of such economic indicators they conclude "that as a result of the post-war development, Greece was transformed from an undeveloped country to one with a middle level of development in the periphery of the developed capitalist countries, with the tendency to evolve to a developed one" (Babanasis and Soulas,

1976, p.23). Similarly "Greece in the last fifteen years evolved from an agricultural country to an agricultural-industrial one and she has entered the take-off stage" (Zachareas, 1972, p.18). Broadly similar conclusions have been reached by other writers such as Nicolinacos (1977), Dovas (1980), Avdelidis (1975) and Samaras (1982). The latter also points out that Greece is at the bottom of the European league of development just above Portugal in terms of its level of development and this despite the satisfactory post-war rates of growth.

On the other hand there are those writers who approach the issue from the angle of a historical analysis of the Greek development process emphasising the peculiarities of Greek capitalism in relation to the metropolis-satellite distinction.

It is thus pointed out that from looking at the position Greece occupies in the international division of labour she could possibly be classified as a less developed peripheral economy. But from the angle of the degree of national economic integration she is more comparable to the western economies of the core (Vergopoulos, 1975). Similarly Poulantzas (1976) argues that in the case of countries such as Greece (he also refers to Spain and Portugal) it "would be wrong to foist on these countries the traditional notion of underdevelopment. By their economic and social structure, they are now part of Europe ... we can even say that certain features of the new dependence that they present to the US and to the other European countries (the EEC) also characterise those European countries that themselves form part of the imperialist metropolises..." (p.10).

## Table 2.10

### Changes in major economic indices 1950-80

------------------------------------------------

| | 1950 | 1960 | 1970 | 1980 | Change 1980/50 |
|---|---|---|---|---|---|
| 1) GDP Factor prices million dr. (constant 1970 pr) | 74,355 | 129,201 | 258,000 | 417,200 | +5.6 times |
| 2) Per Capita National Income (current US $) | 143 | 429 | 1,154 | 4,377 | +30.6 times |
| 3) Per Capita National Income (constant 1970 US $) | 351 | 582 | 1,154 | 1,692 | +4.8 times |
| 4) Imports as % of GDP (current prices) | 21.3 | 18.8 | 21.3 | 31.1 | +1.5 times |
| 5) Exports as % of GDP (current prices) | 5.2 | 10.3 | 11.6 | 21.7 | +4.2 times |
| 6) Exports as % of Imports | 24.4 | 54.7 | 54.6 | 69.7 | +2.9 times |
| 7) Primary Sector's Share of GDP | 27.9 | 23.4 | 18.3 | 14.5 | -0.48 times |
| 8) Secondary Sector's Share of GDP | 20.1 | 26.0 | 31.6 | 32.3 | +1.61 times |
| 9) Tertiary Sector's Share of GDP | 52.0 | 51.6 | 50.1 | 53.2 | +1.02 times |
| 10) Relation between Primary & Secondary sectors ( 7/8) | 1.39 | 0.90 | 0.58 | 0.45 | -0.68 times |

Source: Kindis, (1982)

The important contribution by Mouzelis (1978) in understanding
the development of modern Greece should also be mentioned here.
He argues that the main characteristic of the country's
underdevelopment is to be seen in the existence on the one hand,
"of a technologically advanced, highly dynamic, foreign

controlled manufacturing sector" which, on the other hand "is not organically linked with the rest of the economy so that the beneficial effects of its growth are not diffused over the small commodity agricultural and artisanal sectors but are transferred abroad". He points out that in the post-war period much, if not all, of the industrial development of the country was due to the "direct help from foreign capital which injected itself into the key sectors of Greek industry" (p.29). For him the major source of dynamism of the Greek socioeconomic formation was exogenous rather than endogenous. Fotopoulos (1985), however, points to certain problems which may undermine the usefulness of the approach. He questions the validity of characterising Greek agriculture as precapitalist and as being stagnant which appears to contradict the post-war growth rates of the sector despite the fact that agricultural population has been decreasing. He also disagrees with the assertion that the capitalist mode of production, in a strict marxian sense, is indeed the dominant mode of production in the Greek social formation.

When attempting to sketch the post war development of Greece the prevailing conditions in the country at the start of the period must be taken into consideration. The socioeconomic and political state of affairs that the country was in at the beginning of the period under consideration here is not important in our examination only in a quantitative way. That is in allowing us to quantify the progress achieved over the forty or so years. It is important for a more vital reason. In a way the socioeconomic and political situation at the time influenced and

in a sense predetermined in a qualitative, as well as quantitative way, Greek development over the next three and a half decades. With the given set of circumstances, the development path followed and the results achieved can not, in retrospect, said to have been totally surprising or unexpected. Had a different set of circumstances prevailed then a quantitative and qualitative different development would have been achieved. In a way this is stating the obvious but it is very important to bare those circumstances in mind.

What were the prevailing socioeconomic and political circumstances in Greece at the beginning of the 50s? The already backward and undeveloped economy of the country was devastated after a decade of fighting. Most countries during the late forties were engaged in rebuilding and modernising their already existent industrial base. Greece on the other hand was torn apart by a bloody Civil War. At the time she had an almost non existent industrial structure and relative low physical and human resource endowments. Many of her brightest young people were either killed during the long years of fighting or persecuted if they were on the defeated side. The availability of investment capital from internal sources of finance was particularly low. Greek capital, in its best pre-war traditions, mostly chose to engage in commerce and construction activities rather than in the manufacturing sector. It was apparently unable or unwilling to orient itself towards the manufacturing sector and especially in key branches which usually can contribute most to a rapid growth of the industrial sector. In fact as the figures show in table 2.11 below, investment in manufacturing throughout the period

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was comparatively low. The construction industry has been the
sector that attracted most investment. This may help explain

Table 2.11

Sectoral Distribution of Fixed Capital Formation

|  | 1950 | 1955 | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 |
|---|---|---|---|---|---|---|---|---|
| Agriculture etc | 11.2 | 7.9 | 17.4 | 12.3 | 10.6 | 10.5 | 6.6 | 9.1 |
| Quarrying, Mining | 1.1 | 0.8 | 0.5 | 1.2 | 2.1 | 2.2 | 5.8 | 4.0 |
| Manufacturing | 22.7 | 12.2 | 9.9 | 14.3 | 14.2 | 17.6 | 16.1 | 14.2 |
| Energy, Water, Sewage | 3.4 | 10.2 | 7.9 | 9.7 | 7.2 | 8.1 | 7.2 | 12.1 |
| Transport, Communications | 17.1 | 9.2 | 18.8 | 17.1 | 20.8 | 18.8 | 20.9 | 22.6 |
| Dwellings | 29.7 | 44.2 | 29.2 | 31.6 | 27.9 | 27.4 | 29.4 | 21.5 |
| Public Administration | 6.3 | 2.4 | 1.4 | 0.4 | 1.2 | 0.8 | 0.5 | 1.2 |
| Other | 8.4 | 12.9 | 14.7 | 13.4 | 15.9 | 14.6 | 13.2 | 15.3 |

Source: The Greek Economy in Figures, (1986)
Electra Press and The Greek Economy
Vol III, (1984)

the growth of the secondary sector which was not associated with
a particularly large industrialisation of the country. In fact,
as it has been pointed out, only the industries in which there
was large foreign investment have shown over the years
substantial growth rates without however pulling with them the
rest of the economy.

All the aforementioned factors meant that either the country
would remain stagnant or that it would relay heavily on foreign

sources for financing her development. As we show, foreign capital did come into the country on a large scale, especially at the beginning of the 60s. This, of course, not only does it create dependency ties but also determines to a large extent the type of development and has a serious impact on the structure of the economy. Foreign capital would invest in those sectors of the economy that it considered most profitable with little or no attention for a proper articulation between the various sectors of the national economy. This would require a degree of government planning and intervention of the sort that successive post-war governments were unwilling or unable to undertake. Table 2.12 below shows the sectoral distribution of fixed capital of foreign ventures in Greece. The degree of foreign control in the various sectors is also important. Measuring this degree of control Samaras (1982) gives the following information on it: Petroleum and petroleum products 96%, transport 60%, basic metals 57%, chemical products 45%, electrical equipment 42%, plastics 40%, wood and cork 37% and tobacco 27%. However, he does not explain how he derives the figures. He also points out that a similar situation is to be found in banking and

finance.

Furthermore, the sectors that foreign capital has over the years shown a preference in investing, have on the whole tended not be antagonistic to sectors in the country of origin of the capital but complementary. As a result the underlying forces would be for the whole of the Greek economy to develop as a complementary one to the economies of the capitalist metropolis. Indeed, this tendency may be further strengthened with the

accelerating West European integration. In fact it

Table 2.12

Sectoral Distribution of Fixed Capital of Foreign Ventures (%)
------------------------------------------------------------------

|                                     | 1968 | 1979 |
|-------------------------------------|------|------|
| Food, Beverages, Textiles           | 7.9  | 18.1 |
| Non Metallic Minerals               | 7.2  | 15.3 |
| Chemicals, Plastics, Petroleum      | 37.6 | 20.3 |
| Basic Metals and Metal Products     | 36.9 | 21.5 |
| Machinery, Electrical Machinery     | 4.3  | 8.2  |
| Other                               | 6.1  | 16.6 |

Source: Giannitsis (1985, p. 276)

can be observed that in the past few years very little industrial investment in new branches has taken place with the notable exception of establishment of the arms industry. Most investment appears to be directed in service sector activities, namely tourism. The technology used in foreign capital ventures would also tend to be comparatively capital intensive and perhaps inappropriate for local conditions and unable to absorb surplus labour from agriculture, hence the high rates of migration experienced in the fifties and sixties in Greece (Table 2.13). This labour flow meant that Greece could boast near full employment levels for a substantial part of this period. Had it not been for emigration however it is likely that the employment picture may have been substantially different.

## Table 2.13

### Emigration Flow 1955-1968

| Year | Total Emigration | Europe No | % | USA, Australasia No | % |
|------|------|------|------|------|------|
| 1955 | 28,787 | 6,068 | 20.4 | 19,766 | 66.4 |
| 1956 | 35,349 | 7,780 | 22.0 | 23,147 | 65.5 |
| 1957 | 30,428 | 13,046 | 42.9 | 14,783 | 48.6 |
| 1958 | 24,521 | 6,567 | 26.8 | 14,842 | 60.5 |
| 1959 | 23,684 | 6,713 | 28.3 | 13,871 | 58.6 |
| 1960 | 47,768 | 26,927 | 56.4 | 17,764 | 37.2 |
| 1961 | 58,837 | 39,564 | 67.2 | 17,336 | 29.5 |
| 1962 | 84,054 | 60,754 | 72.3 | 21,959 | 26.1 |
| 1963 | 100,072 | 74,236 | 74.2 | 24,459 | 24.4 |
| 1964 | 105,569 | 79,489 | 75.3 | 25,327 | 24.0 |
| 1965 | 117,167 | 87,242 | 74.5 | 29,036 | 24.8 |
| 1966 | 86,896 | 53,050 | 61.0 | 33,093 | 38.1 |
| 1967 | 42,730 | 15,658 | 36.6 | 26,323 | 61.6 |
| 1968 | 50,866 | 23,501 | 46.2 | 25,891 | 50.8 |
| Total | 836,728 | 500,595 | 59.8 | 307,597 | 36.7 |

Source: Nicolinacos (1976)

At the same time, given the ideological commitments of consecutive right wing governments to a laissez-faire system and the lack of any comprehensive long term planning, there were no measures taken to ensure at least some degree of technology transfer to other more backward sectors of the economy. Furthermore, importing foreign technology meant that there was no attempt to develop sources of locally generated technology. This had long term technological dependency consequences for the country. Consequences that still haunt any attempts to produce internationally competitive manufactured products. The case of the infant and problematic Greek defence industry comes to mind as such an example. As we will see in chapter six, it survives due to large government subsidies and secured orders from the Greek armed forces with little or no competition from other

producers.

Perhaps indicative of the specific growth pattern of the secondary sector of the economy is its dependence on foreign sources for technology and capital equipment, and that many manufactured consumer goods are not produced locally and have to be imported. This is particularly true of products that require a certain degree of technological know-how such as motor cars, television sets, hi-fi systems, cameras and numerous electrical appliances. Table 2.14 gives the share of capital and manufactured consumer goods in total imports for the period 1962-86. Both of them regularly accounted for more than fifty percent of total imports.

Table 2.14

Share of Capital Goods and Manufactured
Consumer Goods to Total Imports 1960-86

| Year | Capital Goods | Manufactured Consumer Goods | Year | Capital Goods | Manufactured Consumer Goods |
|------|---------------|------------------------------|------|---------------|------------------------------|
| 1960 | 17.2 | 27.3 | 1974 | 27.2 | 20.3 |
| 1961 | 20.6 | 28.4 | 1975 | 30.4 | 23.6 |
| 1962 | 27.8 | 26.5 | 1976 | 27.8 | 24.9 |
| 1963 | 18.8 | 31.6 | 1977 | 28.4 | 26.7 |
| 1964 | 21.7 | 29.9 | 1978 | 27.5 | 27.4 |
| 1965 | 25.2 | 26.2 | 1979 | 24.4 | 25.6 |
| 1966 | 24.6 | 29.0 | 1980 | 22.4 | 20.6 |
| 1967 | 26.3 | 29.5 | 1981 | 19.5 | 22.5 |
| 1968 | 26.3 | 29.0 | 1982 | 20.5 | 24.6 |
| 1969 | 27.5 | 27.3 | 1983 | 20.0 | 24.4 |
| 1970 | 29.9 | 27.5 | 1984 | 17.8 | 22.7 |
| 1971 | 30.1 | 28.1 | 1985 | 18.3 | 23.9 |
| 1972 | 32.6 | 26.5 | 1986 | 20.7 | 29.8 |
| 1973 | 28.8 | 23.5 | | | |

Source: The Greek Economy in Figures (1987),
Electra Press and The Greek Economy
Vol III, Bank of Greece (1984)

Another important indicator of the weakness of the industrial base, and particularly the manufacturing sector of the economy, is the level of Greek value added in the gross value of the manufacturing sector's production. From table 2.15 we can see that in less than ten years there has been a sharp decline of value added in many branches of industry with a few exceptions. This is of particular importance since it may indicate a declining vertical integration of the industrial sector. It seems that indigenous manufacturing activities take place in fewer and fewer stages of the production process.

Table 2.15

Value Added as % of Gross Value in Greek Industry

|  | 1973 | 1980 | 1980:1973 |
|---|---|---|---|
| Food | 25.7 | 23.8 | - 7.4% |
| Beverages | 33.2 | 36.3 | + 9.3% |
| Tobacco | 25.1 | 24.8 | - 1.2% |
| Textiles | 40.0 | 38.1 | - 4.7% |
| Clothing - Footwear | 39.3 | 42.7 | + 8.7% |
| Furniture | 45.9 | 47.1 | + 2.6% |
| Publications | 51.2 | 54.4 | + 6.3% |
| Leather products | 29.1 | 32.7 | +12.4% |
| Other | 46.9 | 48.3 | + 3.0% |
| Wood - Cork | 41.2 | 36.4 | -11.6% |
| Paper | 39.2 | 27.1 | -30.9% |
| Rubber - Plastics | 49.2 | 39.7 | -19.3% |
| Chemicals | 46.3 | 32.7 | -29.4% |
| Petroleum products | 26.2 | 6.5 | -75.5% |
| Non Metallic Minerals | 52.2 | 41.6 | -20.3% |
| Metal Industries | 41.5 | 25.9 | -37.6% |
| Metal products | 40.5 | 34.7 | -14.3% |
| Machinery | 42.7 | 43.3 | + 1.4% |
| Electrical products | 37.2 | 34.7 | - 6.7% |
| Transport equipment | 55.5 | 56.9 | + 2.5% |

Source: Giannitsis (1985)

The stages that manufacturing activity still takes place are probably the latter stages of production which may imply that manufacturing relies more and more on imports and that it is no more than a mere assembly line of imported products. This development is of particular importance for the purposes of our study, since it would seem to point to substantial limitations to the venture of setting up a fairly well articulated and integrated arms industry. Noticeable is also the fact that traditional sectors of low-tech consumer products show a better performance than the sectors producing intermediate and capital goods. For our purposes we should notice the slight increase in value added in the transport equipment sector. This may be due to the increased operations of the Hellenic Vehicle Industry (ELBO, formerly Steyer Hellas) a company that, as we will see, is an important part of the Greek defence industry and as such has been the subject of substantial government subsidies and has guaranteed state orders. Apart from supplying the armed forces with jeeps, trucks, APCs and IFVs, as well as other transport equipment it has also expanded in the civilian sector with guaranteed orders from the state.

On a different level, very few controls on the activities of capital and particularly foreign capital meant that a substantial part of the profits made were exported and repatriated rather than reinvested locally to stimulate further development. As in the case of other countries it has been argued that overall there was a net outflow of capital from the country thus robbing her from much needed investment funds.

This, as well as the need to import most capital and

manufactured consumer goods, have resulted in a permanent balance
of payments deficit (Table 2.16). A situation that substantially
hinders any attempt to solve on a more permanent basis the
difficult economic problems of the country.

Table 2.16

Trade and Current Account Balance 1962-1987*

| Year | Trade Balance | Current Account Balance | Year | Trade Balance | Current Account Balance |
|------|---------------|-------------------------|------|---------------|-------------------------|
| 1962 | -398 | -106 | 1975 | -3,036 | -1,075 |
| 1963 | -436 | -80 | 1976 | -3,328 | -1,091 |
| 1964 | -555 | -205 | 1977 | -3,887 | -1,267 |
| 1965 | -685 | -273 | 1978 | -4,339 | -955 |
| 1966 | -745 | -264 | 1979 | -6,178 | -1,881 |
| 1967 | -697 | -221 | 1980 | -6,809 | -2,216 |
| 1968 | -772 | -247 | 1981 | -6,697 | -2,421 |
| 1969 | -884 | -336 | 1982 | -5,927 | -1,885 |
| 1970 | -1,084 | -402 | 1983 | -5,386 | -1,876 |
| 1971 | -1,302 | -327 | 1984 | -5,351 | -2,130 |
| 1972 | -1,571 | -368 | 1985 | -6,268 | -3,276 |
| 1973 | -2,800 | -1,175 | 1986 | -5,686 | -1,772 |
| 1974 | -2,888 | -1,212 | 1987 | -6,942 | -1,296 |

* Mil US $

Source: The Greek Economy in Figures,
Electra Press (1987)

The question that needs to be addresed now, on the basis of
the above overview and evaluation of the development of Greece,
is how can the country's development be characterised. Fotopoulos
(1975, 1985) argues that Greek development can be characterised
as dependent development on the basis of the following four
criteria:

a) Development based on the external market

b) Development that relies on foreign investment capital

c) Development dependent on foreign technology and know-how

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d) Lack of a complete industrial base

As we have so far seen, the Greek case appears to satisfy all
of the above criteria. Indeed, the dependent character of the
Greek economy is accepted by most writers on the subject. The
late industrialisation of the country in a way predetermined this
dependent development.

Despite this, for many the growth performance of the Greek
economy, on the basis of traditional growth indicators, has
represented an example of a successful development story. Broadly
speaking, three aspects of Greek development are of particular
interest to development studies:

First, is the fact that, in a developing country, the
development model followed relied to a large extent on the
private sector. State intervention in the economy, although very
extensive in many sectors, avoided any active and decisive
role in two key fields of the development process: direct
investment in productive activities and the creation of an
indigenous technological base.

Secondly, the implementation of an open doors policy towards
direct foreign investment and the import of technology in line
with the most orthodox - liberal traditions in economic thinking
which argue that growth and development can be attained on the
basis of those policies.

Finally, the implementation of a policy of gradual integration
of the national economy in the international one at a stage of
relatively low level of development.

On the basis of traditional indices of development the

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performance of the Greek economy has been quite satisfactory. This can be interpreted as a success of the country's orthodox/liberal development model. However, the prolonged and deep economic crisis, that the country is suffering from since the mid seventies, also highlights the severe limitations of this model. The economy appears to lack the means which will enable it to overcome the structural problems it faces in order to enter a new, qualitative different phase of development and to achieve a new place in the changing international scene. In short, it seems that it lacks any major sources of internal dynamism, a consequence of the dependent character of the country's development.

## 2.8 Conclusion

In this chapter we have surveyed and discussed the post-war growth and development of the Greek socioeconomic formation. It was pointed out that relying on the various indices of development the performance of the Greek economy can be said to have been quite satisfactory. At the same time we highlighted the fact that the development model of the country has important limitations. These are currently manifested in the chronic structural economic crisis of the country.

Throughout our survey and discussion we drew attention to the levels of military spending during this period and drawn attention to possible factors that may have influenced this expenditure. We did not, however, try to relate these levels of defence expenditure to the actual growth performance of the

country. This will be attempted in a subsequent section of this study. Nevertheless, certain questions concerning this issue need to be stated here and thus act as a guide to the analysis that follows. Did military expenditure influence and in what way the growth performance of the Greek economy? What were the avenues through which growth was affected? Was there a substantial opportunity cost in the allocation of resources to defence? Or what were the factors that necessitated the allocation of resources to defence rather than to other more productive uses such as the creation of a better infrastructure or indeed for health and education?

It is to these issues that we propose to turn our attention now. We begin by discussing issues concerning the sources of our data and draw attention to problems concerning their accuracy. At the same time we will look at different quantitative and qualitative aspects of military expenditure in order to gain a fuller picture of the matter. This is done in the following chapter.

CHAPTER 3

**FACTS AND FIGURES**

## 3.1 Introduction

When compared with the 19th and even the 18th centuries the 20th century can be said to have been an "age of bloodshed". World War I took more than 8.5 million lives in direct casualties, the Second World War cost around 15 million lives. Counting war-connected civilian deaths the figures reach 40 million for World War I and an even greater total for the Second World War.

The period since the end of the Second World War has been called by many a period of "relative peace". This essentially implies that during the past forty five years the major industrial countries have coexisted without a direct armed conflict. Furthermore, it is often argued that this relative peace between the major blocks can directly be attributed to the existence of nuclear weapons. They are regarded by a number of people as the prime factors deterring a Third World War taking place. But the deterrence that nuclear weapons may offer is for many others no credible deterrence at all. If in the present day balance of terror deterrence fails once it will probably fail for ever.

On the other hand, a very different picture emerges when one

considers the number of post-1945 conflicts throughout the world. These have included revolutions, military coups, civil wars, inter state wars, which have either directly or indirectly involved the two major superpowers. Indeed it has been estimated that during this period of the so called "relative peace" more than 100 wars have been fought throughout the globe in which over 30 million people have been killed. All these wars have been fought exclusively on Third World territory. The West was directly involved in 33 of them and the Eastern block in 18. Furthermore, during the same period, the volume of World Military Expenditures (ME) has been increasing constantly and has reached unprecedented levels in both developed and developing countries alike. The arms trade between countries is currently one of the most flourishing forms of international trade.

This upward trend in world ME is by no means a new phenomenon. Military expenditures have been increasing for many decades or even centuries. SIPRI, for example, estimates that world military expenditure in constant prices was in 1976 at least 30 times higher than it was in 1900.

A notable aspect of present day world ME is the increasing third world and developing countries share in the level of world military spending. Since the end of World War II, their military spending has shown an almost constant upward trend, generally at a much faster pace than that of developed countries. Recent developments in the sphere of international relations, however, with the new emphasis on cooperation rather than confrontation, will probably result in a slowdown in the rate of increase of world defence spending and may even lead to a fall in real terms.

The unprecedented levels that world military spending has reached, moved the United Nations (UN) Committee for Development Planning to state that "the single and most massive obstacle to development is the world-wide expenditure on national defence activity" (Jolly, 1978, p.ix) and to call for the global re-allocation of resources from defence to development.

Before looking with more detail at world military expenditure levels and their distribution in terms of regions, alliances and countries, it is necessary to draw attention to the question of the sources of such information and their reliability.

## 3.2 Sources of Data

By its very own nature, military expenditure has a strategic importance which often means that many aspects of it, such as its level and content, are either not made public or that full information is not always available. On the grounds of national security, many governments deliberately publish only partial information on military expenditure, or, parts of their military spending are often included within different categories of government expenditure. There are also differences between governments on what actually constitutes military expenditure. There is not a standardised calculation of military spending that is accepted and used by all governments. Thus different items may be included in military figures by one country but excluded by another.This of course makes the comparison between countries particularly difficult. The differences concerning what actually constitutes military expenditure may be based on genuine

conceptual reasons but, more often than not, such differences can be attributed to strategic considerations.

The above, are only a small part of the major issues and problems related to the reporting and use of military expenditure figures in studies of the topic. The extent of the problem can be better understood by looking at the 1975 UN General Assembly discussion, which emphasised four important points concerning the issue as summarised by Deger (1986, p.40):

a) The definition and scope of defence expenditure as well as disaggregated classification within the total military budget;

b) The deflation for price changes for military expenditure, and the choice of a suitable defence deflator to give a proper volume index of the defence effort;

c) Comparisons of military expenditure across countries, and comparable measures by which data expressed in national currencies can be converted to a common unit;

d) The valuation of resources used in the defence sector with due emphasis on economic systems and structures. This of course goes beyond the narrow confines of the problems concerning military expenditure as such, and indeed it is related to the major issues regarding the consequences of defence for the rest of the economy given its specific structural characteristics.

Differences also exist between the various international organisations which report on defence spending. These include the International Institute for Strategic Studies in London (IISS), the Stockholm International Peace Research Institute (SIPRI), the US Arms Control and Disarmament Agency (ACDA), the United Nations in the Disarmament Yearbook, the IMF in the

Government Finance Statistics Yearbook. Not surprisingly, the data of these sources also differ because there are differences in the definitions of military expenditure. The definition of military expenditure used by SIPRI (1973) includes the following items:

1. Pay and allowances of military personnel.

2. Pay of civilian personnel.

3. Operations and maintenance.

4. Procurement.

5. Research and development.

6. Construction.

7. Pensions to retired military personnel.

8. Military aid.

9. Civil defence.

10. Paramilitary forces.

11. Military aspects of atomic energy and space.

The NATO definition of military expenditure principally differs from that of SIPRI in its exclusion of civil defence from its definition of defence activities. The NATO definition of military expenditure includes the following items:

1. Outlays on military personnel.

2. Civilian pay and allowances.

3. Other equipment, supplies and operations (part).

4. Procurement of major equipment and missiles.

5. Other equipment, supplies and operations (including research and development).

6. NATO common infrastructure and national construction.

7. Pensions to retired military personnel.

8. Other expenditures (including outlays on national conscription and some insurance and indemnity items for former military personnel).

Although there is a NATO standardised definition of military expenditure, not all member countries use exactly the same definition and there are variations to be found between NATO members. Furthermore, as Kennedy (1983, p.50) points out, the NATO definition itself does not take into account the economic effects of having conscript armed forces as opposed to volunteer. This is bound to understate the cost of defence in those countries that use conscription and, therefore, it understates the burden element.

The issue is further complicated by the fact that SIPRI for example bases its estimates to a certain extent on figures produced by NATO or individual member states despite the differences in definitions. In any case any organisation's figures are as good as the figures publicised by the respective governments and, as we have seen, there are good reasons as to why states may not wish to make public all the details concerning military spending.

It is apparent from the above discussion that data concerning military expenditures must always be treated with a certain degree of caution and as not being totally accurate. It is obvious that the discussion so far has by no means exhausted the subject of data sources and their reliability. However, it is not within the scope of this study to examine this issue to great depth and detail. The above discussion was intended to highlight

some of the problems concerning the data that will be used throughout the study and how this may affect the calculations the results and the conclusions that will be reached. Nevertheless, it is reasonable to assume that, despite the aforementioned problems, the estimates made by organisations such as SIPRI, the ACDA and the IISS are fairly reliable albeit not totally accurate. In any case, they have to suffice in the absence of anything better.

Bearing in mind the above, we can now proceed to look in more detail at world military expenditure levels and their distribution between regions, alliances and countries.


## 3.3 Levels of World Military Expenditure
------------------------------------------------

The levels of world military spending have been steadily increasing for many decades. It has been estimated that in 1976 the level of world defence expenditure, measured in constant prices, was thirty times higher than in 1900. SIPRI data shows that in 1984 total world ME was approximately $800 billion (1980 prices and exchange rates). From this, about $70-80 billion was spent on military related research and development worldwide. By 1987 the level of world ME was estimated by ACDA to have passed the trillion dollar mark. At least 20% of the world's scientists and 25% of total world R & D are devoted to military related fields. The figures are probably even higher if we allow for the fact that much of such R & D is not declared by governments for military and strategic reasons. The picture provided by long term figures of world ME shows a constant upward trend for all regions

in the world since the end of the Second World War, for both developed and less developed countries alike as it can be seen in tables 3.1 and 3.2.

Table 3.1

World military expenditure, annual rates of change (%) 1976-85

|  | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|---|---|---|---|---|---|---|---|---|---|---|
| NATO | -2.4 | 3.0 | 1.9 | 1.3 | 3.3 | 4.2 | 6.3 | 5.3 | 3.1 | 6.3 |
| WTO | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.5 | 1.7 | 1.4 | 2.8 | 3.1 |
| Other Europe | 4.7 | -0.2 | 1.4 | 5.4 | 2.7 | -0.6 | 2.8 | 1.9 | 1.3 | 2.3 |
| Middle East | 9.7 | -3.7 | -0.4 | 5.2 | 4.3 | 12.1 | 13.4 | 1.9 | -3.5 | -3.5 |
| South Asia | 13.4 | -3.4 | 4.5 | 8.6 | 5.3 | 6.9 | 10.5 | 4.4 | 5.8 | 5.6 |
| Far East | 9.1 | 7.1 | 10.1 | 3.7 | 5.2 | 6.2 | 6.4 | 3.3 | 3.1 | 5.7 |
| China | 10.0 | -3.6 | 12.3 | 8.7 | -18.8 | -18.3 | 4.3 | -5.2 | -1.7 | -11.5 |
| Oceania | -0.4 | 0.5 | 1.8 | 3.0 | 5.9 | 7.3 | 3.9 | 2.9 | 7.6 | 1.4 |
| Africa | 5.4 | 4.2 | 2.4 | 6.1 | 0.6 | -6.2 | 0.6 | 2.1 | -9.5 | -1.3 |
| Central America | 8.2 | 28.5 | 6.9 | 0.9 | 8.9 | 14.8 | 2.6 | 7.7 | 3.7 | 1.2 |
| South America | 10.1 | 7.4 | -1.1 | 1.9 | 5.5 | 4.5 | 44.0 | -11.7 | -6.1 | -5.8 |
| World Total | 1.7 | 1.8 | 2.8 | 2.7 | 0.9 | 2.2 | 6.1 | 2.7 | 1.7 | 3.2 |

Source: SIPRI Yearbook (1986)

Table 3.2

Regional ME of LDCs and DCs (US $ Mil)

| | | 1<br>1952 | 2<br>1983 | 3<br>Ratio of 2 and 1 |
|---|---|---|---|---|
| Middle East | : | 886 | 50,000 | 56.43 |
| South Asia | : | 1,686 | 7,865 | 4.66 |
| Far East * | : | 3,225 | 32,950 | 10.22 |
| Africa ** | : | 475 | 14,100 | 29.69 |
| Central America | : | 375 | 2,825 | 7.53 |
| South America | : | 2,873 | 14,745 | 5.13 |
| China | : | 9,888 | 35,800 | 3.62 |
| USSR | : | 62,741 | 137,600 | 2.19 |
| WTO (total) | : | 62,873 | 151,130 | 2.40 |
| USA | : | 148,652 | 186,544 | 1.25 |
| NATO (total) | : | 219,916 | 307,171 | 1.39 |
| OPEC | : | 12,239*** | 48,745 | 3.98 |

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 *:   excl China              Source: SIPRI Yearbook (1985)
 **:  excl Egypt
***:  data for 1972
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In table 3.2, particularly noticeable is the massive increase in defence expenditure by less developed countries of the Middle East, Far East and Africa. In fact, as we will presently see, the share of the Third World's military spending has increased dramatically in past decades. This is due to the fact that, all wars since the end of World War II have been exclusively fought in the Third World and almost exclusively by developing countries. From this table we can see that in the years between 1952 and 1983 there has been a massive increase in the levels of ME in various regions of the Third World. For example, the Middle East multiplied its real military spending 56.4 times in these three decades, Africa's ME multiplied 29.7 times, South Asia's and China's four times, South America's five times, and Central America's ME rose seven times. Notable is the fact that, every

single regional subgroup of the Third World had a higher proportional growth rate of ME in this period than the two superpowers and their allies among the developed countries. This of course, is largely due to the many wars that have taken place in the Third World throughout the post-war period.

Although rates of world ME growth vary from year to year, comparisons show that there has been a considerable acceleration of military spending in the first half of the eighties. The average annual rate of growth over the years 1980-1984 was 3.5% which is well above the yearly average of 2.4% for the previous four years, i.e. 1976-80. The annual real rate of growth of military expenditures for the 1972-82 period averaged 5.0% for developing countries and 2.4% for developed countries.

This growth, can to some extent be attributed to the US rearmament programme during the years of the Reagan administration and to a much lesser extent to increased military spending by other NATO and Warsaw Pact countries. In fact, military spending in the US has been rising very fast - by about 8.5% p.a. in real terms since 1980. In all, there was a 40% real increase in military spending over the years 1980-1984 and the share of defence spending grew from 23% to 27% of the federal budget by 1984 (Rubin and Frisvold, 1985). Furthermore, a further 40% increase by 1989 was planned despite the huge budget deficit. With the cuts proposed by the Bush administration for most of the items of the Federal Budget it seems that this will not be realised. A further factor that already contributes to the slow down of defence spending is the new era in international

relations which places more emphasis on understanding and co-operation between nations and on finding peaceful solutions to world conflicts. Much of this new-found detente can be attributed to the rapid changes taking place in the socialist block and the Gorbachev proposals for massive reductions in both nuclear and conventional weapons. Whether this climate of understanding and calm is going to be a permanent feature of international relations remains to be seen.

In the case of the other NATO countries the growth rates of ME have been roughly stable at around 2% yearly in the period 1980-1984 with the exception of Britain where the average growth rate was about 6% partly due to the Falklands War (Table 3.3). The slower upward trend in ME in the European members of NATO may be partly due to their taking a rather calmer view than the US of the "Soviet threat", and partly to the fact that the economic objective of holding back the rise in public expenditure has been given primacy. In 1984 NATO's share of world ME was approximately 49.6%, the Warsaw Pact's about 24.1% and the Third World's share was about 18% which represented a drop from the peak of 20% reached in 1982.

Table 3.3

Estimated real growth of ME for NATO countries
1978-86 (figures in percentages)

| | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 |
|---|---|---|---|---|---|---|---|---|---|
| Canada | 9.8 | -2.1 | 2.6 | 3.7 | 4.3 | 7.3 | 6.6 | 2.9 | 3.1 |
| USA | 0.8 | 1.0 | 2.1 | 5.0 | 4.6 | 5.8 | 5.4 | 2.4 | 3.2 |
| | | | | | | | | | |
| Belgium | 6.6 | 2.2 | 2.0 | 0.9 | -3.3 | -4.0 | -4.3 | -2.9 | 0.0 |
| Denmark | 3.9 | 0.6 | 0.9 | 1.1 | 2.9 | 0.8 | -2.4 | -2.4 | -0.4 |
| France | 5.8 | 2.3 | 1.8 | 2.4 | 2.1 | 1.7 | -0.3 | -0.1 | 2.9 |
| FR Germany | 4.2 | 1.3 | 1.4 | 1.2 | -1.3 | 0.8 | -1.0 | 0.2 | 3.7 |
| Greece | 2.1 | -3.1 | -13.5 | 18.3 | 2.0 | -8.8 | 18.8 | -0.8 | -6.8 |
| Italy | 4.3 | 6.3 | 4.6 | 2.1 | 7.0 | 2.2 | 3.0 | 3.6 | 3.0 |
| Luxembourg | 8.7 | 3.0 | 16.4 | 3.4 | 0.9 | 2.2 | 0.5 | -2.5 | 11.5 |
| Netherl. | -3.4 | 6.0 | -2.7 | 1.1 | -0.4 | -0.9 | 1.7 | -1.2 | 2.6 |
| Norway | 7.0 | 2.4 | 1.1 | 1.0 | 3.9 | 4.3 | -3.7 | 15.2 | -4.7 |
| Portugal | 1.0 | 1.5 | 8.4 | -0.5 | 0.1 | -3.8 | -7.0 | 1.2 | 11.0 |
| Spain | - | - | - | - | - | 2.2 | 1.8 | 3.2 | -5.8 |
| Turkey | -8.4 | -11.3 | 3.6 | 12.8 | 9.3 | -3.7 | -4.5 | 4.8 | 14.6 |
| UK | 1.7 | 5.5 | 5.9 | 4.0 | 4.3 | 3.2 | 4.5 | 0.1 | 0.7 |
| | | | | | | | | | |
| TotalNATO Europe | 3.3 | 2.7 | 2.3 | 2.9 | 8.4 | 1.2 | 1.2 | 0.7 | 1.9 |
| | | | | | | | | | |
| Total NATO | 1.9 | 1.6 | 2.2 | 4.2 | 6.0 | 4.0 | 3.8 | 1.8 | 2.7 |

Source: SIPRI Yearbook (1987)

As already pointed out, an important aspect of world ME since the end of the Second World War is the relatively rapid rate at which defence spending has increased in the Third World. In 1984 the share of Third World ME was about 18%. In 1976 the Middle East contributed about 29% of the total Third World ME, the Far East 26%, South Asia and South America 15% each, Africa 10% and Central America about 4%. Notable are also the variations of ME in different Third World countries. In 1974 Iran and Egypt alone accounted for 23% of the total Third World ME and together with Israel, India, Saudi Arabia, and North Korea accounted for 51%. The top thirteen Third World countries (out of 93 countries), i.e

the previous six plus Brazil, South Vietnam, South Africa, Pakistan, Taiwan, Iraq, and Kuwait in 1974 accounted for a massive 70% of the total Third World ME (SIPRI data). Table 3.4 below shows the changes in the percentage distribution of ME in the world since the fifties.

Table 3.4

Percentage distribution of world ME 1955-85

| | 1955 | 1960 | 1965 | 1970 | 1975 | 1980 | 1985 |
|---|---|---|---|---|---|---|---|
| NATO (total) : | 62 | 62 | 55 | 49 | 45 | 46 | 49 |
| WTO (total) : | 29 | 27 | 31 | 33 | 33 | 25 | 24 |
| Third World : | 3 | 5 | 6 | 8 | 12 | 18 | 18 |
| Other Developed : | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| China : | 3 | 3 | 5 | 6 | 6 | 7 | 5 |

Source: SIPRI, Yearbooks

Figures 3.1 and 3.2 show diagrammatically the upward trends of military spending. Figure 3.1 shows the trend in the Third World and various regional groups while Figure 3.2 shows the trend of ME in LDCs and OPEC countries as contrasted with that of the two major alliances NATO and WTO for 1952-1983. As already pointed out, the reason for this increase in the defence spending of LDCs is the fact that all conflicts throughout the post-war period have taken place on Third World soil.

**Figure 3.1: ME in LDCs and regional groups 1952-83.**
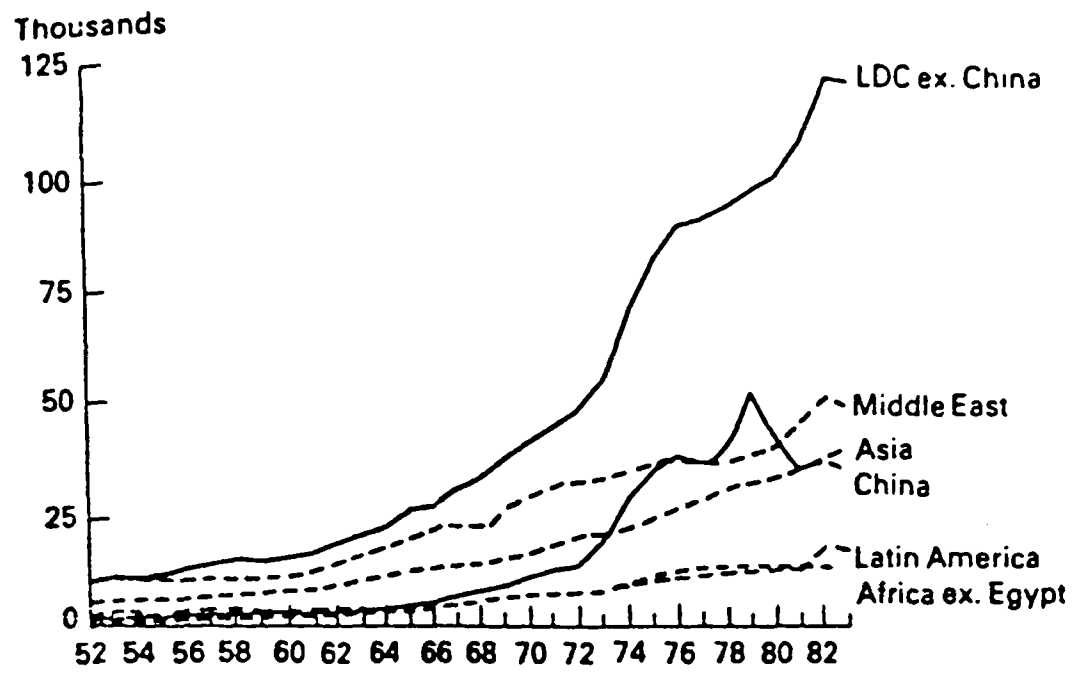


**Figure 3.2: ME in LDCs, OPEC, NATO, and WTO 1952-83.**
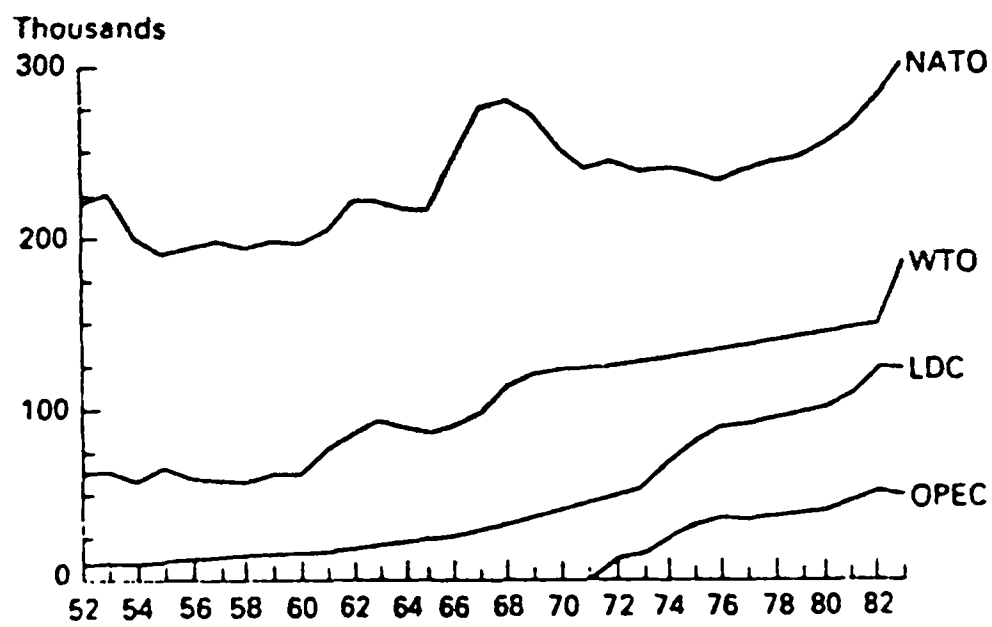


Source: Deger (1986)

## 3.4 Greek Military Expenditure

In our survey of the post-war development of Greece we have
seen that, throughout this period, military expenditure levels
were particularly high. Indeed, Greece belongs to the group of
countries that tend to allocate a substantial part of their
resources for military purposes. In fact, in recent years Greece
has on average devoted more resources (ME as % of GDP) for
defence purposes than any other European country as it can be
seen from table 3.5 which also has other comparative information
of defence expenditure in Europe in relation to other variables
as well. Throughout the post-war period, Greek defence
expenditure has followed a steady upward path as it will be seen
in this section where the relevant data on military spending is
brought together for a fuller picture to emerge. In our survey
of the Greek socioeconomic development attention was drawn at
what factors may have possibly influenced Greek military spending
during particular periods. These factors will be addressed in a
more systematic way in chapter five.

Table 3.5

ME in European countries in relation to other variables1983-85

| | Military Expenditure (average 1983-85) as: | | | | | |
|---|---|---|---|---|---|---|
| | $ per capita | Rank order | $ per sq. km | Rank order | As % of GDP | Rank order |
| **NNA*** | | | | | | |
| Austria | 126 | 17 | 11,409 | 14 | 1.2 | 24 |
| | | | | | | |
| Finland | 237 | 12 | 3,451 | 25 | 2.0 | 20 |
| Ireland | 94 | 20 | 4,695 | 23 | 1.7 | 22 |
| Sweden | 420 | 5 | 7,745 | 20 | 2.7 | 15 |
| Switzerland | 323 | 9 | 50,472 | 6 | 1.8 | 21 |
| Yugoslavia | 109 | 19 | 9,783 | 16 | 5.0 | 3 |
| **NATO** | | | | | | |
| Belgium | 360 | 7 | 115,097 | 3 | 3.1 | 12 |
| Denmark | 325 | 8 | 38,527 | 8 | 2.3 | 18 |
| France | 511 | 2 | 51,237 | 5 | 4.1 | 6 |
| FR Germany | 437 | 4 | 107,316 | 4 | 3.3 | 8 |
| Greece | 284 | 11 | 21,293 | 11 | 6.9 | 1 |
| Italy | 194 | 13 | 36,654 | 9 | 2.7 | 15 |
| Luxembourg | 139 | 16 | 18,556 | 12 | 1.1 | 25 |
| Netherlands | 368 | 6 | 129,260 | 1 | 3.2 | 11 |
| Norway | 457 | 3 | 5,779 | 21 | 3.0 | 14 |
| Portugal | 78 | 21 | 8,656 | 18 | 3.3 | 8 |
| Spain | 185 | 14 | 14,162 | 13 | 3.3 | 8 |
| Turkey | 64 | 24 | 3,951 | 24 | 4.6 | 4 |
| UK | 521 | 1 | 119,914 | 2 | 5.3 | 2 |
| **WTO** | | | | | | |
| Bulgaria | 125 | 18 | 10,162 | 15 | 3.1 | 12 |
| Czechoslovakia | 178 | 15 | 21,599 | 10 | 3.5 | 7 |
| German DR | 317 | 10 | 48,978 | 7 | 4.6 | 4 |
| Hungary | 70 | 23 | 8,029 | 19 | 2.3 | 18 |
| Poland | 75 | 22 | 8,815 | 17 | 2.6 | 17 |
| Rumania | 49 | 25 | 4,720 | 22 | 1.4 | 23 |

*Neutral, Non-Aligned

Source: SIPRI Yearbook (1987)

In 1953, at the start of the period that this study is concerned with, Greek military expenditure was $197 million. By 1986 this had risen to $1320 million in constant prices as it can be seen in table 3.6. This represents more than a sixfold increase in defence expenditure.

## Table 3.6

### Greek Military Expenditure 1953-86*

| Year | ME | Year | ME | Year | ME |
|------|-----|------|-----|------|------|
| 1953 | 197 | 1964 | 279 | 1975 | 1043 |
| 1954 | 211 | 1965 | 302 | 1976 | 1197 |
| 1955 | 216 | 1966 | 327 | 1977 | 1447 |
| 1956 | 281 | 1967 | 422 | 1978 | 1230 |
| 1957 | 247 | 1968 | 492 | 1979 | 1262 |
| 1958 | 242 | 1969 | 557 | 1980 | 1093 |
| 1959 | 251 | 1970 | 603 | 1981 | 1294 |
| 1960 | 266 | 1971 | 638 | 1982 | 1318 |
| 1961 | 258 | 1972 | 680 | 1983 | 1202 |
| 1962 | 262 | 1973 | 679 | 1984 | 1428 |
| 1963 | 268 | 1974 | 650 | 1985 | 1417 |
|      |     |      |     | 1986 | 1320 |

*(in constant 1973 mil dollars)          Source: SIPRI Yearbooks

From a different angle, military spending during this period has on average accounted for more than 5% of GDP (Table 3.7) and almost a quarter of all government expenditure for military purposes (Table 3.8). This has probably had an important effect on the country's development and growth performance during this period. The various channels through which this may have been the case will be examined later on in chapter eight.

Table 3.7

Greek ME as a % of GDP 1950-87

------------------------------------

| Year | ME % of GDP | Year | ME % of GDP | Year | ME % of GDP |
|------|-------------|------|-------------|------|-------------|
| 1950 | 6.0 | 1963 | 3.9 | 1975 | 6.8 |
| 1951 | 5.6 | 1964 | 3.7 | 1976 | 6.9 |
| 1952 | 5.3 | 1965 | 3.6 | 1977 | 7.0 |
| 1953 | 5.2 | 1966 | 3.7 | 1978 | 6.7 |
| 1954 | 5.5 | 1967 | 4.5 | 1979 | 6.3 |
| 1955 | 5.2 | 1968 | 4.8 | 1980 | 5.7 |
| 1956 | 6.0 | 1969 | 4.9 | 1981 | 7.0 |
| 1957 | 5.1 | 1970 | 4.9 | 1982 | 6.9 |
| 1958 | 4.8 | 1971 | 4.9 | 1983 | 6.3 |
| 1959 | 4.9 | 1972 | 4.7 | 1984 | 7.2 |
| 1960 | 4.9 | 1973 | 4.2 | 1985 | 7.1 |
| 1961 | 4.3 | 1974 | 4.2 | 1986 | 6.1 |
| 1962 | 4.1 | | | 1987 | 6.3 |

Sources: SIPRI Yearbooks


Table 3.8

Greek ME as a % of Government Budgetary Expenditure (GE)
1952-85

| Year | ME % of GE | Year | ME % of GE | Year | ME % of GE |
|------|------------|------|------------|------|------------|
| 1952 | 28.1 | 1963 | 20.8 | 1974 | 24.5 |
| 1953 | 27.5 | 1964 | 18.8 | 1975 | 26.6 |
| 1954 | 29.5 | 1965 | 19.2 | 1976 | 24.7 |
| 1955 | 29.4 | 1966 | 19.0 | 1977 | 25.8 |
| 1956 | 32.6 | 1967 | 21.8 | 1978 | 25.3 |
| 1957 | 29.6 | 1968 | 21.6 | 1979 | 24.0 |
| 1958 | 27.9 | 1969 | 22.6 | 1980 | 22.9 |
| 1959 | 26.4 | 1970 | 21.2 | 1981 | 21.6 |
| 1960 | 25.4 | 1971 | 20.6 | 1982 | 21.1 |
| 1961 | 23.1 | 1972 | 19.1 | 1983 | 18.6 |
| 1962 | 20.9 | 1973 | 18.4 | 1984 | 18.3 |
| | | | | 1985 | 16.3 |

Source: SIPRI Yearbooks, Government Budgets,
Bank of Greece (various years)

As already mentioned, Greece has been a member of NATO since

1952. To further stress the level of military expenditure by the

country we only need to compare it with that of other members of the Alliance. From table 3.9 we can see that, when compared with other members of NATO, Greece has in recent years often allocated more resources for military purposes (as a percentage of GDP) than any other NATO member. The most important aspect of this comparison is that Greece has done so while its average per capita income is only about one third of that of the advanced countries of NATO. Indeed Greece, along with Portugal and Turkey, is one of the poorest members of the NATO alliance.

Table 3.9

ME as a % of GDP in NATO

|  | average 1975-84 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|---|---|---|---|---|---|---|---|
| Belgium : | 3.3 | 3.4 | 3.5 | 3.4 | 3.3 | 3.2 | 3.3 |
| France : | 4.0 | 4.0 | 4.2 | 4.1 | 4.2 | 4.1 | 4.1 |
| W. Germany : | 3.4 | 3.3 | 3.4 | 3.4 | 3.4 | 3.3 | 3.3 |
| Denmark : | 2.4 | 2.4 | 2.5 | 2.5 | 2.4 | 2.3 | 2.3 |
| Greece : | 6.6 | 5.7 | 7.0 | 6.9 | 6.4 | 7.2 | 7.1 |
| G. Britain : | 4.9 | 5.0 | 4.8 | 5.0 | 5.3 | 5.3 | 5.4 |
| Italy : | 2.2 | 2.4 | 2.5 | 2.6 | 2.7 | 2.7 | 2.7 |
| Luxemburg : | 1.1 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| Holland : | 3.2 | 3.1 | 3.2 | 3.2 | 3.2 | 3.2 | 3.1 |
| Portugal : | 3.6 | 3.5 | 3.5 | 3.4 | 3.4 | 3.3 | 3.2 |
| Turkey : | 5.0 | 4.3 | 4.9 | 5.2 | 4.8 | 4.4 | 4.4 |
| Norway : | 3.0 | 2.9 | 2.9 | 3.0 | 3.1 | 2.8 | 3.2 |
| NATO Europe : | 3.7 | 3.7 | 3.8 | 3.8 | 3.8 | 3.8 | 3.8 |
| Canada : | 1.9 | 1.8 | 1.8 | 2.1 | 2.0 | 2.2 | 2.2 |
| USA : | 5.9 | 5.5 | 5.8 | 6.4 | 6.6 | 6.5 | 6.9 |
| NATO average : | 4.7 | 4.4 | 4.7 | 5.1 | 5.3 | 5.3 | 5.6 |

Source: Flight no 39 March-April (1986)

The defence burden of Greece, and for that matter any other country, should not only be viewed in terms of the expenditure for such purposes. There are a number of other resources that

are also devoted to defence, not least of which is the human resources. Once again, Greece occupies the first place among NATO members. The ratio of the Greek armed forces to the economically active population is higher than any other single NATO country (Table 3.10) and this can also said to be a burden on the country's resources.

Table 3.10

Armed forces as a % of economically active population
in NATO, 1980-85

|  | | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|---|---|---|---|---|---|---|---|
| Belgium | : | 2.8 | 2.8 | 2.8 | 2.8 | 2.7 | 2.7 |
| France | : | 3.0 | 3.0 | 3.0 | 3.1 | 3.0 | 2.9 |
| W. Germany | : | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 |
| Denmark | : | 1.6 | 1.6 | 1.5 | 1.5 | 1.5 | 1.4 |
| Greece | : | 6.1 | 5.8 | 5.8 | 5.3 | 6.1 | 6.2 |
| G. Britain | : | 2.2 | 2.2 | 2.1 | 2.1 | 2.0 | 2.0 |
| Italy | : | 2.4 | 2.5 | 2.5 | 2.4 | 2.4 | 2.5 |
| Luxemburg | : | 0.8 | 0.8 | 0.8 | 0.9 | 0.9 | 0.9 |
| Holland | : | 2.5 | 2.4 | 2.3 | 2.2 | 2.2 | 2.1 |
| Portugal | : | 2.3 | 2.3 | 2.3 | 2.4 | 2.6 | 2.6 |
| Turkey | : | 4.4 | 4.5 | 4.6 | 4.8 | 4.7 | 4.6 |
| Norway | : | 2.6 | 2.5 | 2.6 | 2.6 | 2.5 | 2.5 |
| NATO Europe | : | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |
| Canada | : | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| USA | : | 2.9 | 2.9 | 2.9 | 2.9 | 2.9 | 2.9 |
| NATO average | : | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |

Source: Flight no 39 March-April (1986)

Greece also has one of the longest in Europe compulsory military services for all males which currently is between nineteen to twenty three months depending whether the conscript serves in the Army, the Navy or the Air Force. Currently, her total armed forces are 170,500 men of which 130,000 are

conscripts. To this we have to add the 101,000 men of para-military forces which includes 26,500 men in the Gendarmerie and 70,000 part-time soldiers in the National Guard. From the 2,357,000 available manpower 1,906,000 are also, under the current regulations, fit and eligible in case of general mobilisation for military service. The Hellenic Armed Forces are made up by three branches. The Hellenic Navy with 19,500 men of which 12,000 are conscripts and with about 20,000 reserves; the Hellenic Army with a manpower of 115,000 which includes 90,000 conscripts and a number of NCOs and privates with a five year obligation and there are also 350,000 reserves; and the Hellenic Air Force with 35,000 men which includes 16,000 conscripts and 7,000 civilian personnel with a reserve force of 20,000 men.

The fact that Greece has a conscript army needs also be taken into consideration when it comes to examining the defence burden of the country. A conscript army means that only nominal money is paid to the men in the services. Had the country relied on a volunteer service, then, her defence spending would probably be much higher than the current levels.

## 3.5 Conclusion

This section was intended to offer a small picture of military expenditure levels in the world and to focus on the case of Greek defence spending. It has been shown that such expenditure levels in the world have constantly been rising with few signs of a reversal of this trend in the immediate future. Recent developments on the other hand, particularly in superpower

relations, may result, in the not so distant future, in a movement towards lower defence expenditure levels in the world. The sheer levels of all kinds of resources allocated to defence by the world make the issue of military expenditure a subject of particular interest to economics. Thus, in the next section we attempt a survey of how the issue of military expenditure has been addressed and analysed by economic theory with brief summaries of the main contributions on the subject.

CHAPTER 4


## MILITARY EXPENDITURE AND ECONOMIC THEORY


## 4.1 Introduction

It has been shown in chapter three that, the overall picture,
as depicted by long term figures of world military expenditure
(ME), shows that through the years there is a constant upward
trend in such spending and that in recent years this trend has
accelerated even further. This acceleration of military spending
in the world may to a large extent be attributed to the cold war
climate that existed between the two major military blocks and
the large number of regional conflicts in the early eighties. The
new era in international relations that stresses cooperation
rather than confrontation, will probably result in lower levels
of military expenditures throughout the world. Nevertheless,
despite the fact that throughout modern history every nation
state had some form of military institutionalised arrangements
where resources and funds were channeled, and that ME uses up
scarce resources of many kinds including science and technology,
until a few years ago comparatively little detailed research was
done as far as economics is concerned in this area. It was not
until after the end of the Second World War that concrete
research started on the subject of military spending.

This was mainly due to the fact that, up to that time, the

prevailing economic methodology was mostly concerned with the allocation of resources through forces operating within a competitive market framework. Furthermore, only insufficient and inaccurate data was generally available due to the high secrecy surrounding military spending. However, after the Second World War due to greater access to estimates and figures of ME, the growth of the public sector and state expenditure in capitalist countries and the increasingly high costs of armaments due to the application of modern and expensive technology led to more concrete research and analysis of military expenditure. "War" has become "far too serious a business to be left only to the generals".[1]

Recent years have seen an attack by many Western governments, such as the Thatcher ones, on public expenditures and the public sector of the economy in general. Despite the massive cuts on all forms of public spending, many such governments were committed and actually presided over large increases in military expenditures in real terms. As Georgiou (1984) points out, several questions arise concerning the subject of ME in capitalist countries: What role does ME play in capitalism? Does it stimulate capitalism or does it contribute to its demise? How do economists analyse the arms race? Can ME and the arms race be analysed by economists independently of the socio-political dimension? And perhaps more importantly, can there be a general theory of ME and the arms race or are they historically contingent?

Our purpose here is to provide a small survey of how military expenditure is examined by the different theoretical approaches

and how different writers of different schools of thought analyse military spending.

## 4.2 Classical Contributions
------------------------------

Despite the lack of concrete and extensive analysis on the subject of military spending and warfare up to the end of the Second World War by economists, references and discussions on this subject can be found in the works of various classical writers.

For example, in book V of "The Wealth of Nations" (1776) Adam Smith regards military spending as one of the "legitimate" forms of public expenditure. He regarded the provision of defence as being the most important duty of the sovereign. He wrote: "the first duty of the sovereign,[2] that of protecting the society from the violence and invasion of other independent societies, can be performed only by means of a military force. But the expense both of preparing this military force in time of peace, and of employing it in times of war, is very different in the different states of society, in the different periods of improvement" (Smith, 1776, book V, p.213). He then proceeded to derive the necessity for a paid defence force in the society. For him society is faced with a basic choice between some form of part-time military organisation, such as a militia, and a permanent standing army. This, according to Smith, is not to be decided on the basis of which is cheapest but rather on the basis of which is most suited to adequately protect society from external threats. In his view militias were less efficient than standing

armies since they exercised less often and were together for shorter periods. In the case of a standing army on the other hand, civilian attitudes dissolve and the individual members are transformed by disciplined combination into fighting units. In short they become professional soldiers rather than amateurs. Smith also drew attention to the ever increasing costs of providing weapons, due to the advances in technology and the continuous introduction of new and more modern weapons. Thus, training in the use of new weapons and war itself become ever more expensive. This led him to the question of how the increasing expenses of defence can be met. In his view, the defence of the society was for the common good and thus it would be reasonable to expect to be met by all the members of the society, each contributing according to his/her ability.

Smith, writing after the English-French Wars of 1756-63, also recognised that "great fleets and armies" were the model of "unproductive labour". After the more lethal European Wars of the 1790's another classical economist Jean-Baptiste Say, writing critically from the French side about war and its causes, added to Smith's view: "Smith calls the soldier an unproductive worker; would to God this were true! for he is much more a destructive worker; not only does he fail to enrich society with any product and consume those needed for his upkeep, but only too often he is called upon to destroy uselessly for himself, the arduous product of others' work" (in Kennedy, 1983, p.13). In his work J. B. Say introduced into the economics of war the important idea of human capital. For him, the loss of human life was not the only loss brought about by war. He also considered the losses of

the future in the form of foregone earnings and contribution to society's wealth that an early death brings about: "War costs more than its expense; it costs what it prevents from being earned" (ibid, p.13).

Another classical contribution to the issue of defence is to be found in Ricardo's works. His approach however, differed to that of Smith. Ricardo was mostly concerned with restraining governments from embarking on costly wars at public expense. His main contribution was on the issue of war finance and his proposals aimed to meet his objective of restraining the tendencies he saw in governments to become involved in unnecessary military conflicts with other states. For him, wars can be financed in two main ways: either by loans or by taxes. The ability of governments to raise finance for wars through the creation of public debt was in his opinion an unnecessary evil increasing the risks of wars for frivolous reasons, or wicked ambition or, worse, for financial gain. He argued that governments prefer loans as a means of financing war because this shifts the burden of the cost to the future. In his opinion the way to finance war was by taxes only and thus impose the burden on the present. Vast loans secured in the future, enabled governments to get into wars without restraint. On the other hand extra taxes that need to be agreed upon by Parliament first act, in Ricardo's view as a restraint.

Malthus also dealt with the subject of war, which he regarded as one of the inevitable checks on population and he saw the cause of war originating in the search for food and living space.

## 4.3 Inter-War Contributions
--------------------------------

Up to the First World War military matters were considered to be the exclusive province of the military. This, however, ended with the War which as Kennedy (1983) points out "established the connection between military power and the industrial system: without the latter the former was meaningless. Whichever side sustained the largest force and weight of armaments would be the last on its feet" (ibid, p.15). As a result of this change early twentieth century writers such as Hirst (1916) and Pigou (1921) also studied the problems of war efforts.

Hirst (1916) was alarmed by the cost of modern armies and war efforts pointing out that even during periods of peace the costs of weapons were rising faster than the general wealth of society. He also highlighted the importance that industry and industrial products play in winning modern wars. Wars came to depend more and more on the products of science rather than pure manpower. But, most importantly, Hirst made an early reference to what later came to be known as the military industrial complex writing that "unseen agencies kill or maim men by the thousand" (ibid, p.3). This point was further developed by him when he addressed the question of the role of the private armaments industry noting that "the armament tree has now grown until its leafy ramifications throw shadows over all the world". The competition for new markets between arms producers has intensified so much that even in the most backward countries one can find a market for the most modern weapons produced by the large arms

manufacturers who nevertheless "also co-operate from time to time for the purpose of stimulating the demand or raising prices" (ibid, p.92). He then embarked on a strong criticism of what today we would refer to as the military industrial complex and its interests. It is interesting to follow his argument since, despite the fact that it was written more than half a century ago, it still sounds surprisingly contemporary. Hirst argued that since the demand for weapons is always greatest during war, then, it can be said that war is the ultimate aim of the arms industry; or, if not the actual aim, then it is their raison d'etre: "the end and purpose for which they exist" (ibid, p.94). Thus, although mankind's interest clearly lies in peace with the minimum possible level of armaments, those in power, acting in the interest of the large arms producers, create arms races which are bound to lead to war. He observed that due to the ever increasing costs of war, and due to representative democracy, which has given people some small control over their rulers, perpetual warfare has been abandoned. Nevertheless, the large arms producers in order to secure lasting demand for their products need "to persuade the taxpayer that he requires armaments" and to achieve this "he must be shown that other nations are a menace. If one enemy flags in the race another can usually be found, and if there is a temporary lull in the trade a panic can be worked up with marvelous rapidity. Diplomacy working behind the scenes with the directors of this trade and the allied press is an invaluable aid at times when economic exhaustion or peace movements threaten business" (ibid, p.94-95). His observations are surprisingly contemporary. They bring

to mind the sometimes mass hysteria, summarised in the Cold War expression "reds under our beds", generated by governments and press alike, which is then used to justify the vast amounts spent on military preparations. More recently, the Reagan administration in the US justified its increased military spending by discovering or rediscovering "enemies" of the US in every corner of the globe.

Hirst also gathered statistics concerning the arms race between the major powers and he argued that in no way could such expenditure be productive. For him, military spending had an important adverse effect on the economy and ultimately slowed down growth. He also addressed the paradox of this waste of war and the economic prosperity that it seems to come with it. He concluded that war prosperity was a fictitious stimulus to economic activity, because once the stimulus is withdrawn "an augmented quantity of labour is left to compete in the market with a greatly diminished quantity of capital" (ibid, p.151).

Pigou (1921 and 1940) addressed the issue of the costs of maintaining a modern army in relation to the possible benefits that military service and training may have. He argued that whatever benefits may result from this they are probably more than outweighed by the loss of the corresponding benefits that would have otherwise have resulted if people were engaged in civilian economic activities. On the issue of the role of the big arms producers he notes among other things that due to "the private interest of makers of armaments ... they desire preparations for war ... it is to the interest of all of them to promote war scares and international competition in armaments"

(ibid, p.23), an argument very similar to that of Hirst (1916).
He also extensively discussed the question of the financing of
war, arguing that, most economic arguments he examined, pointed
to the financing of war by taxation: "It is plain that the
general trend of the various considerations set out so far points
towards the financing of war by taxation rather than by
(domestic) loans" (ibid, p.84). At the same time, however, he
pointed out that, since wars may last for a number of years,
taxation may discourage the extra work effort required by the
population during the years of the conflict in spite of any
patriotic stimulus that wars may generate.

Durbin (1939) reports that his work was the result of meetings
with other five people which begun in 1936 "when the probability
of another war with Germany became exceedingly great" (p.17). He
argued that the technics of modern warfare are greatly influenced
by science and technology. For him winning a war very much
depends on the technological, industrial and financial strength
of the country rather than the size of her armies. Thus during
periods of war it is necessary for the government to try to
mobilise the industrial and financial resources needed for the
war effort, and divert them from civilian to war use. He proposed
"six guiding principles for resource mobilisation": a rapid
increase in taxation; direct control of industry; an expansion
of the money supply; low rates of interest for government
borrowing; control of lending in the private banking sector; and
compulsory direct lending by banks to the government (ibid, p.75-
84). At the same time, however, he recognised the possible risks
that such policies may encompass. Heavy taxation could cause

"psychological discouragement and accompanying deflation in the private sector industry"; there may not be time to create an efficient control of industry by the civil service; the economy could be "swept up into an opening spiral of uncontrollable inflation"; and forced lending was an unpopular expedient" (ibid, p.102-104).

## 4.4 The Neo-Classical School
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Military spending is regarded by the Neo-Classical (N-C) School as one of the legitimate forms of public expenditure. For neo-classical economists military expenditure (including security spending) represents a classic example of a pure public good supplied by the state. The characteristics of a public good being:

a) It is undepletable, in the sense that its provision to one consumer does not reduce the provision available to another;

b) It is supplied in equal amounts to all consumers;

c) It is non-excludable, in the sense that once the good or service is provided to one section of the community it does not exclude other sections of the community from consuming it. Defence expenditure fulfills all these characteristics.

On the whole, N-C analysis of military expenditure accepts that the state must take appropriate defence steps in order to protect some well defined national interests against the possibility of aggression from a known potential enemy. The creation of the appropriate military precautions against such an aggression will act as a deterrent against a potential enemy

and will also help to preserve the peace by maintaining a balance of power.

Therefore, if one assumes the existence of a potential enemy, the state must have the capability first to deter aggression and, in case this should fail, to be able to defend the threatened national interests. It is also accepted that the supply of resources for military purposes has an opportunity cost of foregone investment or consumption or other uses and that the exact amount of resources that will be used for such purposes is determined by preferences between national security and investment or consumption of those resources. Such preferences are determined by economic, political, and social and military factors. The question, therefore, is how to get the optimum and desired defence capability at a minimum cost given the level of military technology.

Broadly speaking, ME is regarded as being a necessary function of the state and a problem of calculating an optimum policy given certain information and a known objective. Furthermore, the level and form of ME is mostly determined by the known objective of defence against a potential enemy of the national interests.

Of course, implicit in this approach, is the assumption that the state is a rational class-neutral actor balancing opportunity costs and security benefits in order to maximise some national interests to the benefit of all classes and social groups. It seems also that the existence of a potential enemy is taken for granted and war or aggression is assumed to be endemic to society because of the also assumed aggressive nature of man.

However, despite the fact that expenditure for military

purposes is regarded as a necessary and unavoidable function of the modern state, in this approach, it is also recognised that ME requires resources that could otherwise be used in civilian society.

## 4.5 Keynes and Military Keynesianism
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Despite the obvious costs of wars and the wasteful use of scarce resources for military purposes a number of people argued that, in certain circumstances, military spending can provide some economic benefits, mostly in stimulating aggregate demand.

The German historian Sombart (1913) emphasised what he called the "constructive" side of war and armaments. He argued that war promoted large scale industry both directly and indirectly and thus played a prominent role in the rise of modern capitalism. For him, the new armaments, due to the application of advanced technology, made necessary the organisation of their production and also due to the demand for ore and metals, stimulated the metallurgical industries in establishing larger and more efficient production units employing larger numbers of workers. Others, however, have argued that relatively peaceful periods contributed more to economic development, but they still believed that military spending, although wasteful, could be a short term solution to unemployment. This was based on the experience of several countries where the depression of the 1930's and the mass unemployment ended only with peacetime rearmament and war production. Good examples of such a case were Germany and Japan which, at the time, had largely based their economic recovery on

increased armaments expenditure. Hirst (1937) however pointed out that in the case of Germany "the reduction of unemployment is probably as much due to the expenditure on roads, drainage, and labour camps, as upon armaments" (p.95). Nevertheless, he did accept that while in most european countries there was economic depression with high levels of unemployment "in at least one of them, the vast expenditure on armaments, while reducing real wages and diminishing the comforts and necessities of life, has enlarged employment" (ibid, p.69).

A similar line was taken by Keynes (1936) who saw economic benefits in the "vast dissipation of resources in the production of arms: "It is, it seems, politically impossible for a capitalist democracy to organise expenditure on the scale necessary to make the grand experiments which would prove my case - except in war conditions". So for Keynes "... even wars may serve to increase wealth if the education of our statesmen on the principles of the classical economics stands in the way of anything better" (p.129). He observed that in the past wars have often been the only form of large scale loan expenditure which statesmen have though justifiable and this for in his view "has played its part in progress - failing something better" (ibid, p.130). It is true however that Keynes recognised that it would be more "sensible to build houses and the like, but if there were practical difficulties in the way of this" then war and rearmament "would be better than nothing" (ibid, p.129). On the issue of the causes of wars he observed that "War has several causes. Dictators and other such, to whom war offers, in expectation at least, a pleasurable excitement, find it easy to

work on the natural bellicosity of their peoples. But over and above this, facilitating their task of fanning the popular flame, are the economic causes of war, namely, the pressure of population and the competitive struggle for markets" (ibid, p.381).

The view that military expenditure could promote economic stabilisation and growth and generally be used as a tool of economic policy by the government was adopted by a number of Western governments. Military expenditure, like other forms of public and private consumption creates demand and employment. The origins of this view coincide and are interwined with the origins of the Cold War. The so-called "Military Keynesianism" is a set of ideas and assumptions about the compatibility and even beneficial effects of a high level of military spending and economic prosperity. It is a more or less explicit conception of the use of ME to promote economic stabilisation and growth within a broadly Keynesian framework. Mosley (1985) identifies five basic elements in it:

a) A demand management perspective on the economy and a concern with the problems of insufficient aggregate demand.

b) The willingness to use government fiscal and monetary policy to stimulate aggregate demand to maintain employment and spur growth.

c) The willingness to engage in planned deficits to support continued or expanded countercyclical government demand, in contrast to the older fiscal orthodoxy of the necessity of balanced budgets.

d) Reliance on government military expenditure to create such

demand.

e) The assumption that the government - subsidised high technology component of military industrial production contributes significantly to innovation and growth in the economy as a whole.

For many the use of military expenditure as a tool of economic policy for stimulating aggregate demand is particularly evident in the United States where a "permanent arms economy" has been established, and where the so-called "Military Keynesianism" has originated. The existence of a large scale military sector in the economy is seen as creating the necessary conditions for government intervention in the form of countercyclical demand management through marginal shifts in military expenditure.


## 4.6 Classical Marxist Contributions

In the writings of Marx and Engels there is no attempt to provide a systematic and extensive analysis of militarism in general and military expenditure in particular. The discussion that is found in their writings seems to concentrate in dealing with wars strategy and the development of weapons rather than with military spending in the capitalist system. This is not particularly surprising since they were more concerned with analysing the historical genesis, functioning and ultimate fate of the capitalist system rather than with any particular sector of the capitalist economy. Also they are concerned with the phenomenon of militarism rather than military expenditure as such. From the various references they make in their works it

appears that militarism for them, particularly in the guise of war, is a social and political phenomenon which has economic consequences. Militarism is seen to be a phenomenon or consequence of the social and political superstructure of society where the latter is dependent upon the economic base of this society. Discussing the army and navy Engels (1878) says that "Force, nowadays, is the army and navy and both as we all know to our cost are devilishly expensive. Force, however, cannot make any money...force is conditioned by the economic order, which furnishes the resources for the equipment and maintenance of the instruments of force". Furthermore, "the armaments, composition, organisation, tactics and strategy (of both the army and navy) depend above all on the stage reached at the time in production and communications. It is not the free creations of the mind of generals of genius which have revolutionised war, but the invention of better weapons and changes in the human material, the soldiers" (pp.187-188). For him the victory of force is entirely dependent upon the production of sophisticated arms which in turn rests on production as such, i.e. on the economic and industrial power of the particular country since "force is not a simple act of will, but requires very concrete preconditions in order to make its application possible. Above all it requires instruments among which the more perfect ones will vanquish the less perfect" (ibid, p.191) and since weapons must be produced this means that the producer of better arms will defeat the producer of less perfect ones.

This may help us understand to a certain extent at least the accelerating arms race between the two superpowers. Thus, we are

witness to never ending developments in the military applications of technology and constant innovations in military techniques and planning in an attempt from one superpower to gain the edge over the other. This is hoped will secure, as far as this is possible, victory in the case of a conflict. If indeed, this is the logic of military planners, then it is difficult to see how a reversal in the arms race can be achieved on a permanent basis without a fundamental change in the logic of states. This logic of course also applies in the case of regional conflicts between smaller states. This may also partly explain not only increasing military spending by such states, but also the bid of a number of such states to produce and posses nuclear weapons in an effort to achieve superiority over their enemies.

Marx himself also appears to agree with Engels thinking on the subject when he notes: "Is there anywhere where our theory that the organisation of labour is determined by the means of production is more brilliantly confirmed than in the human slaughter industry" (in Georgiou 1984, p.188).

The first classical marxist scholar to deal explicitly with the political economy of military expenditure was Rosa Luxemburg in her work "The Accumulation of Capital" (1913). In this work Luxemburg cites several functions of militarism in a capitalist economy.

First, she wrote, militarism plays a decisive part in the first stages of the European capitalist conquests and thus acts as a catalyst for primitive accumulation.

Subsequently, militarism became employed in the acquisition of colonies and serves in subjugating the peoples of the

conquered world. Then, by force and repression, the indigenous populations of the colonies become divided into classes, local cultures and industries are destroyed and political, social and economic hegemony is imposed upon them.

Thirdly, militarism is responsible "for enforcing the claims of European capital as international leader" (ibid, p.455) and for the creation and expansion of its spheres of interest in non-European regions.

Fourthly, militarism serves as a weapon in the struggle between capitalist states for the domination of the non-capitalist world.

However important militarism may have been in these respects, another important function, a purely economic function according to her, is that "it is a pre-eminent means for the realisation of surplus value; it is in itself a province of accumulation" (ibid, p.455). This, according to her, occurs in two ways.

Firstly, militarism makes a larger portion of surplus value available for capitalisation because the maintenance of the repressive instruments of the capitalist state is financed by tax revenue, specifically indirect taxation extorted from the working class by the state. For "if the workers did not pay...the capitalists themselves would have to bear the entire cost of it" (ibid, p.456). This would mean that a corresponding portion of their surplus value would have to be assigned directly to the maintenance of the organs of their class-rule, either at the expense of production which would have to be curtailed accordingly or, which is more probable, it would have to come from the surplus value intended for their consumption.

Secondly, militarism created new opportunities for highly profitable investment "when the monies concentrated in the exchequer by taxation are used for the production of armaments" (ibid, p.456). This also enhances economic concentration, establishes a secure market for the products of modern industry and increases the average rate of profit.

Luxemburg's theory of militarism aimed to explain two developments: Firstly, capital increasingly employs militarism for implementing foreign and colonial policy in order to get hold of the means of production and labour power of non-capitalist countries and societies. At the same time though, she also saw militarism evolving in the metropolitan countries as a way of diverting purchasing power away from the non-capitalist strata. Thus, "by robbing the one of their productive forces and by depressing the other's standard of living", the accumulation of capital and the evolution of capitalism will continue until the conditions thus created by the system "become conditions for the decline of capitalism" until such time that "accumulation can go on no longer" (ibid, pp.466-467). So it can be said that for her arms races and wars of imperialist expansion were crucial areas which demonstrated the developing contradictions within capitalism.

Bukharin (1917), also addressed the issue of armaments and militarism. Writing just after the beginning of the First World War he noted that "if state power is generally growing in significance, the growth of its military organisation ... is particularly striking" (p.125). For him, the struggle between what he called "state capitalist trusts", is decided in the first

place by the relation between their respective military forces, since the military power of the country is the last resort weapon that can be used by the competing groups of national capitals in their economic struggle for domination. Bukharin accepted that the growth in armaments increased the demand for the products of the relevant industries and in particular the heavy metallurgical industry thus increasing the relative importance of capitalists who he termed "cannon kings". But, he pointed out that it would be wrong to assert that wars are caused by the arms industries in an attempt to boost demand for their products. For him, capitalist society is unthinkable without armaments, as it is unthinkable without wars. But, he stressed, it is the inevitability of economic conflicts that conditioned the existence of arms. Thus, whenever economic conflicts intensify, armaments will increase.

Lenin (1916) in his famous work on imperialism did not contribute much more on the issue of militarism than previous writers such as Bukharin and Luxemburg. As Berghahn (1981) points out, it seems that most classical Marxist writings on the subject aimed at analysing the role and function of armies within the capitalist system and its development and did not try to offer a socialist military programme or to outline the possible future role of armies. They did not seem to go further than the slogan of arming the people and creating a peoples' army.

## 4.7 The Underconsumptionist School
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The use of military spending in order to maintain effective demand in advanced capitalism is the prevailing approach amongst a number of Marxist scholars. Their analysis of ME is based on the underconsumptionist approach within the Marxist tradition. The underconsumptionist approach to ME derives from the argument that the development of the capitalist mode of production leads, if unchecked, to economic crises and breakdown.

Probably the two writers most closely associated with the underconsumptionist explanation of military expenditure are Baran and Sweezy. The central theme in their work Monopoly Capital is the generation and absorption of economic surplus under conditions of monopoly capitalism. Basically there are two variants of the concept of surplus. First, there is the actual surplus which is defined by Baran (1957) as the difference between society's actual current output and its actual current consumption. In addition there is what Baran refers to as potential economic surplus which is the "difference between the output that could be produced in a given natural and technological environment with the help of employable productive resources, and what might be regarded as essential consumption" (ibid, pp.132-133). The latter variant is the one that is important to Baran and Sweezy (1966) and they argued that the fundamental law of motion of monopoly capitalism is the tendency for aggregate economic surplus to rise both absolutely and relatively over time. This tendency is the direct result of the price and cost policies of the large corporations that dominate

the economy in this stage of capitalism. Then they proceed to analyse the ways in which this rising surplus is absorbed or utilised in monopoly capitalism.

They identify three ways in which the surplus may be absorbed. First, by capitalist consumption; secondly, by capitalist investment; and thirdly by waste. Under waste they included a) the sales effort which includes advertising, product differentiation etc; b) government expenditure for civilian purposes including welfare services, public education etc; and c) military expenditure.

For them, government action in the form of civilian or military spending is necessary. However, the state action necessary to moderate the tendencies of the system is constrained by the characteristics of capitalism and the structure of power in bourgeois society. The state is inhibited from intervening in activities which could reduce capitalist profits either by government undertaking profitable activities or by reducing the ability of the capitalists to extract surplus from the workers.

They regard military expenditure as perhaps the most ideologically suitable form of government intervention in the capitalist economy. High levels of military spending are therefore necessary in order to maintain satisfactory levels of aggregate demand and employment in the economy and to offset the tendency towards stagnation and breakdown of the system. Thus, according to Baran and Sweezy, military expenditure under monopoly capitalism accounts for the lion's share of surplus absorption in the postwar period. Furthermore, they argued that militarism is necessary for the containment of the socialist

world and the protection of monopoly capital interests abroad.

However, they also show certain limitations on government military spending. On the one hand, the military industry is subject to rapidly declining costs per unit which places a limit on military spending as an outlet for the growing surplus. On the other hand, the growth in destructive force will sooner or later produce a counteracting force in the form of a disarmament movement, which also limits the expansion of military spending. Therefore, they argue that military spending cannot continue to absorb the increasing surplus.

Kidron (1970) takes a very similar position to that of Baran and Sweezy on the issue of military expenditure. He argues that in the postwar period capitalism has been faced with a permanent threat of overproduction and unemployment. Preventing the system from collapsing are the permanently high levels of military expenditure and this he terms the Permanent Arms Economy. According to him this stabilises capitalism by stimulating investment, increasing employment, generating technological spin-offs and through export revenues. For Kidron military expenditure is effective because a) it is politically and ideologically acceptable to the bourgeoisie whilst at the same time having no adverse effect on the general rate of profit; and b) it has a domino effect which gives rise to an arms race which in turn acts to stabilise capital on an international, as well as national, scale.

Purdy (1973) makes an important criticism of Kidron's theory which is also applicable to the work of Baran and Sweezy on the

subject. Purdy argues that the arms race is "a historically specific feature of a particular stage of capitalist development" (p.23) and for him it is this historical aspect of the arms race that Kidron seems to ignore in his analysis. According to him Kidron like other underconsumptionists appears to treat military expenditure in an ahistorical functionalist manner: he is concerned with the economic function of military expenditure within an unchanging capitalist economy.

Smith (1977) strongly criticises what he regards as a strong economic determinism in the underconsumptionist approach. He basically argues that the underconsumptionist analysis should not only show that military expenditure has the effect of increasing aggregate demand in the system but that in advanced capitalism it is primarily motivated by the desire to maintain aggregate demand. According to the underconsumptionist approach, as a capitalist economy grows richer, the generated surplus also grows, well above the necessary level for consumption and investment. The problem of absorbing the surplus and maintaining demand becomes greater and it requires higher levels of military spending in order to prevent stagnation and breakdown. This logic, according to him, seems to lead to the conclusion that the richer a capitalist country is the higher the level of ME that is required in order to maintain aggregate demand. A further implication is that countries with high levels of ME should in theory have on average lower levels of unemployment and higher growth rates than countries with low levels of ME. However, as Smith argues, this is not always supported by empirical data (Table 4.1).

Table 4.1

OECD Countries: a) military expenditure (ME) as % of GDP
                        (source: SIPRI Yearbooks)
             b) % of unemployment (%U). (Source: OECD,
                                        Economic Outlook
             c) % of GDP change (%GDP)    no: 37 June 1985)

| | 1 9 8 4 | | | 1 9 8 5 | | |
|---|---|---|---|---|---|---|
| | ME % GDP | %U | % GDP | ME % GDP | %U | % GDP |
| Greece | : 7.2 | 8.2 | 2.4 | 7.1 | 8.5 | 2.0 |
| USA | : 6.5 | 7.5 | 6.8 | 6.9 | 7.3 | 3.3 |
| UK | : 5.3 | 11.7 | 2.4 | 5.4 | 12.0 | 3.3 |
| Turkey | : 4.4 | 12.4 | 5.9 | 4.4 | 12.8 | 5.0 |
| France | : 4.1 | 9.3 | 1.7 | 4.1 | 10.5 | 1.3 |
| W. Germany | : 3.3 | 8.3 | 2.6 | 3.3 | 8.3 | 2.5 |
| Belgium | : 3.2 | 13.3 | 2.2 | 3.3 | 13.8 | 1.8 |
| Holland | : 3.2 | 15.6 | 2.2 | 3.1 | 15.3 | 1.8 |
| Italy | : 2.7 | 10.4 | 2.6 | 2.7 | 10.8 | 2.3 |
| Denmark | : 2.3 | 10.1 | 4.1 | 2.3 | 9.3 | 2.8 |
| Canada | : 2.2 | 11.3 | 4.7 | 2.2 | 11.0 | 3.3 |

Smith's criticisms of the underconsumptionist approach to
military spending supported by data examined through a number
of years and for a number of countries also suggest that, apart
from a few notable exceptions, high levels of military
expenditure do not exist in order to stimulate demand and that
there are a number of capitalist countries where aggregate demand
and employment were and are maintained without high levels of
military spending by the state.


## 4.8 Contemporary Contributions

Smith (1977) provides an alternative analysis of military
spending to that of the underconsumptionist approach. His work
along that of Kaldor (1976) are two examples of contemporary
studies of the topic of military expenditure.

Kaldor argues that militarism in the US and in the Western World in general must be understood in terms of a decline in the economies of the capitalist world. One can identify three basic propositions in Kaldor's thesis.

The first is based on the observation that the most important military techniques are based on the dominant industries of the capitalist economy. As those industries start to decline due for example to a recession many companies start facing the threat of collapse and closure. One way that the state can save at least some of them is by increasing military orders for their products.

Secondly, in the traditional arms industries technical progress tends to be in the form of product improvement rather than production methods. As a result weapons become more and more sophisticated and more expensive.

Finally, for Kaldor, increases in military spending result in diverting resources away from dynamic and productive industries into declining and/or unproductive ones. This assertion, however, may not reflect the true situation currently since many of the industries engaged in military production tend to be technologically advanced and much of their research and development is at the frontiers of science.

Kaldor (1976) argues that "taken together, the three propositions - that an increase in the procurement of arms is a response to economic decline, that the procurement of arms attains an independent momentum, and that an increase in the procurement of arms accelerates economic decline - amount to a feedback mechanism in which the armament process becomes part of a more general process of economic decline" (p.10).

Smith's (1977) alternative explanation of military expenditure is that there is a strategic requirement for capitalism to create a political and military superstructure in order to defend the system itself. He proposes three basic factors that influence the level and pattern of military expenditure. Those factors are not strictly economic, as the underconsumptionist approach, but rather political and military.

According to him, military spending in capitalist countries serves to increase the defence capability of the system, the so-called "free world", against the external "threat" of communism and national liberation movements in the Third World. The defence of the status quo and the dominant mode of production is represented in capitalist countries as being in the interest of the whole society, of all the classes.

Furthermore, since contemporary capitalism is a highly integrated international system, it is realistic for the various states to try and coordinate their activities for the defence of the capitalist system. Another factor influencing the level and pattern of ME in different countries is also the possible existence of regional disputes amongst them.

Apart from the "threat" of communism due consideration must also be given to the interimperialist rivalries and the requirement of a world hegemonic capitalist country to provide the guarantees of safeguarding the system on a world level. A country can exert hegemony through economic and financial strength but, most importantly, in order to secure and maintain its hegemony the particular country must exhibit both the ability and the willingness to use force to deal with any challenges to

its hegemony and to the capitalist system in general. Since the end of the Second World War the military power of the US has been crucial in creating and maintaining its hegemony over the system. This role of a "world policeman" and the main defender of the "free world" gives the US considerable benefits and great influence over the other capitalist countries. A manifestation of US influence over other countries is its ability to force upon them levels and patterns of military expenditure in order to share in the burden of defending the world capitalist system.

Due consideration must also be given to the use of ME within a capitalist state in order to protect internal security against threats to the system from within. This takes place not only through the use of the army for coercion but also through the ideological use of military values to develop feelings of national identity and sovereignty in order to create national rather than class consciousness among the workers and the exploited classes.

For Smith therefore military expenditure is mostly influenced by considerations of maintaining the capitalist system against a variety of threats to its existence, both internal and external, rather than only narrow economic considerations of maintaining satisfactory levels of aggregate demand as the underconsumptionist approach suggests. Nevertheless it is accepted that ME can and is used for that purpose as well. For him "high military expenditure is a contradictory requirement of capitalism" and "its economic consequences are such that it undermines what it was meant to maintain" (ibid, p.61). Finally, the distribution of the burden of military spending between the

capitalist countries is determined by the rivalries between them, their relative position in the international capitalist system, and by the hegemonic position of the US since the Second World War when it emerged as the undisputed imperialist centre.

## 4.9 The UN Reports

It was not until 1962, when the United Nations (UN) report on the Economic and Social Consequences of Disarmament was published, that any substantial research started on the economic consequences of military expenditure. The 1962 UN Report emphasised that disarmament would be beneficial since it would release resources that could be used for development purposes.

In 1972 the next UN report entitled Economic and Social Consequences of the Arms Race and Military Expenditures argued that "disarmament would contribute to economic and social development through the promotion of peace and relaxation of international tensions as well as through the release of resources for peaceful uses". The report among other things observed that "one major effect of the arms race and military expenditure has been to reduce the priority given to aid in the policies of donor countries" and that "it would take only a 5% shift of current expenditures on arms to development to make it possible to approach the official targets for aid". The UN report concluded by arguing that "a halt in the arms race and a significant reduction in military expenditures would help the social and economic development of all countries and would increase the possibilities of providing additional aid to

developing countries" (in Jolly, 1978, p.119).

Another UN report which followed in 1975 entitled From Military Expenditure to Development Assistance: a Proposal, examined further the 1973 resolution no 3093 A (XXVIII) of the UN General Assembly which, after a proposal by the USSR on 25-9-73, recommended that all the states that are permanent members of the UN Security Council should "reduce their military budgets by 10% from the 1973 level during the next financial year" and appealed to those states "to allot 10% of the funds so released for the provision of assistance to developing countries" and expressed the desire that other states and "particularly those with a major economic and military potential should act similarly" (in Jolly, 1978, p.129).

The 1977 UN report on the Economic and Social Consequences of the Arms Race" stressed that "the immense human and material costs of the arms race are the reasons which make disarmament imperative" and that "the continued mindless and uninhibited wastage of the arms race becomes ever more incongruous and unacceptable". Furthermore it argued that "there can be little doubt that the effects of sustaining large military expenditures over a long period has contributed to current inflation and its persistance in times of economic recession and high unemployment. A significant reduction in world military expenditure would help in bringing inflation under control". It also attacked the "tenacious myth" of the economic benefits of armaments stressing that the economic benefits of military spending are trivial in comparison with the economic costs. It was also argued that the arms trade "has opposite effects on the economies of importing

and exporting countries" and it results in a "highly unequal exchange, detrimental in the efforts to bridge the gap between poor and rich countries" (in Jolly, 1978, pp.144-148).

## 4.10 Conclusion
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He have so far looked at the levels of world military expenditure focussing onto the case of Greece. It has been shown that through time military spending has steadily been growing. In this section we have surveyed how the main economic schools of thought approach and analyse the subject of defence spending. We now intend to proceed and examine the various factors that influence the levels of such spending and test their application in the case of Greece during the post-war period.

CHAPTER 5

## THE DETERMINANTS OF MILITARY EXPENDITURE

## 5.1 Introduction

As it has already been shown in chapter three, Greece has one
of the largest levels of military expenditure (ME as % of GDP)
in NATO. In fact defence spending in Greece has increased from
$197 million in 1953 to $1320 million in 1986 in real terms (at
constant 1973 prices). Over the years the trend has been one of
constant increases in defence spending although there were
fluctuations between years. It could be said that this trend is
set to continue in the foreseeable future. Our task in this
chapter is to examine the main factors that influence or have
influenced defence expenditure in Greece in the period which this
study is concerned with.

This presents certain difficulties since there is a number of
different factors the relative importance of each may vary from
year to year or from period to period. There are a number of
different attempts to explain the determinants of military
spending each emphasising one or more factors. The discussion
that follows attempts to shed some light on the main factors that
may influence defence expenditure in Greece but the order in
which they are discussed is not one of importance since this does
not remain the same throughout the period concerned.

## 5.2 National Security
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Perhaps the most apparent determinant of military expenditure in the minds of most people are the ongoing frictions and confrontations between states and as a result of these war or the preparation for war. Frictions and confrontations between states can be related to the concept of the sovereignty of the modern state. State sovereignty is usually taken to mean that "the state is the supreme power, subject to the rule neither of some external power nor a rival power within its own boundaries" (Hall, 1984, p.17).

This has prompted a substantial number of studies attempting to offer some theoretical explanation of warfare. Probably the most frequent mainstream explanation of war is that the basic cause of it in a multi-state system is the existence or assumed existence of an external threat to a state's national interests or the expansionist policies of a state which are usually pursued in the name of some sort of national interests.

The question that arises from such an explanation and needs to be addressed is what are really the national interests of a state and how can they be objectively defined. The issue is complicated by the fact that usually it is the state itself that decides and defines what the national interests are and how best they will be served or defended if required. Furthermore, national interests are regularly redefined by the state often to suit current objectives or in order to meet changes in the international scene or even as a response to changes in regional and international military balance.

Implicit in this approach to inter state conflict and war is the liberal-bourgeois assumption about the state which is seen as nothing else but a rational class-neutral actor, "a form of public power separate from both the ruler and the ruled and constituting the supreme political authority within a certain defined boundary" (Held, 1984, p.30). This notion that the state can claim to represent the community or the public interest as a whole has been criticised by numerous writers on the subject of the role of the state.

For Marx and Engels (1848) the state and its bureaucracy are class instruments which have emerged in order to co-ordinate a divided society in the interests of the ruling class. In their words "the executive of the modern state is but a committee for managing the common affairs of the whole bourgeoisie" (p.44). From this it can be said that, in a marxist sense, what a capitalist state defines as being "national interests" are, in most cases at least, the interests of the ruling classes or how national interests are perceived by the ruling classes.

For Lenin (1916) wars are caused by the stresses and strains of monopoly capitalism. Speaking of colonial imperialism in particular he argued that wars occur under capitalism because capital must continually expand into new markets in order to secure its survival. This leads in the first stage to the colonial conquests by the capitalist powers. The next stage is wars among the imperialist powers for the redistribution of the "spoils". In Lenin's view (in the light of the First World War among the imperialist powers) it is capitalism itself that causes wars. With the destruction of capitalism on a world scale

wars will no longer occur. This of course has been seen not to be so since conflicts and sometimes even wars between socialist countries have taken place. One may raise the question of the true socialist nature of such countries but this goes well beyond the scope of this study. Nevertheless, there are doubts as to whether all wars can be explained in terms of the nature of the capitalist system. The existence of wars prior to the appearance of capitalism itself indicates that there may be other factors that have to be considered as possible contributors to war. Undoubtedly in a complex system of international relations one has to allow for a variety of other factors when examining the causes of wars. Such factors may include religion, race, liberation struggles, pursuit of regional dominance, historical rivalries and nationalist feelings.

Another contribution in explaining war was made by Clausewitz (1832). Implicit in his analysis is the notion of the sovereignty of the state. The sovereign state according to him recognises no authority either from some external power nor from one within its own boundaries, except its own. For Clausewitz one of the primary objectives of the sovereign state is the increase of its own power at the expense of others. The world is characterised by a continuous inter-state conflict and "war is simply a continuation of political intercourse, with the addition of other means" (in Whynes, 1979, p.17). He thus argued that warfare is the rational extension of international politics and it is waged in order to achieve a desired goal. War for Clausewitz is not only a means of achieving the objectives of a sovereign state but it is also endemic to the multistate world. However, as Ayres (1981) points

out, Clausewitz does not allow for compromise solution in the conflict between states. Nevertheless his contribution in understanding war is an important one and appears to be helpful when it comes in understanding the arms build up in recent years and the breakout of armed conflict between states.

Others, such as Aron (1958) and Kahn (1960), have argued that, in the contemporary world, conflicts do exist which cannot be resolved by normal politics and wars occur when settlements by negotiation or compromise are impossible. Given the fact that war cannot be universally outlawed and that there is not a supranational enforcement agency that can enforce peace between nations, armed conflicts are inevitable. Furthermore, another important factor for them is "the currently dominant ideology of national political sovereignty which has given inter-state warfare an eschatological status" (Whynes, 1979, p.17). The effect is the growing accumulation of military equipment for both defensive and offensive purposes.

In fact, as it has already been shown in chapter three, since the end of the Second World War there has been an almost unprecedented arms build up through out the world. The current nuclear arms stockpile alone is equivalent to 2.5 tons of explosives for every man woman and child on earth. A number of politicians have argued that the possession of nuclear weapons by the two main military blocks and basically by the two superpowers has been instrumental in maintaining a relative peace and avoiding a Third World War. For them the nuclear deterrent has been the key contributing factor in maintaining peace for the past forty five years. What is meant by peace, of course, is not

war between the two major blocks since there have been hundreds of regional conflicts in some of which the two superpowers almost fought each other. However, even if one attributes the maintenance of relative peace to nuclear weapons, it should be pointed out that, in the present circumstances, if deterrence fails once it fails for ever and forty five years of keeping peace would have come to nothing.

Attempts on the other hand, to control or even reduce this build up of armaments between the two dominant blocks and smaller states, have generally failed despite the fact that in a future global war it is quite possible to "witness" a global destruction as a result of thermonuclear weapons. This inability to control or reduce armaments may be partly due to the belief by politicians that they have something to gain from a position of military strength. A further contributing factor to this may be that the means of controlling the production and possession of arms are, for the time being at least, inadequate. In the minds of politicians and states it is always possible by a potential adversary to cheat and to hide weapons that can prove decisive in settling a future conflict. States, therefore, tend to prefer the uneasy security offered by the possession of arms rather than an unreliable agreement. This problem of verification has been particularly emphasised recently in the superpowers' talks on limiting nuclear arms and more so when it comes to conventional armaments. The problem of verification is even more difficult to surpass when it comes to agreements between smaller states concerning conventional weapons which are infinitely easier to hide and store for possible future use.

Defence spending, therefore, can be understood in terms of one country's response to what she considers potential threats to her national security interests by another country. The Richardson arms race model has been the basis of a number of attempts to analyse the motives of states that lead them to increase or decrease their defence budgets in times of peace. For him such motives may be "...revenge or dissatisfaction with the results of treaties; ...fear which moves each group to increase its armaments because of the existence of those of the opposing group; ...rivalry which, more than fear, attends to the difference between the armaments of the two groups rather than to the magnitude of those of the other group; ...lastly there is always a tendency for each group to reduce its armaments in order to economise expenditure and effort" (Richardson, 1960, p22-23). The simplest version of his approach concerning the interaction of two states A and B is:

$$\text{country A} : \quad dX/dt = kY$$

where t : time
     X : A's defenses
     Y : the threat of state B
     k : a positive constant called by Richardson "defence coefficient"

a similar function can be used for the other country as well:

$$\text{country B} : \quad dY/dt = kX$$

If the costs of armaments is included in the system and the equations changed to allow for one's own defence spending then the arms race model becomes a set of linear differential equations:

$$dX/dt = nY - aX$$

$$dY/dt = mX - bY$$

where a and b are positive constants representing the fatigue and costs of maintaining defenses and n and m are the defence coefficients which may not be equal. Richardson also introduced in the equations constants in order to take account of exogenous militarism or grievance factors. The equations are then written as follows:

$$dX/dt = nY - aX + q$$
$$dY/dt = mX - bY + z$$

where q and z are the grievance terms with positive signs.

In the following sections we will try to establish to what extent Richardson's model can help to explain Greek military spending in the period under discussion here. This will be done using multiple regression analysis.

Finally, before we proceed with a discussion of Greek security considerations, we should mention that the explanation of war as the work of evil men in positions of political power has also been proposed, Hitler being the most commonly cited example of this approach to war. However, although throughout history there were undoubtedly the human instruments through which the aggression of war was committed, to call them the cause of war seems to be an oversimplification.

Others have argued that it is the military industrial-complex that promotes armed conflicts between states since it stands to profit out of them. Although there is no doubt that the military-industrial complex profits out of maintaining and even promoting armed conflicts between states, it is very difficult to argue

that the military-industrial complex by itself is always the main cause of wars. Perhaps the military-industrial complex can be said to be engaged not in waging war as such, but rather in maintaining (or in some cases creating) an arms race between states so that countries are forced to maintain large levels of military expenditures. As it has been seen in chapter four, Hirst (1916) strongly emphasised this point.

Overall it can be said that explaining war as a phenomenon is extremely difficult since there are a lot of factors that have to be taken into consideration and an easier approach would be to examine individual conflicts between states where the specific factors and causes can be more easily examined and taken into account.

## 5.3 Greek Security Considerations

For the whole post war period one can identify two main Greek defence doctrines reflecting the two dominant security considerations of the Greek state in this period as far as external threats are concerned.

As Platias (1985) points out, what could be called the "Old Defence Doctrine" was relevant until about 1974, the time of the Turkish invasion of Cyprus. After that, and with the partial healing of Civil War traumas and the opening up of the political system to all parties (the CP was illegal until then), it was gradually replaced by what could be called the "New Defence Doctrine" which was officially declared and adopted in 8/1/85.

The main threat to Greece's territorial sovereignty in the early post-war years was defined by the West as emanating from the country's communist Balkan neighbours and the Warsaw Treaty Organisation (WTO) in general. This led the country to become a full member of NATO and given the high degree of dependency to the West and especially the US, this assumed threat was accepted by the Greek governments uncritically particularly during the first post-war decade and during the Cold War years when relations with the Balkan communist states were strained. This was further exacerbated by the fact that many left wing partisans after their defeat in the Civil War sought asylum as political refugees in those countries to avoid persecution at home. Thus it was always felt by the right wing victors of the Civil War that the host countries due to ideological sympathies with the partisans and in line with "communist plans for world domination" would actively encourage and participate in an invasion of Greece by the left wing forces. Thus for the period since the end of the Civil War in 1949 and up to 1974 the main role assigned to the Hellenic Armed Forces was to safeguard internal security and, within the NATO defence framework, to delay WTO forces in case of an attack and ensure that the Turkish forces are not cut off until such time as reinforcements arrived from the West. The "threat from the North" as it came to be known was the main external security concern of the Greek state up to the mid-seventies.

Thus it was decided to apply Richardson's arms race model to see whether it helps to explain changes in Greek military expenditure in relation to the perceived potential threat from

Warsaw Pact countries for the period 1953-86 using multiple regression analysis and a two country model. We take the USSR and the Warsaw Pact countries (WTO) as the other "country" in our analysis. In line with the model, we would expect the constant-grievance term to enter the equation with a positive sign, the fatigue coefficient to be negative and the defence-reaction coeffients to be positive. The following results were obtained:

(1)  DME = +73.763   +0.117 GR   -0.0021 USSR
              (0.748)     (1.118)      (0.772)

$R^2$ = 0.049     s.e = 110.86    DW = 2.09    F-stat = 0.805


(2)  DME = +75.808   +0.125 GR   -0.002 WTO
              (0.797)     (1.162)      (0.829)

$R^2$ = 0.052     s.e = 114.22    DW = 2.08    F-stat = 0.852


where  DME  :  the change in Greek military spending i.e $x_1 - x_0$
       GR   :  Greek military spending in constant prices (US
                  million dollars)
       USSR:  Soviet military spending in constant prices ($ mill)
       WTO  :  Warsaw pact military spending in constant prices
                  ($ mill)
       (the figures in brackets give the t statistic; and
       all military spending measured at constant 1973 prices.)


For each variable in the equations, the coefficient and the t-statistic (in brackets) are reported. As regards the overall equation performance, the R-squared, the standard error of the regression, the Durbin Watson and the F-statistic diagnostics are reported here and throughout this study (see Appendix I for an outline of what each one indicates).

The results obtained in our calculations are very

unsatisfactory, and do not seem to support the existence of an arms race between Greece and the WTO or the USSR. The equations have an extremely low explanatory power, as indicated by the values of R-squared; and the statistical importance of the variables, as expressed by the value of the t-statistic, is extremely low. In both cases, the constant or grievance term is positive but statistically not at all important. The signs of the other coefficients in our results are the opposite of what would be expected. The fatigue coefficients are positive whereas the defence or reaction coefficients are negative in both cases, and their statistical importance is insignificant. In a second set of equations, both the USSR and WTO variables were lagged in order to take account of a delayed impact on Greek military spending. The results did not improve and are not reported here. In order to take into account the fact that the defence priorities of Greece changed after 1974 it was decided to apply the same analysis only for the period 1953-74 when the Old Defence Doctrine was applicable. The following results were obtained:

$$(3) \quad DME = -7.102 \quad +0.033 \ GR \quad +0.00032 \ USSR$$
$$\qquad\qquad (0.211) \quad (0.291) \qquad (0.219)$$

$$R^2 = 0.094 \quad s.e = 32.451 \quad DW = 1.19 \quad F\text{-stat} = 0.989$$

$$(4) \quad DME = -7.948 \quad +0.027 \ GR \quad +0.00035 \ WTO$$
$$\qquad\qquad (0.249) \quad (0.243) \qquad (0.265)$$

$$R^2 = 0.095 \quad s.e = 32.431 \quad DW = 1.20 \quad F\text{-stat} = 1.00$$

Once again, the results are very unsatisfactory, they have not particularly improved although the sign of the defence/reaction

coefficient is now positive. It may be that the equations are either mispecified or that an important explanatory variable is missing from the equations. It was decided to include in the equations a dummy variable (DUM) in order to pick the effects of the Turkish invasion of Cyprus in 1974. Our dummy variable takes a value of one for 1975, 76, 77 and zero everywhere else. This is so, because in those years there was a significant increase in Greek ME, apparently as a result of that invasion. With the inclusion of the dummy variable the following results were obtained:

(5) DME = 0.900 $\quad$ -0.040 GR $\quad$ +0.0006 USSR $\quad$ +270.039 DUM
$\qquad$ (0.011) $\quad$ (0.445) $\qquad$ (0.278) $\qquad$ (4.407)

$\quad$ $R^2$ = 0.423 $\quad$ s.e = 90.586 $\quad$ DW = 2.64 $\quad$ F-stat = 7.333

(6) DME = 4.885 $\quad$ -0.037 GR $\quad$ +0.0004 WTO $\quad$ +269.385 DUM
$\qquad$ (0.063) $\quad$ (0.400) $\qquad$ (0.234) $\qquad$ (4.387)

$\quad$ $R^2$ = 0.422 $\quad$ s.e = 90.620 $\quad$ DW = 2.63 $\quad$ F-stat = 7.320

The results in equations (5) and (6) improve in terms of the R-squared statistic when compared to those of (1) and (2) but generally they are still unsatisfactory. In both cases the explanatory power of the equation has increased significantly but still remains low. There is also evidence of a degree of autocorrelation given the value of the Durbin-Watson statistic. The signs of the coefficients are as one would expect them but the statistical importance of the variables with the exception of the dummy is insignificant. The effect of the Cyprus invasion is picked up by the dummy variable and appears to be quite

strong. Given the value of the DW statistic it was decided to use
a first order autocorrelation scheme to correct the regression
results.


(7) DME = -46.132   -0.092 GR   +0.002 USSR   +241.965 DUM
          (0.846)    (1.489)     (1.379)        (5.550)

     $R^2$ = 0.515    s.e = 84.453    DW = 2.05    F-stat = 7.706


(8) DME = -41.677   -0.091 GR   +0.001 WTO   +240.156 DUM
          (0.816)    (1.499)     (1.392)       (5.540)

     $R^2$ = 0.513    s.e = 84.576    DW = 2.05    F-stat = 7.663


The results appear to improve, particularly the statistical
importance of the fatigue and defence/reaction variables.
Nevertheless, statistically their importance is not particularly
high. Once again the dummy variable appears to be the only
significant variable. The grievance term is once again negative.
The results did not change significantly if the defence spending
of USSR and WTO were lagged one year to allow time for reaction
(not reported here). From the results obtained so far it appears
that the effect on the changes of Greek defence spending by the
levels of military expenditure of USSR and the WTO as a whole is
very small and not particularly significant. This may be due to
the fact that in the model is not taken into account the fact
that Greece is a member of the NATO alliance and therefore her
reactions to military spending by the USSR or the WTO are
influenced by the joint NATO reactions and plans to the potential
eastern block threat. Therefore, it could be said that Greek
reactions are only a small part of joint Western reactions and

thus we cannot compare directly Greece with the USSR or the WTO.
The model may be more applicable when it comes to examining total
military spending by both NATO and WTO rather than small members
of one alliance with a relatively very small military
contribution to the total alliance expenditure on defence. Also,
it is likely that military spending by small countries, such as
Greece, is influenced more by regional conflicts rather than
international ones between the two main alliances in the world
today. Furthermore, as Ayres (1981) also points out, the model
can be said to be mechanistic since it does not provide for how
actually decisions are made by military planners. Moreover, it
does not include a variable that would act as a proxy for the
conceived menace/threat to which countries are likely to react
by adjusting their defence expenditure accordingly. Finally, any
model is as good as the available data and we have already drawn
attention to the limitations concerning data accuracy.
Nevertheless, the Richardson's arms race model does provide a
fairly satisfactory descriptive framework for military
expenditure determination. Thus, it will be used again later
when the rivalry between Greece and Turkey is discussed and
examine in order to see whether this has a greater impact on
Greek defence spending. It is to this issue that we now turn.

## 5.4 Adversaries in NATO

As we have seen, up to 1974 the main threat to Greece's
national interests was assumed to be from the socialist Balkan
states and the WTO generally. This however was completely

reappraised after Turkish forces invaded Cyprus in the summer of
that year. This, however, should not be taken to mean that Greek-
Turkish relations up to that point were smooth.

In the early post-war period Greece and Turkey resumed
friendly relations after the pre-war strains and military
conflicts in the phase of the assumed "Soviet threat".
Both countries were recipients of Aid under the Marshall Plan and
were formally admitted into the NATO alliance in 1952. This new
found friendship between the two old adversaries did not last
long. By the mid-50s relations between Greece and Turkey started
deteriorating with the emergence of the Cyprus issue and other
problems such as the treatment of the Hellenic community living
in Constantinople and Izmir.[1]

Since the mid-50s the Cyprus issue has been a major source of
tension and friction between the two NATO allies who came close
to an armed conflict in more than one occasions. Occupied by
Britain in 1878 and a colony since 1925 with a population 80%
Greek and 18% Turkish and at a vital strategic location in the
Eastern Mediterranean the island has become the bone of
contention between the two countries. After the 1959 Zurich
Agreement between the Greek and Turkish prime-ministers, Cyprus
gained independence from British colonial rule. The Zurich
Agreement provided for British sovereign military bases and the
three countries, i.e Britain, Greece and Turkey, became
guarantors of the island's sovereignty and independence. Many
have called this agreement as one of the major blunders of post-
war Greek diplomacy; a Trojan horse that almost a quarter of a
century later will provide Turkey with the pretext it needed to

invade Cyprus. Even after the Zurich agreement, the Cyprus issue continued to dominate Greek-Turkish relationships and in 1964 and 1967 the two countries were at the brink of war which apparently was avoided after the intervention of other NATO members (the USA and Britain) fearing the collapse of NATO's already weak south-eastern flank. Armed confrontation may have also avoided due to the fact that Greek naval and air power at the time was particularly weak in line with the role assigned to the Hellenic Armed Forces by the Western alliance as we will see later on. This weakness made Greek officials particularly wary of going to a war which would have been primarily a sea and air confrontation given the geographical features of the possible theatres of operations in which the Hellenic Armed Forces would have been called to fight in.

In July 1974, after the coup against the President of Cyprus Archbishop Makarios, instigated by the Greek military dictatorship, the Turkish army invaded Cyprus. The two phases of the Turkish invasion known as Attila I and II resulted in the occupation of 40% of the island and 200,000 (roughly a third of the island's population) Greek-Cypriots were displaced from their homes. The Turkish army is still occupying the Northern part of Cyprus and no peaceful solution to the problem has so far been found despite fifteen years of continuous negotiations under the auspices of the United Nations. Also, a number of UN resolutions urging the withdrawal of all foreign troops from Cyprus, the return of all refugees to their homes and a peaceful solution to the problem have not been successful.

The continued occupation of Cyprus by Turkey; Turkish claims

over Greek territorial waters; the dispute over the status of certain Aegean islands of Greece; the dispute over the control of the airspace over the Aegean; Greek worries over the deployment of missiles in the Turkish coast opposite Greek islands; Turkish objections to the militarisation of the Greek island of Lemnos and in the near future problems concerning the muslim minority in Western Thrace; all these have resulted in strained relationships between the two countries, both members of the same alliance. This is manifested in high levels of defence spending and confrontations (dog fights) on a daily basis in the sea and in the air which could at any time flare up into an armed conflict. Both countries present higher than average (when compared with the rest of NATO) levels of military spending. The similar levels and patterns of ME (Tables 5.1 and 5.2) of Greece and Turkey are to some extend an indication of the hostile relationship and the armaments race between them, a race which was sharply accelerated after the 1974 Turkish invasion of Cyprus. The invasion led to a temporary withdrawal of Greece from the military wing of NATO and the conflict between the two countries on NATO's southern flank is a cause of major concern to the United States and NATO planners.

## Table 5.1

### ME as % of GDP in Greece and Turkey

| Year | Greece | Turkey | Year | Greece | Turkey |
|------|--------|--------|------|--------|--------|
| 1950 | 6.0 | 6.2 | 1978 | 6.7 | 5.4 |
| 1960 | 4.9 | 5.1 | 1979 | 6.3 | 4.5 |
| 1970 | 4.8 | 4.3 | 1980 | 5.7 | 4.9 |
| 1971 | 4.7 | 4.5 | 1981 | 7.0 | 5.0 |
| 1972 | 4.6 | 4.3 | 1982 | 6.8 | 5.6 |
| 1973 | 4.1 | 4.1 | 1983 | 6.3 | 5.2 |
| 1974 | 4.3 | 3.9 | 1984 | 7.1 | 4.9 |
| 1975 | 6.8 | 6.1 | 1985 | 7.0 | 4.9 |
| 1976 | 6.9 | 6.8 | 1986 | 6.1 | 5.2 |
| 1977 | 7.0 | 5.9 | 1987 | 6.3 | 4.7 |

Source: SIPRI Yearbooks

## Table 5.2

### ME as % of Government Expenditure in Greece and Turkey

| Year | Greece | Turkey | Year | Greece | Turkey |
|------|--------|--------|------|--------|--------|
| 1970 | 20.1 | 20.9 | 1975 | 28.5 | 26.6 |
| 1971 | 20.3 | 20.8 | 1976 | 26.9 | 29.4 |
| 1972 | 20.8 | 21.1 | 1977 | 27.3 | 21.1 |
| 1973 | 21.7 | 21.1 | 1978 | 26.0 | 22.0 |
| 1974 | 25.2 | 20.5 | 1979 | 23.9 | 21.7 |

Source: SIPRI Yearbooks

The PASOK government (1981-89) has argued that NATO and the United States are directly or indirectly supporting Turkish expansionism. In the words of ex-Greek Prime-Minister Papandreou (1983): "there is no sense in our belonging to the military wing of an alliance which does not guarantee our Eastern borders against any possible threat (i.e from Turkey) and which, at the same time, with unrestrained military aid to Turkey, tends to upset the balance of power in the Aegean" (p.62). As a result, relations between Greece and the rest of NATO, especially with

the US have at times been particularly strained.

In May 1984 Greece withdrew from all joint NATO exercises on the grounds that it does not consider the Soviet Union and other WTO countries to be a major threat to its security. In January 1985 Greece announced that it will adopt a new defence doctrine which stressed defence against Turkey rather than WTO countries. The New Defence Doctrine comprises the following points:

a) The direct threat against Greece is from her Eastern front. The Turkish expansionist aims are manifested not only in the deployment of Turkish forces which are concentrated in the Aegean coast of Turkey (see appendix II) but are also expressed through various political and diplomatic initiatives and statements by Turkish government officials.[2]

b) The traditional threat from Warsaw Pact countries is branded as being indirect and possible only in the case of a wider East-West confrontation.

c) Greece cannot rely on NATO to defend herself against Turkey since NATO is not prepared to offer guarantees for her eastern borders.

d) The only way to defend legitimate Greek territorial rights is by increasing the relative independence of the defence capabilities of the country.

As a result of the new Greek defence doctrine, a reorganisation of the country's armed forces has taken place in order to fall in line with the new defence objectives. Today, it is accepted by almost every political force in Greece, in a rare instance of consensus, that Turkey represents the only security concern for the country and heavy military expenditures are

approved in parliament almost without objection. Successive Greek governments since the 1974 invasion of Cyprus have publicly declared that the WTO and the socialist Balkan states represent no major threat to Greek sovereignty. The on-going conflict between the two countries was again manifested in March 1987 when they come close to war. The mobilisation of the Greek armed forces at the time was said by experts to be the biggest that has taken place since the Second World War with the exception of the time of the Turkish invasion of Cyprus.

We now proceed to examine whether the Richardson's arms race model can help explain changes in Greek military expenditure in relation to the conflict with Turkey. Using regression analysis and data for 1950-86 the following results were obtained:

$$(9) \quad DME = -33.146 \quad -0.169 \ GR \quad +0.203 \ TUR$$
$$(0.88) \qquad (1.27) \qquad (1.66)$$

$$R^2 = 0.106 \quad s.e = 106.13 \quad DW = 2.51 \quad F\text{-}stat = 2.033$$

Where DME : change in Greek military spending
GR : Greek military expenditure in constant US $
TUR : Turkish military spending in constant US $

The results obtained in equation (9) are not satisfactory. The constant/grievance term is negative but the signs of the fatigue and defence/reaction coefficients are as expected. Their statistical importance on the other hand is not particularly high. The explanatory power of the equation, as expressed by the R-squared statistic, is extremely low. It seems that the model with the above specifications cannot explain adequately the changes in defence spending in the case of Greece in relation to Turkish military expenditure. To allow for the declaration of

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the New Defence Doctrine by Greece and for the fact that Greek-Turkish relations have been particularly strained in the post-74 period the same equation was estimated only for the period 1974-86, with the following results:

$$(10) \quad DME = -288.87 \quad -0.103 \; GR \quad +0.314 \; TUR$$
$$\qquad\qquad\quad (0.859) \qquad (0.334) \qquad (1.313)$$

$$R^2 = 0.168 \quad s.e = 182.73 \quad DW = 2.44 \quad F\text{-stat} = 1.013$$

The results have not particularly improved and, as in the case of the previous equations, they are quite unsatisfactory. It was then decided to add the dummy variable in order to pick up the effects of the Cyprus invasion by Turkey. The value of the variable is one for 1975,76,77 and zero elsewhere, and the equation is for the period 1950-86. The results were as follows:

$$(11) \quad DME = +37.023 \quad +0.065 \; GR \quad -0.084 \; TUR \quad +291.574 \; DUM$$
$$\qquad\qquad\quad (1.077) \qquad (0.543) \qquad (0.704) \qquad\quad (4.332)$$

$$R^2 = 0.430 \quad s.e = 86.014 \quad DW = 2.44 \quad F\text{-stat} = 8.320$$

The explanatory power of the model improves significantly, apparently due to the inclusion of the dummy variable, but is still fairly low. The sign of the grievance term is now positive but the sings of the other two variables have now changed and are the reverse of what one would expect. The dummy appears to be the only statistically important variable. It was then decided to investigate further and to lag Turkish defence spending by one year in order to allow time for reaction. The following results were obtained:

$$(12) \quad DME = 85.321 \quad +0.382 \ GR \quad -0.402 \ TUR(-1) \quad +302.3 \ DUM$$
$$(3.584) \qquad (4.335) \qquad \quad (4.728) \qquad \qquad (6.844)$$

$$R^2 = 0.655 \quad s.e = 66.905 \quad DW = 1.86 \quad F\text{-stat} = 20.933$$

In equation (12) there is a improvement in the statistical importance of the variables but once again the signs of the fatigue and defence/reaction coefficients are the opposite of what we would expect and thus the results are not meaningful. It would appear that with the current specifications the model does not work in this case. As noted earlier, this may be due to the fact that the model looks at defence expenditures and the arms race from outside without allowing for the way in which decisions are reached by military planners and does not include variables that take in consideration the principles on which each particular state may act. Furthermore, in this case we are dealing with a country which considers itself to be in a military disadvantageous position compared to Turkey which, on the merits of her size alone (and therefore the size of her armed forces), finds herself in a very strong position of advantage. Indeed, this may mean that it is necessary for the equations to be altered to allow for this factor. If this is the case, then, the difference in Greek defence spending may not be the appropriate dependent variable.

To take an example in 1987 the total armed forces of Greece were 170,500 men compared with Turkey's 654,000 men. Furthermore, even if there was a parity of military strength, the military position of Greece would still be weaker if the geography of the possible area of conflict is taken into consideration. This area

is made up from dozens of small islands, all possible targets for an amphibious landing by the Turkish army,[3] a number of which lie minutes away from the Turkish mainland (both literally and metaphorically speaking) and are well within artillery firing range. The Greek mainland, on the other hand, is at least half a day's sailing away for reinforcements to arrive. Furthermore, in case of a conflict, it is almost certain that it will also be necessary for Greece to support militarily the Cyprus National Guard. However Cyprus is within the range of the Turkish airforce operating from the relative safety of southern Turkey but not within the striking range of most of the fighter planes in the inventory of the Hellenic Airforce. Given, therefore, that Greece visualises her larger neighbour Turkey as a permanent source of direct danger to her national interests, it is not surprising to see that her levels of defence expenditure are almost as high as those of Turkey (Figure 5.1 and Table 5.3) and, occasionally, higher (Table 5.4) despite the difference in size both in terms of the country as such and her armed forces.

## Table 5.3

### Greek and Turkish military expenditure 1953-1977

($ mil at 1973 prices)

| Year | Greece | Turkey | Year | Greece | Turkey |
|------|--------|--------|------|--------|--------|
| 1953 | 197 | 374 | 1966 | 327 | 603 |
| 1954 | 211 | 383 | 1967 | 422 | 608 |
| 1955 | 216 | 410 | 1968 | 492 | 643 |
| 1956 | 281 | 386 | 1969 | 557 | 631 |
| 1957 | 247 | 375 | 1970 | 603 | 675 |
| 1958 | 242 | 387 | 1971 | 638 | 790 |
| 1959 | 251 | 445 | 1972 | 680 | 821 |
| 1960 | 266 | 469 | 1973 | 679 | 862 |
| 1961 | 258 | 506 | 1974 | 650 | 943 |
| 1962 | 262 | 532 | 1975 | 1043 | 1563 |
| 1963 | 268 | 541 | 1976 | 1197 | 1916 |
| 1964 | 279 | 585 | 1977 | 1447 | 1647 |
| 1965 | 302 | 621 | | | |

Source: SIPRI Yearbooks

## Table 5.4

### Greek and Turkish military expenditure 1978-1987

($ mil at 1986 prices)

| Year | Greece | Turkey | Year | Greece | Turkey |
|------|--------|--------|------|--------|--------|
| 1978 | 2,602 | 2,159 | 1983 | 2,401 | 2,390 |
| 1979 | 2,521 | 1,902 | 1984 | 2,851 | 2,323 |
| 1980 | 2,181 | 1,884 | 1985 | 2,830 | 2,464 |
| 1981 | 2,581 | 2,200 | 1986 | 2,418 | 2,769 |
| 1982 | 2,632 | 2,555 | 1987 | 2,494 | 2,692 |

Source: SIPRI Yearbook (1988)

Figure 5.1

# GREEK & TURKISH MILITARY SPENDING



GREECE    TURKEY
5-year average

(Thousands)
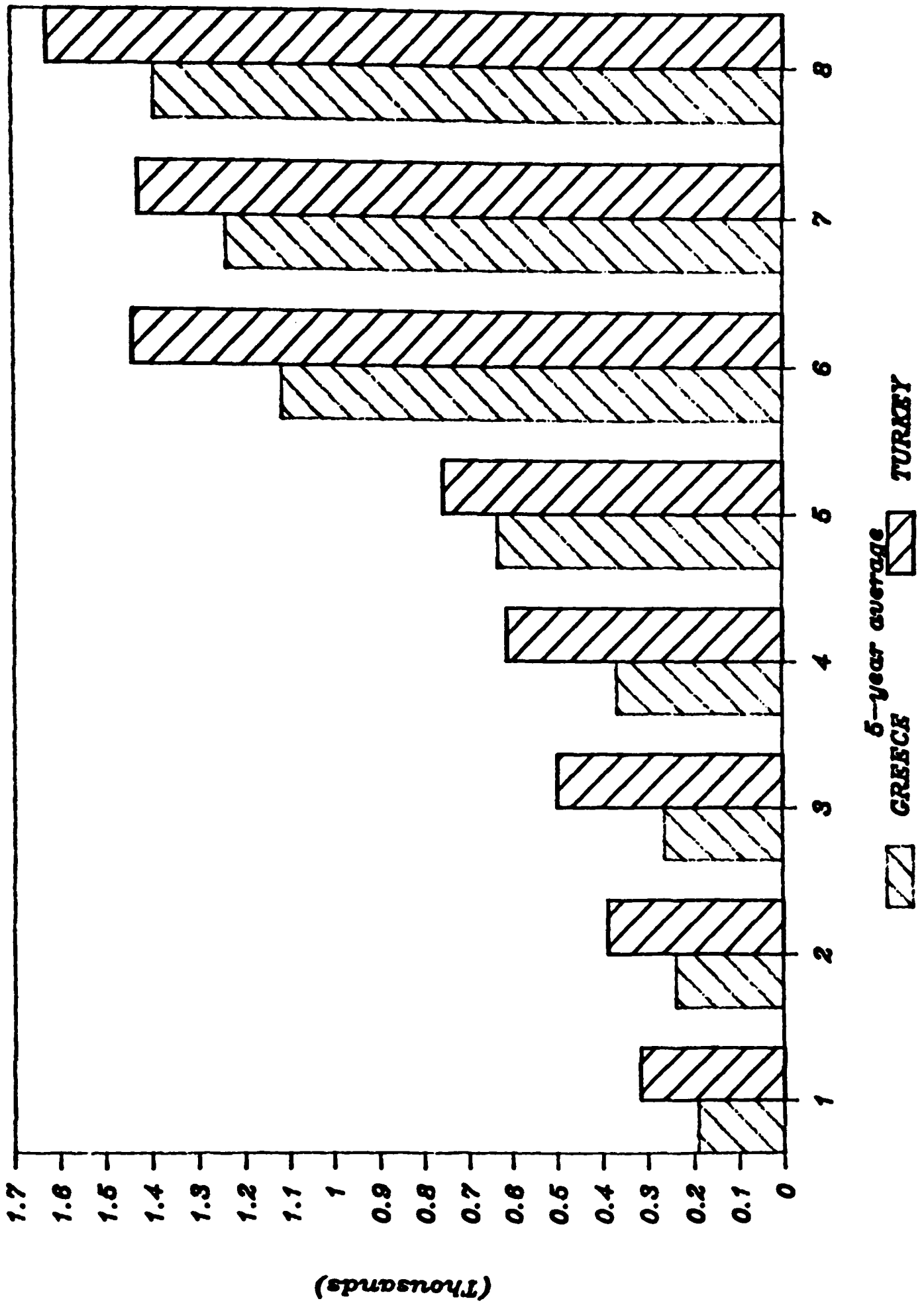
For example, as it can be seen from table 5.4 above, in 1978, 79, 80, 81, 82, 83, 84 and 85 the military expenditure of Greece was higher than that of Turkey that has about three times larger armed forces. Although this is a somewhat crude method of comparing the two countries' defence spending ability given the different levels of development, it nevertheless is indicative of the situation. Greece has generally exhibited higher levels of military spending as percentage of GDP than Turkey. For example in the period 1975-84 her average (ME as % of GDP) was 6.6%, the highest in NATO, while Turkey's equivalent for the same period was 5%, the UK's was 4.9%, the USA's 5.9% and the NATO average for the same period was 4.7%.

What could be said is that Greece considers herself to be under threat from an enemy of much greater size and, therefore, strength and at the same time the geographical features of the area favour her enemy. This may explain to a certain extent why the Richardson arms race model, the way it is specified, does not appear to work in our case. It was found that, if instead of the difference of military spending, the absolute level was used as the dependent variable the results were much more meaningful. The level of Greek defence expenditure (GR) was made a function of Turkish military spending (TUR) representing the defence/reaction variable and Greek military spending lagged one year (GR-1) which could be taken as the fatigue variable. The same equation was estimated once more but this time with Turkish defence expenditure lagged one year. A third equation was also estimated with the dummy variable picking up the effects of the Turkish invasion of Cyprus. Using data for the period 1950-86 the

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following results were obtained:

(13) GR = -50.787     +0.593 GR(-1)     +0.390 TUR
         (1.991)       (8.771)           (6.391)

     $R^2$ = 0.974     s.e = 75.586     DW = 2.42     F-stat = 654.979


(14) GR = -24.167     +0.623 GR(-1)     +0.354 TUR(-1)
         (0.681)       (4.841)           (2.941)

     $R^2$ = 0.955     s.e = 100.130     DW = 2.50     F-stat = 365.920


(15) GR = -24.741     +0.689 GR(-1)     +0.279 TUR     +112.096 DUM
         (0.832)       (7.728)           (3.069)        (1.607)

     $R^2$ = 0.976     s.e = 73.884     DW = 2.55     F-stat = 457.865

The results obtained here are generally better than the previous ones. The sign of the fatigue coefficient, however, is positive whereas one would expect a negative sign. The results seem to indicate that Turkish military spending influences Greek defence expenditure to a large extent. In all three equations there is evidence of a degree of autocorrelation as expressed by the Durbin-Watson statistic. A first order autoregressive scheme was used but the results were not at all satisfactory and are not reported here. Nevertheless, the apparent correlation in the above equations may be due to the fact that defence spending in both countries is following a fairly similar upward trend, as can be seen in graphs 5.1 and 5.2 (in five year averages), which, one could possibly argue, may be due to entirely different reasons

than to an arms race between the two. For example, recently both

countries have each ordered four MEKO-200 frigates from the W. German shipyards Blohm & Voss. This may be a sign of an arms race, since Greece ordered hers after Turkey did, but, on the other hand, the fact that both ordered four frigates each may have more to do with NATO's frigate programme which required its members to modernise their fleets, rather than an arms race between the two. This point is further strengthened by the fact that Portugal has also ordered three MEKO-200 frigates which are going to be built, in her case, with NATO financial assistance. In fact, all three countries, the poorest members of NATO, have the most elderly fleets in the alliance and, therefore, this may be regarded as upgrading their fleets in accordance with NATO requirements. The same can be said about the decision of both countries to buy new advanced fighter planes. Turkey ordered 160 F-16s and Greece opted for a split programme of 40 Mirage-2000 and 40 F-16s with an option to buy in the near future another 20 additional fighters (either F-16s or Mirage-2000s). The procurement of those ultra modern fighter planes was claimed by the Greek government to substantially increase the ability to defend against Turkey and that since Turkey opted for the procurement of such advanced planes Greece had to do the same in order not to lose air superiority to Turkey. However, once again NATO had previously recommended to its members to upgrade their

Graph 5.1

GREEK AND TURKISH MILITARY SPENDING

1949–1986

(Thousands)

□ GREECE    +  TURKEY

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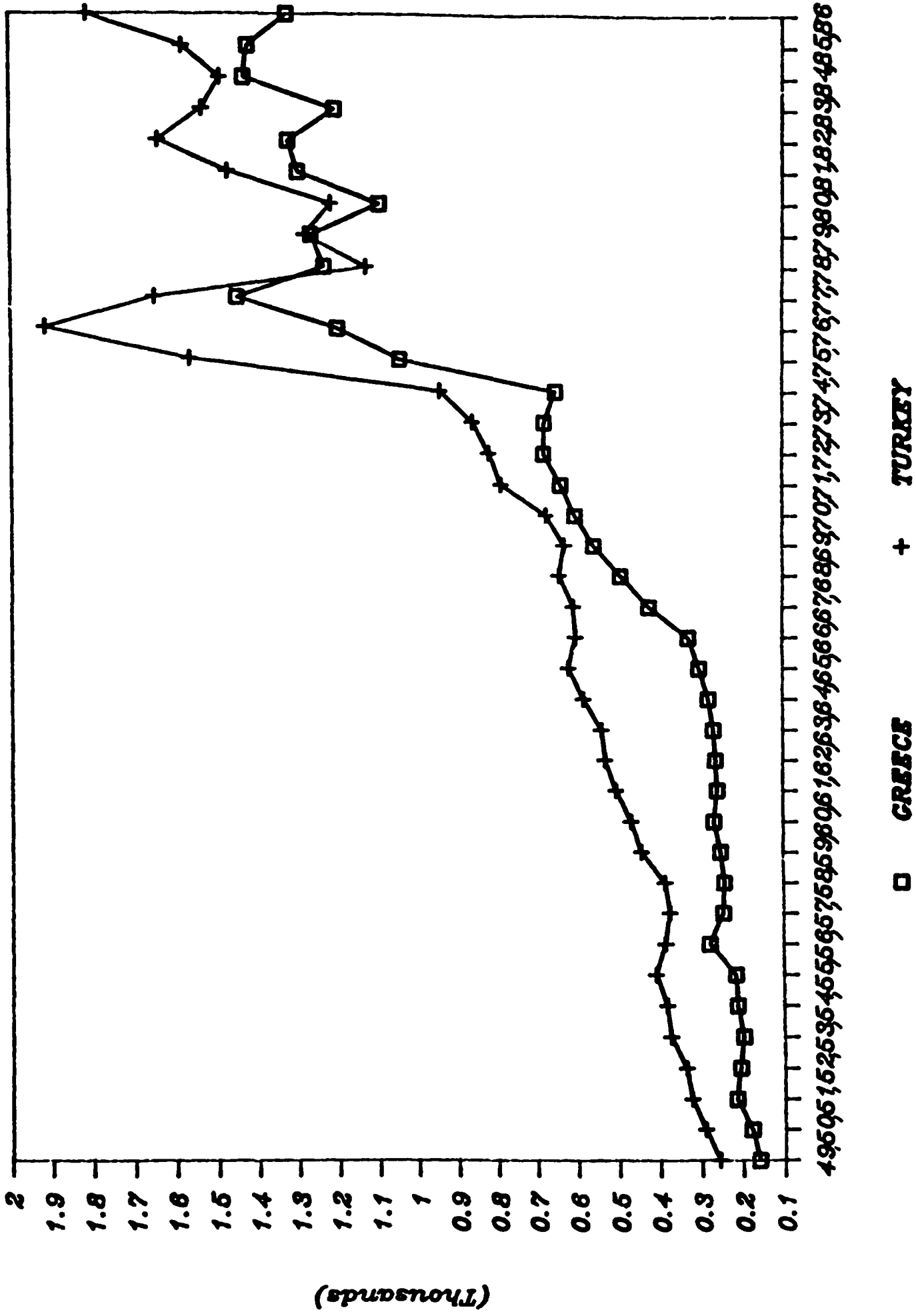
# Graph 5.2

# GREEK & TURKISH MILITARY SPENDING



(Thousands)

□ GREECE    + TURKEY

5-year average
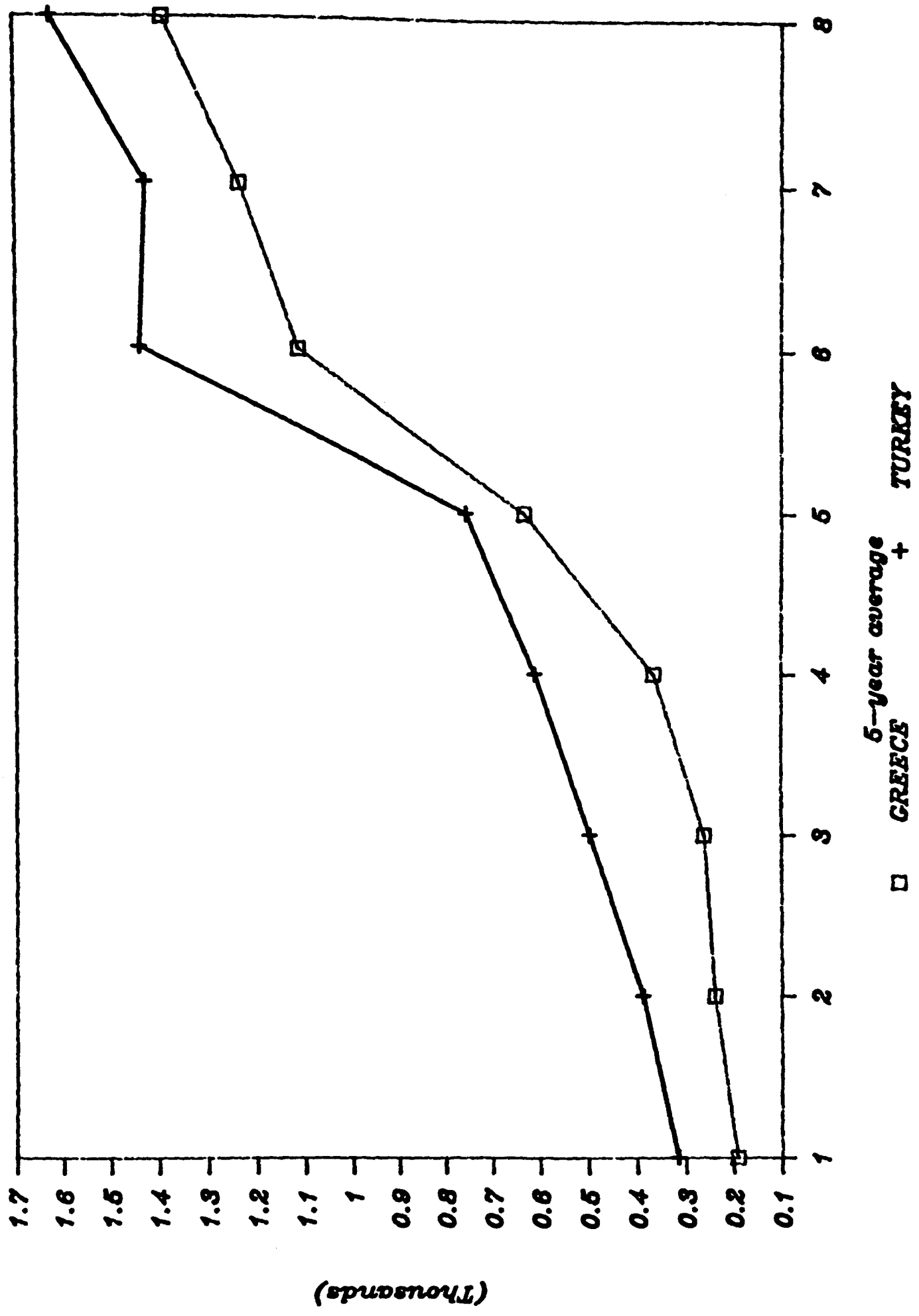
air forces and both types of planes are so designed as to form part of NATO's integrated air defence system and both have nuclear capabilities. Such issues however will be discussed later when the role of NATO is considered in more detail.

From the above, it would appear that different variables may be required in order to better examine the existence of an arms race between the two countries. Since Greece believes herself to be in a disadvantageous position to her larger neighbour then, it may be appropriate to introduce a variable that allows for this. The size of the Turkish armed forces is probably such an appropriate variable to use since it can be taken to show the level of the Turkish menace and threat from the Greek point of view. Thus Greek defence expenditure (GRME) was made a function of Turkish military spending (TURME) and also the size of the Turkish armed forces (AFTUR). On the basis of our discussion we would expect both variables to enter the equation with a positive sign. Due to data limitations[4] the period examined by our regression analysis is 1961-85. The following results were obtained:

$$(16) \quad GRME = -753.55 \quad +1.860 \ AFTUR \quad +0.414 \ TURME$$
$$(6.387) \qquad (6.127) \qquad\quad (4.633)$$

$$R^2 = 0.949 \quad s.e = 101.41 \quad DW = 1.60 \quad F\text{-}stat = 207.716$$

It would appear from the results that the importance of the size of the Turkish armed forces and therefore the level of the Turkish menace/threat finds some modicum of empirical verification. The statistical importance of this variable (AFTUR) is high and in fact is even higher than the statistical

importance of the level of Turkish military spending (TURME) which is also quite significant. The explanatory power of the equation is also quite high. Since there seems to be a strong positive relation between the size of the Turkish armed forces and the level of Greek military expenditure it was decided to investigate further.

It was decided to have as the dependent variable Greek military expenditure per soldier (MEps) rather than just the level of defence spending. If the size of the Turkish armed forces is such an important determining factor then, the size of its impact on military expenditure per soldier should be greater. This is so because military expenditure per soldier can be regarded as a proxy indicating the degree of modernity and sophistication of equipment used. If indeed Greece feels threatened by her larger neighbour then, due to the substantial difference in the size of their respective armed forces, we can assume that Greece will try to offset this disadvantage in size by arming her personnel with more advanced and therefore more expensive equipment. If she can have a relative advantage in the quality of weapons used then this can substantially offset the disadvantage in quantity.[5] More sophisticated equipment usually increases the "killing" capacity per soldier and thus offsets the imbalance in quantity. A soldier armed with a modern assault rifle and wearing a bullet proof jacket is likely to be more effective and survive in battle than one with an outdated rifle and without any body protection.[6] Similarly, a modern but more expensive tank will probably be able to destroy many enemy tanks before it is itself destroyed. The same applies with modern

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fighter aircraft and ships which not only do they have better equipment and are likely to see the enemy before he sees them and thus have the advantage of firing first, but they also offer greater protection to their crews. This means that despite the smaller size of her armed forces Greek military expenditure is relatively higher than that of Turkey indicating her effort to have a qualitative advantage over her larger neighbour.

Thus, Greek military expenditure per soldier (GRMEps) is made a function of the size of the Turkish armed forces (AFTUR) and the level of Turkish military spending (METUR). In a second equation it was decided to make Greek military expenditure per soldier (GRMEps) a function of the Turkish armed forces (AFTUR) once again capturing the degree of the Turkish threat/menace and the rate of change in Turkish military spending (METURr). Finally, in a third equation it was decided to use Turkish military spending per soldier (TURMEps) instead of the level of Turkish military expenditure. Using multiple regression analysis for the period 1961-85 the following results were obtained:

(17) GRMEps = -3346.35    +9.841 AFTUR    +1.580 METUR
              (3.760)      (4.295)         (2.343)

$R^2$ = 0.878    s.e = 765.079    DW = 2.03    F-stat = 79.471

(18) GRMEps = -5124.32    +15.148 AFTUR    +23.838 METURr
              (6.402)      (12.136)         (2.519)

$R^2$ = 0.875    s.e = 763.396    DW = 2.14    F-stat = 73.888

(19) GRMEps = -4911.97    +12.115 AFTUR    +1.109 TURMEps
                (6.855)      (8.589)           (2.758)

$R^2 = 0.887$    s.e = 737.224    DW = 2.04    F-stat = 86.437

The regression results are as expected. In both equations all
the variables are statistically important and the explanatory
power of the equations is satisfactory. It appears that the
quantitative importance of the impact of the AFTUR variable is
quite large in all cases as it was expected. Noticeable is the
fact that, in equation (18), the quantitative impact of the rate
of change of Turkish military spending (METURr) appears to be
greater than that of the size of the Turkish armed forces
(AFTUR). It may be that this variable not only does it pick up
changes in the size of the Turkish threat such as increases in
the number of tanks, fighter planes, naval vessels etc, but also
it may show improvements and modernisations in the weapons used
by the Turkish forces. This in turn reduces any qualitative
advantage Greece may have over Turkey upsetting the qualitative
balance of power between the two countries and that may be why
it has a greater impact on the dependent variable. Generally, on
the basis of the above results it can be said that Greek military
planners attach great importance to the size of the Turkish armed
forces and that they try to offset the Greek quantitative
disadvantage by having a qualitative advantage over Turkey. It
can be said therefore that Greek military spending is
substantially influenced by the size of the armed forces of her
possible enemy. This can be tested further by using as one of the
independent variables the ratio between Greek armed forces and

the Turkish armed forces. The ratio can be taken to indicate the quantitative disadvantage of the Greek side and thus we would expect it to have a strong influence on Greek military spending. We would expect this variable to enter our equation with a negative sign. This would indicate that, as the ratio deteriorates in favour of Turkey, Greek military spending increases in order to offset the increasing disadvantage in size. Thus Greek defence expenditure (MEGR) was made a function of the Greek and Turkish armed forces ratio (AFr) and Turkish military expenditure (METUR). In a second equation we used as the dependent variable Greek military expenditure per soldier (GRMEps) which was also made a function of the armed forces ratio (AFr) and Turkish military spending (METUR). On the basis of the forgone discussion we would expect the quantitative impact of AFr on GRMEps to be greater indicating that as the ratio deteriorates in favour of Turkey, more importance is attached by Greek military planners in increasing in their favour any qualitative advantage, as this is reflected by military spending per soldier, and thus to offset the widening quantitative gap. Using multiple regression analysis for the period 1961-85 the following results were obtained:

$$(20) \quad MEGR = +847.31 \quad -2502.93 \; AFr \quad +0.714 \; METUR$$
$$(3.079) \qquad (3.559) \qquad\qquad (9.311)$$

$$R^2 = 0.913 \quad s.e = 132.90 \quad DW = 1.28 \quad F\text{-stat} = 116.356$$

$$(21) \quad GRMEps = +8108.01 \quad -21110.65 \; AFr \quad +2.627 \; METUR$$
$$(6.596) \qquad\quad (6.721) \qquad\qquad (7.669)$$

$$R^2 = 0.926 \quad s.e = 593.71 \quad DW = 1.30 \quad F\text{-stat} = 139.233$$

The results obtained above appear to be in line with what was expected. In both cases the independent variables are statistically significant and the explanatory power of the equations is high. The quantitative importance of the AFr variable as indicated by the value of its regression coefficient is very high in equation (20) and it is even higher in equation (21), indicating the degree by which Greek military expenditure is influenced by changes in the ratio of the armed forces of the two countries. As the disadvantage in numbers increases, Greek military planners try to offset this by increasing the quality of their forces. There is, however, evidence of some degree of autocorrelation in both equations as indicated by the value of the Durbin-Watson statistic. A first order autoregressive scheme did not work and the results are not reported here. However, the results improved significantly in terms of the value of the Durbin-Watson statistic when Turkish military expenditure was lagged:

$$(22) \quad MEGR = +884.97 \quad -2513.07 \text{ AFr} \quad +0.709 \text{ METUR}(-1)$$
$$(2.773) \quad (2.996) \quad (8.130)$$

$$R^2 = 0.889 \quad s.e = 148.34 \quad DW = 1.93 \quad F\text{-stat} = 84.446$$

$$(23) \quad GRMEps = +9026.48 \quad -23118.96 \text{ AFr} \quad +2.415 \text{ METUR}(-1)$$
$$(5.756) \quad (5.608) \quad (5.633)$$

$$R^2 = 0.886 \quad s.e = 729.04 \quad DW = 1.64 \quad F\text{-stat} = 82.028$$

The results in equations (22) and (23) are quite satisfactory and are in line with our previous findings providing further

evidence in support of our argument.

From the foregone discussion and analysis it can be ascertained that the conflict with Turkey is perhaps the single most important factor currently influencing the levels of Greek military expenditure. However, it is not wrong to say that this is not the sole external security factor that influences or has influenced Greek military spending during the period under discussion. It will be wrong to consider external security factors in isolation from other factors that may directly or

indirectly influence defence spending in Greece.


## 5.5 Internal Repression

In mainstream theory of military expenditure it is assumed that ME is mostly determined by the desire of states to protect their sovereignty against potential threats from other states.

Implicit in this approach is the assumption that the state is a neutral actor in society, concerned among other things with safeguarding some well-defined national interests from external aggression. The state therefore arms itself in order to protect the interests of the nation and in order to discourage potential aggressions.

However, the notion that the state and the state apparatuses are neutral agents in society has been extensively criticised as we have already seen. For many scholars the army and the military serve not only to protect the state against external aggression but as an "important force in the maintenance of political

sovereignty and the status quo within a country" (Whynes 1979, p.20).

For Engels (1891) the state is not only a product of class society but a manifestation that class antagonisms cannot be reconciled by society. As a result, what Engels called "the armed people" are replaced by an armed public power which "consists not merely of armed people but also of material adjuncts, prisons and institutions of coercion of all kinds" (ibid, p.230).

Lenin (1917) stressed that the power of the state "consists of special bodies of armed men having prisons etc at their command". For him "a standing army and police are the chief instruments of state power" (ibid, p.13).

Miliband (1973) points out that "top military men tend to see themselves, and are often seen by others, as altogether free from the ideological and political partisanship which affects (and afflicts) other men". They have been attributed an "image of exclusive dedication to a 'national interest' and to military virtues". But for Miliband the military constitute "a deeply conservative and even reactionary element in the state system and in society generally" and that "in advanced capitalist countries the military elites have always stood for a "national interest" conceived in acutely conservative terms" which entails "an unswerving hostility to radical ideas, movements and parties". For him the deep conservatism of the military and indeed of most civil servants "encompasses an often explicit acceptance, not simply of "existing institutions" or of particular "values", but of a quite specific existing economic and social system and a

corresponding opposition to any meaningful alternative to that system" (ibid, pp.116-117).

Baran (1957) argued that the arms build-up and particularly in the Third World countries was not primarily due to the fear of external aggression but was a part of the repressive state apparatus. "The conclusion is inescapable that the prodigious waste of the underdeveloped countries' resources on vast military establishments is not dictated by the existence of an external danger. The atmosphere of such a danger is merely created and re-created in order to facilitate the existence of comprador regimes in these countries, and the armed forces that they maintain are needed primarily, if not exclusively, for the suppression of internal popular movements for national and social liberation" (ibid p.413).

Many examples, both past and present, can be cited in order to support the view that the army and the police are part of the repressive apparatus of the state. Indeed, for many this is taken for granted. In advanced capitalist countries the direct use of the army for internal repression is not very common partly due to the existence of a well trained and "efficient" police force (i.e a paramilitary force) to deal with internal unrest. This was not the case some years back when the army was on many occasions directly used to deal with internal uprisings (strikes, demonstrations etc) which the police alone could not control. However, examples of the use of the army for such purposes in advanced capitalist countries can still be found. The use of the British Army in Northern Ireland or the National Guard in the United States in some situations are such examples. Perhaps, the

most striking example of the use of the army for the purpose of internal repression is provided by South Africa where, according to the Minister of Defence in 1963, "the first task of the defence forces is to help the police maintain law and order" (in Whynes 1979, p.22). An examination of the South African army shows that "the South African defence forces are intended primarily to defend against internal pressures" (ibid, p.22).

In peripheral and Third World countries the use of the armed forces for internal repression is much more evident than in advanced capitalist countries. In the early post war years when there seemed to be little possibility of major intra-Third World conflicts the observation of Baran (1957) that the armed forces in LDCs were needed "primarily, if not exclusively, for the suppression of internal popular movements" (p.413) is particularly true. Although in recent years many things have changed and armed conflicts are common place among Third World and peripheral countries, the armies of such countries have, nevertheless, been constantly used for internal repression. Examples of such cases are numerous: Haiti under the "Papa Doc" regime, Nicaragua under Somoza, El Salvador, Philipines under Marcos, Chile, Turkey, the recent events in China and others.

In the case of Greece there is substantial evidence to suggest that the Greek army has on many occasions been used for internal security purposes and in order to suppress popular pressure from below.

As already seen in chapter two, after the end of the Civil War, a quasi- parliamentary regime was established in the country and the army became the strongest force in the throne-

parliamentary force-army triarchy which dominated Greek politics for almost thirty years.

During that period, the army along with the police and various paramilitary organisations (the most famous of which were the notorious National Security Battalions TEA) were constantly employed to oppress and terrorise the population especially in the countryside and in areas that used to be left-wing strongholds.

In fact, "the entire post-war orientation of the Hellenic armed forces was based on the US credo that Greece's main security concern was one of internal rather than external nature" (Veremis, 1982, p.79). This was particularly evident in the first years after the end of the Civil War and certainly up to the late fifties. The alleged threat of a communist uprising within Greece was constantly employed by the ruling right wing, in line with US policies, in order to legitimise the regime of limited democracy. This was so even though it is widely accepted that any possibility of an armed communist uprising in Greece had ended with the total defeat of the left wing movement in the mountains during the Civil War which was over by 1949. Since then and up to now no such possibility exists or has ever existed ever since the end of the Civil War. However, despite this widely accepted fact, this "threat" was in the past constantly used in order to justify the regime of limited or guided democracy. It was in the name of preventing such a danger that the colonels staged their coup in 1967 that led to the seven year dictatorship.

The Greek Army, in line with its role, assigned to it by the West and mainly by the US, was supplied with the appropriate

equipment (exclusively with American arms up to the mid 70s) and organised in such a way in order to be able to deal with the alleged communist threat from within; and of course to delay a possible invasion by Warsaw Pact forces until reinforcements arrived. This was expressed in an US National Security Report of 1949, according to which Greece should have a "military establishment capable of maintaining internal security in order to avoid communist domination..." while Turkey, which would later emerge as the main, if not the sole Greek security consideration, was designated with "a military establishment of sufficient size and effectiveness to ensure Turkey's continued resistance to Soviet pressures" (in Roubatis, 1979, p.46). In fact, as early as 1945, A. Kirk, the US diplomatic advisor to the Supreme Allied Commander Mediterranean Theatre, recommended to the US Secretary of State that assistance should be given to the Greek government to develop its armed forces for domestic security purposes (in Stavrou, 1976, p.67). Thus it is not surprising to note that NATO authorities drew up contingency plans for the Greek army to be able to control internal disturbances in time of external threat from the north. Indeed, one such NATO contingency plan code named "Prometheus", was latter to be used with slight variations by the colonels for their coup in April 1967.

An examination of the Greek army shows that it is well equipped to deal with any possible social unrest. This was more so before the mid-70s since when a reorganisation and re-deployment of the armed forces started slowly taking place, with the declaration of the new defence doctrine in January 1985 by the present Greek administration (section 5.2). Out of the total

170,500 men in the armed forces in 1987 (130,000 conscripts) about 115,000 (90,000 conscripts) were in the army and there were another 101,000 in para-military forces (26,500 in the Gendarmerie and 70,000 in the National Guard operating mostly in border areas). All of them equipped to deal with external conflicts but equally well equipped to deal with any possible internal unrest.

During the first two decades after the end of the Civil War in 1949 and up to the collapse of the military dictatorship in 1974 the military in Greece were used or have taken independent action to maintain what was considered internal "law and order".

Perhaps the most famous such action apart from the 1967 coup was the army's involvement in the elections of 29 October 1961. The army's involvement, along with the Gendarmerie and various armed para-state organisations, had as its objective to influence the results of the parliamentary elections in favour of the right wing party of ERE under Karamanlis who was the prime minister at the time. The whole operation was code named "Pericles Plan".[7] Among those involved in the Pericles Plan, its planning and execution, according to G. Papandreou (Prime-Minister) in the Greek Parliament in 1965 were: retired general N. Gogoussis, Director of the Information Service in the Prime-Minister's office (i.e. Karamanlis) at the time; general G. Vardhoulakis, chief of the Gendarmerie; general A. Natsinas, chief of KYP (Central Intelligence Service) and G.Papadopoulos, a colonel of KYP and later the dictator of Greece. There is no evidence that the Prime Minister, Karamanlis, was involved in the Pericles Plan, but the popular belief was that although he may have not

authorised the Pericles Plan at least he was aware of it (Katris, 1974; Stavrou, 1970). Others however argue that the Prime Minister did authorise the implementation of the plan and that authorisation was conveyed to the Army Chiefs of Staff by general Kardamakis in a meeting in Athens on the 12th of August 1961 (Theodoropoulos 1977).

The Pericles Plan was drawn up with terminology of a military operation and divided the population in two categories, the so called "friends" and "enemies". The "friends" were the "blue forces" i.e. the known supporters of the right wing party ERE and the "enemies" were the "reds" i.e. the supporters of the left wing party EDA (Union of Democratic Left) and the "yellows" the supporters of the Centre Union party. The main method employed was the terrorisation and intimidation of opposition candidates, (not being allowed to hold public meetings especially in the country side) and armed groups (i.e. army, gendarmerie, para-state organisations) patrolled the streets at night and threatened the voters (Katris, 1974).

As a result, a lot of voters refused to exercise the right to secret voting (required by law) and were openly voting for the right wing party ERE. The results of the election, not surprisingly were: ERE 50.81%, Centre Union 33.66% and EDA 14.63%. In the countryside, where it was easier to fully implement the Pericles Plan, the vote for the right wing was almost double. In the so called "Supervised Zone"[8], where the army had greater powers, the vote for ERE reached 91-100%, when the party's percentage was 50.81% on a national scale. It has been claimed (Katris, 1974) that without the army's interference the

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results would have been: Centre Union 45-46%, ERE 36-37% and EDA 17-18%. This, of course is pure speculation, but, nevertheless, it is generally accepted that the election results were distorted by the involvement of the army and the other security forces.

The Pericles Plan was officially uncovered by Prime Minister G. Papandreou of the Centre Union in Parliament on 25 February 1965 (his party won the elections of 1963) after an official government investigation headed by general C. Loukakis established its existence and implementation in the 1961 elections by the right wing.

The execution of the Pericles Plan in the elections of 1961 is perhaps the single most important example (apart from the military coup in 1967 which will be discussed in the following section) that points to the direction of the Greek military being used or to have taken independent action for what was considered internal security. Furthermore the Greek army in the 50s and up to the collapse of the dictatorship in 1974 was organised in such a way that one of its main objectives can be said to have been internal security.

The events mentioned above, as well as the use of the army on other occasions such as in the case of strikes, seem to indicate that the Greek army has functioned as an agent of internal repression. This was particularly so in the early post-war years and certainly up to the collapse of the dictatorship in 1974. In fact, it was attempted to test this empirically by using proxy variables that could pick up the internal security aspects of the army's role. Such proxy variables may have been the number of working hours lost to strikes per year, the number of strikers,

or, better still, the number of people participating in demonstrations, or any such data that could indicate internal upheaval. However, the available data was insufficient and incomplete, and, it did not cover a significantly large number of years in a row for any meaningful estimation. Furthermore, most of it was for the post-74 period when the role of the army as an internal security force has substantially diminished. Ideally, if such data existed, any such empirical test should mostly concentrate in the pre-74 period.


## 5.6 Imperialism

Marxist theory distinguishes two main periods in the development of the capitalist mode of production: the laissez-faire period and the monopoly stage.

Marx examined in some detail the workings of capitalism as a distinctively historical system of production and pointed to the factors involved to the transition from the competitive to the monopoly stage of capitalism and Lenin in 1916 argued that the transition of monopoly capitalism to imperialism led to what he called the highest stage of capitalism. Imperialism, according to Lenin, was characterised by five main features:

a) The concentration of production and capital developed to such a stage that it created monopolies which play a decisive role in economic life.

b) The merging of bank capital with industrial capital and the creation on the basis of this finance capital, of a financial oligarchy.

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c) The export of capital as distinguished from the export of commodities which acquires exceptional importance.

d) The formation of international capitalist monopolies which share the world among themselves.

e) The territorial division of the whole world among the biggest capitalist powers.

It is generally accepted that, up to the First World War, Britain was the unchallenged leader of the capitalist world. However, since then, the strength of the US increased while Britain's position was declining. After the Second World War the United States emerged as the undisputed leader of the capitalist world and the main imperialist centre.

For the USA, due to its dominant position in the world capitalist system, was necessary to maintain extremely high levels of military expenditure in order to protect the capitalist system in the phase of the assumed military threat to it by the emerging socialist world, as well as to keep as much of the world as possible open for capitalist penetration on the face of former colonies obtaining political independence after the end of World War II.

According to Magdoff (1970) "a substantial portion of the huge military machine, including that of the Western European nations, is the price being paid to maintain the imperialist network of trade and investment in the absence of colonialism. The achievement of political independence by former colonies has stimulated internal class struggles in the new states for economic as well as political independence. Continuing the

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economic dependence of these nations on the metropolitan centres within the framework of political independence calls for, among other things, the worldwide dispersion of US military forces and the direct military support of the ruling classes" (p.240). Furthermore, since capitalism is a highly integrated international system, it is realistic for the various capitalist states to try to coordinate their activities towards that end. It can be said that a theory of imperialism is not only relevant in explaining the level of the ME in the metropolitan country but also in a peripheral or dependent state as in the case of Greece.

Since the end of the Second World War the military power of the US has been crucial in creating and maintaining its hegemony over the world capitalist system. The US as "the undisputed leader must maintain a clear military superiority either through its own armed forces or through the manipulation of alliances or both. The US chose both" (Baran and Sweezy, 1966, p.182).

The hegemonic power, the US in this case, must not only have military superiority but must also have the ability to force upon other states levels and patterns of ME in order to share the burden of defending the world capitalist system. A study by Kennedy (1975) giving data of military expenditures in Third World countries shows that countries with the highest defence burdens (ME as a % of GNP) all received substantial military aid, either from the USA or the USSR. This point may also apply to a large a extent to a country such as Greece.

Today the world scene is dominated by major military alliances the most important of them being NATO and WTO. In principle at least, alliances are formed by states in order to protect their

territorial integrity and sovereignty. There are three major reasons as to why a state may enter into an alliance:

a) protection of national interests from external threats;

b) preservation of unpopular elites into power;

c) genuine mutuality of interests between unequal political entities.

However, small or weak states that enter into such partnerships with bigger or stronger states, usually barter a significant part of their sovereignty in order to buy protection against external or even internal threats. Thus, it can be said that the inevitable result of collective defence systems is limited sovereignty for the weaker partners.

Furthermore, the development of modern weapon systems which are expensive to buy and even more expensive to produce has created a new form of dependency the so-called military dependency. The emergence of military dependency has forced small or weak states in a constant state of limited sovereignty. This is due to the cost, the complexity and the conditions under which modern weapon systems are offered by the major arms producing countries. In fact, due to the need of high technology spares, maintenance and training needed, it can be said that modern armaments are never "wholly owned" by the possessing states. A manifestation of the limited sovereignty of such states is the fact that the protection of their national interests can take place only to the extent that they do not sharply conflict with the interests of the major country supplying the weapons of advanced technology. It is very rare that the armed forces of such a state can conduct sustained military operations without

the consent of the power supplying the weapons. Furthermore, it has been argued, that it is very rare that weak states are accepted in alliances for their potential contribution in generalised conflicts: "Few of the developing states are sought as present or potential military allies, capable of adding significantly to the armed strength of the donor nations against an actual or potential enemy. The prime purpose now seems to develop military client states, to build-up military-political strongholds through which to preserve or upset regional balances or to maintain favoured regimes against international subversion or revolt" (McArdle 1964, pp.1-2). In practice this can also mean leaving the armies of dependent states to fight local, regional and limited wars on behalf of the major power.

Since the end of the Second World War and the emergence of the US as the main imperialist state of the capitalist world system, the use of the Soviet threat by the US has been of paramount importance in justifying the continuous arms built up and the creation of military alliances. However, many have argued (Baran and Sweezy 1966), that this was used in order to disguise the true aim of the US which has been to maintain and increase their world hegemony and to keep as many countries as possible open for capitalist penetration, as in the case of Greece (chapter 7). In fact it seems correct to argue that both the USA and the USSR through various treaties and bilateral agreements have been instrumental in maintaining and increasing the levels of ME in a number of weaker or peripheral countries of which Greece is one.

## 5.7 Membership of NATO and the Role of the US

Membership of NATO means that the military expenditure of Greece can to a large extend be determined not only by joint NATO decisions but also by the US through the NATO military authorities.

Given the high degree of dependency to the US, especially in the early post-war years, it can be said that this has been the case at least up to the mid-70s when the Turkish invasion of Cyprus caused a reappraisal of the country's defence objectives.

There seems to be little doubt that, if not the absolute levels, at least the structure and content of Greek defence expenditure are to a large extent influenced by the country's membership of NATO. The NATO Treaty states that "in determining the size and nature of their contribution to the common defence, member countries have full independence of action. All the same, the collective nature of NATO's defences demands that in reaching their decision governments should take account of the force structure recommended by the NATO military authorities and the long term military plans of their partners". The same document goes on to say that "the provision of adequate forces for implementing the agreed strategic concept involves inter-related questions of strategy, force requirements and the resources available to meet them ... their must be adequate resources applied to the fulfillment of the agreed defence programs". (in Hartmann, 1983, p.655).

As we have seen, in the early post-war years Greek governments believed that the country's main security concern came from its

northern boarders, that communism threatened cherished values with the West, that NATO was indispensable for the defence of the country and that the US was Greece's natural ally and guarantor. Decisions concerning the armed forces and the gendarmerie were profoundly affected by American advise and instructions. An indication of the degree of US influence in those early years is the following: in the Supreme Greek Military Council the British general Rawlings (head of the British military mission in Greece in the late 40s) was participating as a voting member; with the declaration of the Truman Doctrine and the beginning of American dominance, the American general Livesay demanded the same right which was granted to him by the Greek authorities. He also asked for the participation of the British general to cease since from then onwards it was meaningless. This however was unacceptable to the British general. As result two foreign generals were participating as voting members in the Supreme Greek Military Council. A situation unprecedented even by the "Greek standards" of the period (Theodorakopoulos, 1977).

The high degree of dependency on the US was also reflected on the defence level. Since the end of the Civil War which the right wing won, Greek security was totally identified with American defence policies. The country's armed forces were exclusively equipped with American arms and over 52,500 Greek officers received military training in the United States between 1950-1985. For many, this, plus the need of constant modernisation of military equipment which was US supplied made the Greek military "the most crucial factor of reduced national sovereignty. It became the magnet of detrimental foreign influences" (Iordanides,

1970, p.14).

The influence the US exercised over Greek defence considerations in terms of orientation, structure and training has prompted many writers to argue that the entire post war orientation of the Greek armed forces was in accordance with US beliefs of what constituted or not the main security concern of Greece. In fact, Veremis (1982) argues that "in no other field of post war activity was Greek submissiveness to US decisions more pronounced than that of national defence" (p.79). The Greek army, especially in the 50s was primarily supplied and organised by the US in order to face internal threats (i.e a communist uprising). Later an external operational assignment for the Greek forces was allocated by the US and NATO but it was made clear that Greece would not be supplied with the necessary material to repel a foreign attack and furthermore that the US could make no commitment to come to the aid of her ally if faced with an external attack. But nevertheless, Greece was expected "through certain limited accessories to cause some delay to Soviet and satellite forces in case of global war" (Roubatis, 1979, p.47).[9,10]

Furthermore, totally dependent on the US for arms and spare parts, Greece was faced in 1964 with American pressure to reduce her airforce and naval hardware. Although the official explanation was that the reduction would not alter the defence capability of the country, there is also the plausible hypothesis that a weakened Greece would be less willing to go to war with Turkey over the Cyprus issue and thus create enormous problems for the western alliance which could even lead to the collapse of NATO's South-East flank (Veremis, 1982, p.80).

Greece, like Turkey, today receives large amounts of military assistance from the US (Table 5.5) mostly in the form of FMS programmes. A great importance is attached to the ratio of this assistance to both countries. In the post-74 period, given the relations between the two country's, Greece has maintained that the assistance to both countries should be carefully allocated by the US so that the balance of power in the region is maintained. The ratio that Greece regards as necessary for the maintenance of this balance is 7:10 (table 5.6).

Greece also provides the United States with military bases and installations under the acts of Greek parliament ND 694/1948 and ND 2412/1953. In fact today there are over forty US bases and military installations on Greek territory; ranging from port facilities for all American ships in all the main ports of the country to military command bases, supply bases, air-fields, radio stations, communications and electronic warfare, air-defence systems, nuclear minefields along the Greek-Bulgarian border, nuclear artillery, nuclear missiles, chemical weapons etc. They are all under direct US control and the Greek government has a limited say over their use.

## Table 5.5
## US Military Transfers to Greece 1977-84

| Year | Item | Units | Cost (Mil $) |
|------|------|-------|--------------|
| 1977 | Sidewinder missiles | 300 | 8 |
|      | UH-1H Helicopters | 35 | 27 |
|      | F-4E Aircraft | 18 | 16 |
|      | TOW missiles | 2000 | 14 |
|      | CH-47 Helicopters | 10 | 61 |
|      | Sparrow (AAM) | 100 | 13 |
|      | 155mm SPH | Unk | 24 |
| 1978 | M-48 Tank Conversion Kits | 600 | 145 |
| 1979 | No Data is Available | --- | --- |
| 1980 | Maverick | 200 | 13 |
|      | Sidewinder missiles | 300 | 20 |
| 1981 | Tow missiles | 1500 | 19 |
|      | M-48 Tank Conversion Kits | 204 | 86 |
|      | 155mm SPH | 48 | 317 |
| 1982 | Sparrow missiles | 280 | 98 |
|      | 155 SPH | 58 | 35 |
|      | Harpoon missiles | 31 | 32 |
|      | M-113 APC | 110 | 126 |
| 1983 | No Data is Available | --- | --- |
| 1984 | Phalanx | 2 | 40 |
|      | Tow missiles | 1100 | 19 |
|      | Sidewinder missiles | 300 | 30 |

Source: Military Technology, Vol VIII, Issue 10,1984

## Table 5.6

## US Military Aid to Greece and Turkey ($ mil)
### (Funds given under FMS, MAP, IMET only)

| Year | Greece | Turkey | Ratio in Military Aid Greece : Turkey |
|------|--------|--------|----------------------------------------|
| 1977 | 156.0 | 125.0 | 7:5.6 |
| 1978 | 175.0 | 175.4 | 7:7 |
| 1979 | 172.3 | 180.3 | 7:7.3 |
| 1980 | 147.6 | 208.3 | 7:9.8 |
| 1981 | 178.0 | 252.8 | 7:10 |
| 1982 | 282.3 | 403.0 | 7:10 |
| 1983 | 281.3 | 402.75 | 7:10 |
| 1984 | 501.4 | 718.3 | 7:10 |
| 1985 | 501.4 | 703.1 | 7:9.8 |
| 1986 | 501.75 | 789.0 | 7:11 |
| 1987 | 431.69 | 618.4 | 7:10 |
| 1988* | 436.25 | 788.5 | 5.5:10 |

*not final amount
Source: Agency for International Development, US Overseas Loans
        and Grants from International Organisations, Various
        Annual Reports

As we have seen, after the 1974 invasion of Cyprus by Turkey a major reappraisal of the country's defence priorities took place. Nevertheless the continuing membership of NATO and the fact that the US still remains the major supplier of arms to Greece (despite recent attempts to differentiate the source of arms supplies) means that Greek ME is still determined to a certain extend by the US and NATO. It was decided therefore, to try to establish this possible influence by the West on greek defence expenditure. Thus, Greek military spending (MEGR) was made a function of Turkish defence expenditure (METUR) to allow for the rivalries between the two countries; and total NATO military spending (NATOME), excluding Greek and Turkish military expenditure. In a second equation the average NATO expenditure (NATOav) was included in the place of the total level of NATO defence expenditure. In a third equation the average NATO expenditure excluding Greece and Turkey (OTANav) was included. We would expect all our independent variables to enter our equations with a positive sign. Using data for the period 1953-85 the

following results were obtained:

$$(24) \quad MEGR = -512.07 \quad +0.815 \ METUR \quad +0.003 \ NATOME$$
$$\phantom{(24) \quad MEGR = } (2.975) \phantom{07} (13.351) \phantom{ METUR } (2.362)$$

$$R^2 = 0.923 \quad s.e = 129.76 \quad DW = 0.83 \quad F\text{-stat} = 181.019$$

$$(25) \quad MEGR = -518.21 \quad +0.806 \ METUR \quad +0.056 \ NATOav$$
$$\phantom{(25) \quad MEGR = } (3.037) \phantom{07} (12.852) \phantom{ METUR } (2.421)$$

$$R^2 = 0.924 \quad s.e = 129.24 \quad DW = 0.83 \quad F\text{-stat} = 182.580$$

(26) MEGR = -512.07    +0.815 METUR    +0.047 OTANav
            (2.975)       (13.351)        (2.362)

$R^2$ = 0.923   s.e = 129.76   DW = 0.83   F-stat = 181.019

The results appear to be in line with what we expected. The explanatory powers of the equations are high. All independent variables enter the equation with the expected signs and they are all statistically important. From the above results it seems that Greek military spending is influenced by NATO, but this influence does not appear to be quantitatively very important when compared with the quantitative impact of Turkish defence expenditure. A lagged version of all three equations (not reported here) was also estimated where the NATO variables in each equation were lagged one year but the results were not satisfactory. In all the equations above, there is a substantial degree of autocorrelation as expressed by the Durbin-Watson statistic and thus it was decided to use a first order autoregressive scheme to correct the equations. The following results were obtained:

(27) MEGR = -80.187    +0.410 METUR    +0.001 NATOME
            (0.107)      (1.408)         (0.899)
                                              AR(1): 0.910 (4.61)

$R^2$ = 0.691   s.e = 265.07   DW = 1.94   F-stat = 21.650

(28) MEGR = -81.947    +0.408 METUR    +0.021 NATOav
            (0.109)      (1.404)         (0.905)
                                              AR(1): 0.910 (4.60)

$R^2$ = 0.691   s.e = 264.82   DW = 1.94   F-stat = 21.710

(29) MEGR = -80.187    +0.410 METUR    +0.018 OTANav
            (0.107)      (1.408)         (0.899)
                                              AR(1): 0.910 (4.61)

$R^2$ = 0.691   s.e = 265.07   DW = 1.94   F-stat = 21.650

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There is a substantial change in the results obtained. The explanatory powers of the equations have been reduced and so has the statistical importance of the variables. In the case of the variables capturing the effect of NATO on Greek defence expenditure their statistical importance is very low. Lagged versions were also attempted here but did not work. Generally, it would appear that the equations are not particularly well defined and that it may be necessary to include different variables in our estimations. It was decided to use the rate of change of Greek military expenditure (MEGRr) as our independent variable which is influenced by the rate of change of both Turkish and NATO defence spending (METURr and NATOr) which act as our independent variables. In the case of METURr it is used to capture the adverse relationship between the two countries and NATOr to allow for NATO influence on Greek military expenditure. Thus we would expect both variables to enter our equation with a positive sign. Using multiple regression analysis and data for the period 1961-85 the following results were obtained:

$$(30) \quad MEGRr = +2.839 \quad +0.693 \ NATOr \quad +0.666 \ METURr$$
$$(1.032) \quad (1.398) \quad (4.656)$$

$$R^2 = 0.508 \quad s.e = 11.299 \quad DW = 1.73 \quad F\text{-stat} = 10.868$$

The results of equation (30) are generally as expected. The explanatory power of the equation is however low. The statistical importance of NATOr is not particularly high and only METURr appears to be statistically important. Thus, although NATO appears to positively influence Greek defence expenditure this influence is not very important. In another equation it was found

that if the ratio of armed forces of Greece and Turkey (AFr) was added the results improved slightly. Greek military expenditure was thus made a function of this armed forces ratio, Turkish military spending and NATO defence expenditure. Using data for the period 1961-85 the following results were obtained:

(31) MEGR = +172.38   +0.631 METUR   -2495.78 AFr   +0.004 NATOME
            (0.255)    (11.908)       (2.345)        (1.550)

$R^2$ = 0.944   s.e = 164.18   DW = 1.08   F-stat = 118.223

Equation (31) appears to be better specified and its explanatory power is high. Still, there is a degree of autocorrelation as expressed by the DW statistic. Thus, a first order autocorrelation scheme was used and did not work, neither did a second order scheme. In equation (31), the statistic importance of the METUR and AFr variables is satisfactory and it has improved in the case of the NATO variable although it is not particularly high, and its quantitative impact on MEGR is also low. It would appear, therefore, that the level of Greek military expenditure is influenced to a certain degree by the country's membership of NATO but this influence is not particularly strong. It may be that any influence that NATO may have on Greek defence expenditure is reflected more on the type of weapons procured by Greece rather than the levels of her military spending. As it was shown, the latter appears to be more influenced by the local conflict between Greece and Turkey.

## 5.8 Issues of Burden Sharing

NATO was founded in April 1949 with the aim of providing a system of collective security for its members against the perceived threat from the Soviet Union and the socialist block in general. Article 5 of the North Atlantic Treaty states that "an armed attack against one or more of the members ... shall be considered an attack against them all, and consequently they agree that ... each of them ... will assist the party or parties so attacked by taking forthwith, individually and in concert with the other parties, such action as it deems necessary including the use of armed force" (Hartmann, 1983, pp.656-657).

In the early years after the end of the second World War and while the European economies were being rebuild, the United States shouldered a large portion of the burden of Western security and simultaneously firmly establishing herself as the leader of the capitalist world internationally. This required her to spend huge amounts on her armed forces in order to adequately fulfill her role in the international scene. American forces were stationed all over the world in a multitude of bases in other countries.

However, as her Western European allies became more and more prosperous, American suspicions of Europeans "free riding" in the defence of alliance interests started appearing and have in recent years intensified in the light of the changes taking place within the Soviet Union and the WTO in general, as well as the prospect of a single European market in which US companies may find increasingly difficult to penetrate and compete.

The question of burden-sharing within the Western Alliance has been thrown into the open and is currently a source of controversy and friction between the allies and has in recent years been constantly on NATO's agenda. At issue is how the resource burden of NATO's security arrangement should be calculated and distributed fairly among the allies. The problem has usually been raised by the United States in the belief that they are carrying a disproportionate share of the burden of Western defence. It has been estimated (The Economist 20/8/88) that the US currently spend more than $100 billion a year on their European defence commitments while the total defence budgets of the eleven European Community countries that also belong to NATO came to just about $140 billion in 1987 including British and French spending for commitments outside Europe.

The issue of burden-sharing and the prospect of a future partial US withdrawal from Europe is currently a major thaw in Alliance politics and of particular worry to some Western Europeans in the face of the rapprochement between the two superpowers recently.

From the very early years of its existence NATO faced the almost insuperable task of accommodating within a single framework of collective security basic asymmetries in geography and power. This meant that it was necessary to attempt to reconcile to a satisfactory degree different attitudes to global and regional security. Right from the start, however, there was no agreement either on how much collective defence was needed or on how its payment should be apportioned. Within the question of burden-sharing among the allies there are other more fundamental

issues at stake which should be borne in mind. It is not only a matter of how to measure and compare the defence expenditures of the various countries involved and their contribution to the common defence but there are questions such as: What is that level of defence that guarantees Western security? How is the defence burden defined? What does it actually comprises? Does it include the defence of the NATO area only (in reality Western Europe) or it also includes efforts to promote Western interests outside the immediate NATO area? How can such interests be defined? What do they include? By what means are such interests going to be promoted or defended?

Addressing the question of burden sharing implies the existence of a minimum degree of consensus on such issues. It will not be wrong to say that such a consensus does not currently exist among the NATO allies.

In a study concerning the issue of burden sharing among the allies in NATO, Lunn (1983) discusses the issue to some detail and points to the problems of burden sharing that face the allies. He points out that at the core of the debate among the western allies are disagreements mainly between the USA and the Western European members of NATO. Those are reflected in US beliefs that West European countries are not doing enough for their own defence and that in a sense they are free riders at the expense of the US. On the other hand the Western Europeans often have doubts about the wisdom of US defence policies. He argues that it may be necessary for the allies to address more fundamental issues than simply burden sharing and discusses the possibility of the evolution of a more independent European

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pillar of defence and raises the question of which institution should provide the basis for such a development. He then goes on to argue that all of the existing Western European institutions - the Western European Union (WEU), the European Community (EEC) and the Independent European Program Group (IEPG) - have serious limitations as regards membership and influence. However, he fails to take full account of the effects of the accelerating pace towards a more unified Western Europe. It is quite possible for the EEC, in the not so distant future, to evolve in something more than just a common market. This evolution may involve more political and ultimately more military cooperation. Already there is cooperation in the production of technologically advanced, and therefore more expensive, military equipment among Western European countries such as the European Fighter Aircraft involving Britain, W. Germany, Spain, Italy and until recently France. A further example of increased Western European military cooperation was the formation recently of a Franco-German brigade under joint command. This may be regarded as the test tube for the evolution of a more coordinated W. European military effort and for the optimists the basis of a West European army.

However, given the deep changes taking place in the international scene currently, facilitated by what one could call revolutionary changes taking place in Eastern Europe as a result of the new thinking in Moscow, it is difficult to make accurate forecasts as regards the future of perhaps both major blocks in Europe. Furthermore, the examination of such issues goes beyond the scope of the present study and will not be attempted.

## 5.9 The Role of Greece in NATO
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In addressing the question of Greece's contribution to the defence effort of the NATO alliance we will first briefly consider her role and position within the alliance and her importance to NATO military plans.

The strategic importance of any country does not remain unchanged through time. In a constantly changing international system the relative importance of any country or area changes in line with political and military developments both within that area but also internationally. Developments in military technology and weapons systems also greatly affect the strategic importance of different areas. Thus, the role and importance of Greece in the Western European and International System was different in the 50s than it is today. At the time, her integration in the Western defence system was still under way. It is currently changing with the given advances in military technology which have given rise to new defence doctrines, and the given changes in international relations especially with the relaxing of tensions in the Central European theatre. The latter is possible to result in an increased importance of the south-eastern theatre which until now occupied a second position in NATO planning since it was always felt that a Soviet attack will be primarily aimed at the central front and all NATO scenarios have so far been build around this central assumption.

The Greek territory situated in the south part of the Balkan peninsular is the geostrategic link between Europe and the Middle East, two of the most sensitive regions in the international

scene currently. Since Greece became a member of NATO in 1952, her armed forces are part of the NATO AFSOUTH (Allied Forces South) along with Turkey, Italy, USA and Britain.

The Aegean Sea, with its hundreds of Greek islands, provides a suitable area for defence against any potential aggressive act from the Warsaw Pact in the area. Using the ports and airports of the islands as well as modern weapons such as ground to air and ground to surface missiles a southward thrust by the WTO forces could be stopped by the Alliance forces. At the same time the island of Crete offers particularly good port facilities, such as the Suda Bay US base, large enough for the whole 6th American fleet operating in the south east Mediterranean region. Its important geostrategic position and its proximity to sensitive areas can be seen in appendix III.

In a sense, therefore, the Greek territory is an important link in the NATO chain of command. Without Greece the control of the Aegean by the west would not be possible and western presence in the sensitive area of the eastern mediterranean sea would not be secure. As far as the West is concerned the balance of power in this important region could thus tilt in favour of the Warsaw pact. Furthermore the defence of Turkey by NATO would be extremely difficult without any direct access through land.

Of course, the importance of Greece to NATO and the West is not limited to her geographical position. Her contribution in terms of military manpower and equipment must also be included in assessing Greece's contribution to the Western alliance.

## 5.10 Greek Contribution to NATO

As we have seen, Greece on average spends relatively more on defence than any other NATO member and maintains a relatively large army for the size of her population. In 1983 for example, the manpower of her army was as large as 5.1% of her economically active population compared to 2.9% for the USA, 4.7% for Turkey and a 2.8% European average. In table 5.7 it can be seen that when compared with other NATO countries, Greece has a higher proportion of armed forces per thousand people than the US, UK, France, F.R Germany and Turkey. In fact, this applies in the case of all the other NATO members. Greece has a higher proportion of armed forces per thousand people than any other NATO country.

Since the Hellenic Armed Forces are also part of the NATO Forces this can be taken as an indicator of a higher relative contribution to the Alliance by Greece. Doubtless, a major reason for this position (for the post-74 period at least) are the frictions between Greece and Turkey. Therefore, as far as NATO is concerned the driving force behind the increases in the defence expenditures of both Greece and Turkey may have been their mutual hostility rather than their fear of the Warsaw Pact or their willingness to contribute more to the common defence. But, as Valinakis (1986) points out, at the same time the Hellenic Armed Forces (with the exception of units stationed on the island of Lemnos and the Dodecanese) also contribute to NATO defence since they are included in NATO military planning and in the case of a conflict they would be expected to slow down or even withstand a southward thrust of WTO forces until re-

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enforcements arrive. It can be said, therefore, that in terms of manpower at least Greece contributes relatively more to the NATO defence than any of the other members.

Table 5.7

Armed Forces per 1000 people in selected NATO countries

| Year | Greece | USA | UK | France | W. Germany | Turkey |
|------|--------|------|-----|--------|------------|--------|
| 1963 | 20.6 | 14.3 | 8.4 | 15.4 | 7.4 | 16.5 |
| 1964 | 20.5 | 14.0 | 8.1 | 14.2 | 7.6 | 15.8 |
| 1965 | 22.2 | 13.6 | 7.8 | 12.0 | 7.5 | 16.3 |
| 1966 | 20.3 | 15.7 | 7.8 | 11.8 | 8.1 | 15.9 |
| 1967 | 19.5 | 16.9 | 7.7 | 12.0 | 8.2 | 16.7 |
| 1968 | 21.1 | 17.6 | 7.4 | 11.4 | 8.2 | 16.1 |
| 1969 | 20.5 | 17.1 | 7.0 | 11.3 | 8.1 | 15.6 |
| 1970 | 20.5 | 14.9 | 6.7 | 11.2 | 8.4 | 15.1 |
| 1971 | 20.5 | 13.1 | 6.6 | 11.0 | 8.2 | 16.6 |
| 1972 | 20.2 | 11.1 | 6.6 | 10.8 | 8.2 | 16.2 |
| 1973 | 20.2 | 10.7 | 6.6 | 10.7 | 8.1 | 14.1 |
| 1974 | 20.0 | 10.2 | 6.3 | 11.0 | 8.1 | 13.5 |
| 1975 | 21.2 | 9.9 | 6.2 | 10.9 | 8.0 | 11.2 |
| 1976 | 21.7 | 9.7 | 6.1 | 11.1 | 8.0 | 11.1 |
| 1977 | 31.2 | 9.6 | 5.7 | 9.5 | 8.0 | 12.6 |
| 1978 | 19.6 | 9.4 | 5.7 | 9.4 | 8.0 | 13.4 |
| 1979 | 19.1 | 9.2 | 5.9 | 9.4 | 7.9 | 12.9 |
| 1980 | 19.3 | 9.0 | 5.8 | 9.1 | 7.8 | 11.2 |
| 1981 | 19.1 | 9.1 | 5.9 | 9.0 | 7.8 | 12.4 |
| 1982 | 19.0 | 9.1 | 5.8 | 8.9 | 7.8 | 13.3 |

Source: ACDA Yearbooks (various)

It was decided to try to establish whether Greece generally contributes more to the NATO Alliance than other members. Comparing the relative defence burden of countries presents particular difficulties. These difficulties are not only in terms of data accuracy but also in choosing the best possible indicator allowing for different prosperity levels in the various countries. It was decided to compare Greece with the three

leading members of NATO ie. the USA, UK and the W. Germany and also with France which is an important country of the Western world although she does not actually belong to the military wing of NATO. Greece is compared with each country separately and in each case the other country is assumed to be the leading country setting the level of the required defence spending. Allowance must be made for the different income levels and therefore differences in ability to contribute. The per capita GNP is used as such a measure of prosperity and different income levels. In order to achieve this it was decided to find the ratio of per capita GNP in Greece to the per capita GNP of the leading country for each year of the comparison. Then the ratio of per capita ME in Greece to the per capita ME in the leading country was calculated. If the latter is higher than the former, then, it can be said that Greece has a relatively higher defence burden than the leading country in each case, indicating a higher contribution to the common defence. For data reasons[11] the comparison was made for the following two periods: 1963-73 and 1972-82. The results of our comparisons are shown in tables 5.8 and 5.9 overleaf.

Table 5.8

Ratios of Greek GNP per capita and ME to those of
the USA, UK, W. Germany and France 1963-73

| Year | U S A | | U K | | W. Germany | | France | |
|------|-------|-------|-------|-------|-------|-------|-------|-------|
| | Ratio | | Ratio | | Ratio | | Ratio | |
| | GNP | ME | GNP | ME | GNP | ME | GNP | ME |
| 1963 | 0.17 | 0.07 | 0.32 | 0.20 | 0.24 | 0.17 | 0.28 | 0.19 |
| 1964 | 0.18 | 0.08 | 0.33 | 0.20 | 0.25 | 0.19 | 0.29 | 0.19 |
| 1965 | 0.18 | 0.09 | 0.36 | 0.21 | 0.26 | 0.21 | 0.31 | 0.21 |
| 1966 | 0.18 | 0.08 | 0.37 | 0.24 | 0.27 | 0.23 | 0.31 | 0.22 |
| 1967 | 0.19 | 0.09 | 0.38 | 0.29 | 0.28 | 0.28 | 0.31 | 0.27 |
| 1968 | 0.20 | 0.10 | 0.40 | 0.34 | 0.28 | 0.37 | 0.32 | 0.31 |
| 1969 | 0.21 | 0.12 | 0.43 | 0.42 | 0.29 | 0.39 | 0.33 | 0.37 |
| 1970 | 0.23 | 0.14 | 0.45 | 0.45 | 0.30 | 0.44 | 0.34 | 0.40 |
| 1971 | 0.24 | 0.16 | 0.47 | 0.45 | 0.31 | 0.44 | 0.35 | 0.43 |
| 1972 | 0.25 | 0.17 | 0.50 | 0.43 | 0.33 | 0.44 | 0.36 | 0.44 |
| 1973 | 0.25 | 0.17 | 0.51 | 0.42 | 0.33 | 0.40 | 0.36 | 0.44 |

Table 5.9

Ratios of Greek per capita GNP and ME to those of
the USA, UK, W. Germany and France 1972-82

| Year | U S A | | U K | | W. Germany | | France | |
|------|-------|-------|-------|-------|-------|-------|-------|-------|
| | Ratio | | Ratio | | Ratio | | Ratio | |
| | GNP | ME | GNP | ME | GNP | ME | GNP | ME |
| 1972 | 0.28 | 0.19 | 0.40 | 0.35 | 0.35 | 0.45 | 0.37 | 0.42 |
| 1973 | 0.29 | 0.20 | 0.40 | 0.33 | 0.36 | 0.42 | 0.38 | 0.40 |
| 1974 | 0.28 | 0.26 | 0.38 | 0.42 | 0.34 | 0.52 | 0.35 | 0.52 |
| 1975 | 0.30 | 0.34 | 0.41 | 0.55 | 0.37 | 0.67 | 0.37 | 0.65 |
| 1976 | 0.30 | 0.39 | 0.41 | 0.56 | 0.36 | 0.70 | 0.37 | 0.66 |
| 1977 | 0.30 | 0.39 | 0.42 | 0.60 | 0.36 | 0.73 | 0.37 | 0.65 |
| 1978 | 0.30 | 0.39 | 0.43 | 0.60 | 0.37 | 0.72 | 0.38 | 0.62 |
| 1979 | 0.31 | 0.37 | 0.43 | 0.57 | 0.36 | 0.69 | 0.38 | 0.59 |
| 1980 | 0.31 | 0.32 | 0.44 | 0.47 | 0.36 | 0.60 | 0.37 | 0.51 |
| 1981 | 0.30 | 0.36 | 0.44 | 0.61 | 0.35 | 0.71 | 0.37 | 0.60 |
| 1982 | 0.31 | 0.33 | 0.43 | 0.58 | 0.35 | 0.72 | 0.37 | 0.60 |

Source for both tables: ACDA
and own calculations

The results are interesting and, as a general observation,
they seem to indicate that since the early seventies Greece has
had a relatively higher defence burden than the countries with

which the comparison is made here. A closer examination however reveals that the situation is slightly more complicated than this. The problem lies in deciding which of the other countries is going to be chosen as the leading country within NATO in terms of defence burden. If the US is chosen then this method of comparison seems to indicate that up to and including 1974 Greece has contributed less than she actually could to the common defence. This does not apply for the post-74 period during which Greece has had a higher relative defence burden than that of the USA. However there are doubts as to whether in our case the US should be chosen as the leading country. A substantial part of the US defence budget goes to finance US commitments outside what could be strictly regarded as commitments to NATO. As it is known, the US plays an international role and has military commitments throughout the world. This fact may render the comparison of Greece with the USA as not being valid. Perhaps a more appropriate comparison would be with one of the Western European countries. Again it needs to be decided which one to choose as the leading country. France could be excluded on the grounds that she does not belong to the military wing of NATO and this leaves the UK and W. Germany. If we allow for the fact that a part of the UK's defence burden is for British commitments outside NATO such as Hong Kong, Belize and other military presence in former colonies; this leaves W. Germany with a relatively "pure" NATO defence commitment. This point is further strengthened by the fact that W. Germany is the front line country of NATO and thus would be expected to commit adequate resources for her defence against the Warsaw Pact. If the

comparison is made with W. Germany then we can observe that since the late sixties Greece has had a higher than required defence burden. Indeed in the post-74 period this burden has often been almost double the required level set by the leading country, in our case W. Germany. Clearly this can be attributed to the hostile relation with Turkey but, nevertheless, NATO benefits from this, since the increased Greek military strength is part of NATO's military capacity. Similar observations can be made when comparing Greece with France or the UK. It would appear, therefore, that Greece often has a relatively higher defence burden than the leading European members of NATO and since 1974 than the US itself. If we allow for the fact that Greece has conscript forces whereas the other countries and in particular the USA and the UK have a volunteer service then it is obvious that Greece's military spending would have been more had she had a volunteer army in order to pay the salaries of the soldiers; thus her relative defence burden would have been even higher than what it is now.

Other studies have also found that Greece has a relatively higher defence burden. Ayres (1981) for example, using Britain's tax schedule in order to determine each member country's ability to pay the NATO defence burden in relation to their per capita incomes, found that "the poorer members of NATO have borne an unfair share of the defence burden. For Greece, Portugal, Turkey (and the USA) the actual defence burdens and defence expenditures are above the required levels for both 1958 and 1977" (p.121)

The annual reports to Congress on the Allied Contributions to the Common Defence by US Defence Secretaries also provide

interesting data concerning the contribution of the Western Alliance members to the common security. Tables 5.10, 5.11, and 5.12 are taken from the 1982 report by the Pentagon. The tables show that Greece occupies first places when comparing contribution with ability to contribute (table 5.12).

Table 5.10

Selected indicators of ability to contribute 1980

| | Share of total GDP | | Share of total population | | Per capita GDP as % of highest nation | | Adjusted GDP share* | |
|---|---|---|---|---|---|---|---|---|
| | % | | % | | % | | % | |
| Belgium | 1.76 | 9 | 1.42 | 11 | 86.0 | 5 | 1.98 | 9 |
| Canada | 3.78 | 7 | 3.44 | 8 | 75.9 | 9 | 3.76 | 6 |
| Denmark | 0.98 | 10 | 0.74 | 13 | 92.2 | 3 | 1.18 | 10 |
| France | 9.64 | 4 | 7.73 | 6 | 86.4 | 4 | 10.92 | 4 |
| Germany | 12.11 | 3 | 8.86 | 3 | 94.7 | 2 | 15.04 | 2 |
| Greece | 0.60 | 13 | 1.37 | 12 | 30.2 | 13 | 0.24 | 12 |
| Italy | 5.82 | 6 | 8.21 | 4 | 49.2 | 12 | 3.75 | 7 |
| Luxembourg | 0.07 | 15 | 0.05 | 15 | 85.8 | 6 | 0.08 | 15 |
| Netherlands | 2.48 | 8 | 2.03 | 9 | 84.4 | 7 | 2.74 | 8 |
| Norway | 0.85 | 11 | 0.59 | 14 | 100.0 | 1 | 1.11 | 11 |
| Portugal | 0.36 | 14 | 1.43 | 10 | 17.2 | 14 | 0.08 | 14 |
| Turkey | 0.84 | 12 | 6.49 | 7 | 9.0 | 15 | 0.10 | 13 |
| UK | 7.74 | 5 | 8.06 | 5 | 66.5 | 10 | 6.75 | 5 |
| US | 38.19 | 1 | 32.75 | 1 | 80.8 | 8 | 40.46 | 1 |
| Japan | 14.80 | 2 | 16.83 | 2 | 60.9 | 11 | 11.81 | 3 |
| Non-US NATO | 47.01 | | 50.42 | | 64.6 | | 47.73 | |
| Non-US NATO + Japan | 61.81 | | 67.25 | | 63.7 | | 59.54 | |
| Total NATO | 85.20 | | 83.17 | | 71.0 | | 88.19 | |
| Total NATO + Japan | 100.00 | | 100.00 | | 69.3 | | 100.00 | |

* These statistics are obtained by multiplying each country's share of total GDP (column 1) by its per capita GDP expressed as a percentage of the highest per capita GDP (column 3) and then expressing each result as a percentage of the total. The purpose is to present an indicator of GDP share adjusted for the differing levels of prosperity among member countries.

Source: Report on Allied Contributions to the Common Defence. A Report to the US Congress by C. Weinberger, Secretary of Defence, Washington, (March 1982).

Table 5:11: Selected indicators of contribution, 1980

| | Share of total defence spending | | Defence spending (% change 1971-80) | | Share of total active defence manpower | | Active defence manpower (% change 1971-80) | | Share of total active & reserve defence manpower | | Share of total ground forces ADEs | | Share of total tactical combat aircraft | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Belgium | 1.52% | 9 | 49.7% | 5 | 1.57% | 11 | 1.3% | 7 | 2.00% | 11 | 1.81% | 12 | 2.96% | 9 |
| Canada | 1.90% | 8 | 6.0% | 11 | 1.61% | 10 | -7.2% | 10 | 1.15% | 13 | 0.85% | 13 | 2.53% | 10 |
| Denmark | 0.62% | 13 | 3.6% | 12 | 0.59% | 14 | -18.5% | 12 | 1.11% | 14 | 2.25% | 10 | 1.33% | 12 |
| France | 10.13% | 4 | 36.1% | 6 | 9.67% | 3 | 0.9% | 8 | 9.58% | 4 | 4.82% | 8 | 8.11% | 4 |
| W. Germany | 10.23% | 3 | 23.3% | 7 | 9.06% | 4 | 3.3% | 5 | 11.67% | 3 | 10.74% | 3 | 8.85% | 2 |
| Greece | 0.87% | 11 | 77.9% | 3 | 2.86% | 8 | 3.9% | 4 | 4.29% | 7 | 5.13% | 7 | 4.01% | 7 |
| Italy | 3.67% | 6 | 15.4% | 9 | 7.50% | 6 | -8.0% | 11 | 7.77% | 5 | 6.48% | 4 | 5.05% | 6 |
| Luxembourg | 0.02% | 15 | 73.3% | 4 | 0.02% | 15 | 8.3% | 2 | 0.01% | 15 | (a) | | 0.00% | 15 |
| Netherlands | 2.02% | 7 | 10.3% | 10 | 1.82% | 9 | -5.8% | 9 | 2.45% | 10 | 3.03% | 9 | 2.43% | 11 |
| Norway | 0.64% | 12 | 20.6% | 8 | 0.68% | 13 | 7.2% | 3 | 2.47% | 11 | 2.22% | 11 | 1.23% | 13 |
| Portugal | 0.33% | 14 | -23.6% | 15 | 1.35% | 12 | -60.1% | 15 | 1.22% | 12 | 0.49% | 14 | 0.69% | 14 |
| Turkey | 1.02% | 10 | 105.6% | 1 | 10.51% | 2 | 18.9% | 1 | 12.36% | 2 | 11.99% | 2 | 3.91% | 8 |
| UK | 10.29% | 2 | 3.3% | 13 | 7.86% | 5 | -19.5% | 13 | 6.28% | 6 | 5.32% | 6 | 8.61% | 3 |
| USA | 52.97% | 1 | -11.4% | 14 | 41.30% | 1 | -20.7% | 14 | 35.13% | 1 | 38.62% | 1 | 44.72% | 1 |
| Japan | 3.77% | 5 | 78.8% | 2 | 3.60% | 7 | 2.3% | 6 | 2.51% | 8 | 6.24% | 5 | 5.57% | 5 |
| Non-US NATO | 43.26% | | 19.9% | | 55.11% | | -4.7% | | 62.36% | | 55.13% | | 49.70% | |
| Non-US NATO+Japan | 47.03 | | 23.2% | | 58.70% | | -4.3% | | 64.87% | | 61.38% | | 55.28% | |
| Total NATO | 96.23 | | 0.4% | | 96.40% | | -12.3% | | 97.49% | | 93.76% | | 94.43% | |
| Total NATO+Japan | 100.00 | | 2.1% | | 100.00% | | -11.8% | | 100.00% | | 100.00% | | 100.00% | |

(a) = less than 0.005%
ADE = Armoured Division Equivalent

Source: Report on Allied Contributions to the Common Defence. ch.6, n.2, pp.21-23

Table 5.12.:Selected indicators comparing contribution with ability to contribute, 1980

| | Ratio Def. spend. share/GDP share | | Ratio: Def. spend. share/Adjusted GDP share* | | Ratio: Active def. manpower/ Pop. share | | Ratio: Active & reserve def. manpower/ Pop. share | | Ratio: ADE share/ Adjusted GDP share* | | Ratio: Aircraft share/ Adjusted GDP share* | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Belgium | 0.86 | 7 | 0.77 | 8 | 1.11 | 6 | 1.41 | 5 | 0.91 | 9 | 1.49 | 4 |
| Canada | 0.50 | 13 | 0.51 | 13 | 0.47 | 13 | 0.33 | 13 | 0.23 | 14 | 0.67 | 12 |
| Denmark | 0.63 | 11 | 0.53 | 12 | 0.80 | 12 | 1.50 | 4 | 1.91 | 5 | 1.13 | 7 |
| France | 1.05 | 5 | 0.93 | 7 | 1.25 | 4 | 1.24 | 7 | 0.44 | 13 | 0.74 | 11 |
| W. Germany | 0.84 | 8 | 0.68 | 10 | 1.02 | 7 | 1.32 | 6 | 0.71 | 11 | 0.59 | 13 |
| Greece | 1.45 | 1 | 3.63 | 3 | 2.09 | 1 | 3.13 | 2 | 21.38 | 2 | 16.71 | 2 |
| Italy | 0.63 | 12 | 0.98 | 6 | 0.91 | 10 | 0.95 | 10 | 1.73 | 6 | 1.35 | 5 |
| Luxembourg | 0.29 | 14 | 0.25 | 15 | 0.40 | 14 | 0.20 | 14 | 0.03 | 15 | -- | 15 |
| Netherlands | 0.81 | 9 | 0.74 | 9 | 0.90 | 11 | 1.21 | 8 | 1.11 | 7 | 0.89 | 10 |
| Norway | 0.75 | 10 | 0.58 | 11 | 1.15 | 5 | 4.19 | 1 | 2.00 | 4 | 1.11 | 8/9 |
| Portugal | 0.92 | 6 | 4.13 | 2 | 0.94 | 9 | 0.85 | 11 | 6.13 | 3 | 8.63 | 3 |
| Turkey | 1.21 | 4 | 10.20 | 1 | 1.62 | 2 | 1.90 | 3 | 119.90 | 1 | 39.10 | 1 |
| UK | 1.33 | 3 | 1.52 | 4 | 0.98 | 8 | 0.78 | 12 | 0.79 | 10 | 1.28 | 6 |
| USA | 1.39 | 2 | 1.31 | 5 | 1.26 | 3 | 1.07 | 9 | 0.95 | 8 | 1.11 | 8/9 |
| Japan | 0.25 | 15 | 0.32 | 14 | 0.21 | 15 | 0.15 | 15 | 0.53 | 12 | 0.47 | 14 |
| Non-US NATO | 0.92 | | 0.91 | | 1.09 | | 1.24 | | 1.16 | | 1.04 | |
| Non-US NATO+Japan | 0.76 | | 0.79 | | 0.87 | | 0.96 | | 0.70 | | 0.93 | |
| Total NATO | 1.13 | | 1.09 | | 1.16 | | 1.17 | | 1.06 | | 1.07 | |
| Total NATO+Japan | 1.00 | | 1.00 | | 1.00 | | 1.00 | | 1.00 | | 1.00 | |

*See note in Table .
ADE = Armoured Division Equivalent

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## 5.11 The Role of the Military
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It can be argued that there are two obvious major interest groups that benefit from the high levels of ME: the military and the firms producing military hardware and supplying the armed forces with the goods and equipment they need.

It is not wrong to assume that the military derive utility not only from the salaries they receive but also from the power and prestige they posses which can be said to be a function of the level of military manpower under their control and the size and sophistication of military hardware (Ayres, 1981).

For many it is only natural that the military would function as an interest group seeking to safeguard and promote the interests of its members. It can also be said that the military are expected to react when their interests are or appear to be under threat. Their reaction of course, may vary in form and style depending on the particular social and political conditions in every case. However, in their attempt to protect their interests they will "invariably invoke higher values such as national interests, national sovereignty, ideological purity or even a menacing enemy" (Stavrou, 1970, p.21). But it is not rare when the military intervene (in one way or another) not only to protect their interests but also to protect or influence the existing status quo, the existing institutions and set of values.

In many countries, interventions by the military since the Second World War can be said to have been the rule rather than the exception. For Finer (1962) the countries where governments have been repeatedly subjected to the interference of their armed

forces belong to a distinct category. They are not advanced capitalist countries nor are they socialist countries. They usually are sovereign states, ex-colonial or dependent peripheral countries with middle or low level of development (political-social-economic) and are governed by regimes where the military are a decisive political factor as in the case of early post-war Greece. Generally, military intervention can take two forms: it can either be a direct and violent overthrow of a government and the establishment of overt military rule (as in Greece in 1967), or be a direct influence from behind the scenes with some quasi-civilian facade of government. Finer argues that the modern armed forces have a number of advantages compared with other organisations: organisational superiority, hierarchy and discipline, centralised command, intercommunication, esprit de corps and a corresponding isolation, self sufficiency, and most important an almost total monopoly of arms. These characteristics derive from the role that is assigned to the armed forces, mainly to assist civil power and to fight and win wars. For him, however, these advantages are overwhelmed by the two major political weaknesses of the armed forces: the technical inability to administer and most importantly the lack of legitimacy, the lack of moral title to rule. These two major weaknesses make impossible the continuous political rule of a military government and usually some form or other of political rule must be established.

Although many have argued that the military "constitute a deeply conservative and even reactionary element in the state system and in society generally" they nevertheless accept that

in some cases military intervention or influence over political affairs may not always be towards highly conservative directions. There have been instances when the military "have been moved by radical "modernising" impulses and where military men have lead movements designed to overthrow or at least to reform archaic social, economic and political structures" (Miliband, 1973, pp.116-123). Nasser in Egypt may be cited as such an example. In developing countries in particular the military have been in many cases at the centre of the struggle for political independence and economic and social reform.

Rostow (1971) argued that the military may play an important role in generating nationalism which in turn can be a force for modernisation and industrialisation: "Soldiers often emerge as major actors in the drama of the preconditions (for take off) for multiple reasons: they are evoked or come forward to deal with external intrusion or civil war; they are among the first to become acquainted with modern concepts of administration through training abroad or foreign advisors; they move by profession more easily than other groups towards loyalty to nation and sentiments of nationhood; and in inherently turbulent times, when the legitimacy of traditional rule is shaken, they have access to raw power" (p.83).

Gutteridge (1964) points out that "the army in a new state can play an important role in nation-building" and that "an effective army and eventually a navy and airforce may be one way of creating a national image of a modern state" (pp.47-48). Furthermore "they are generally on the side of modernisation, even though politically they are as often conservative as they

are radical or progressive" but nevertheless "they are part of the essential image of a nation" since "the armed forces of the recently independent states are emerging as social and political institutions of prime importance" (ibid, p.176).

Janowitz (1964) addressing the question of the impact of the military in building a sense of national identity cites two areas where this may happen: "... on the one hand, there is the direct consequence of military service; and on the other hand, there is the symbolic value of the armed forces for the population as a whole" which can strengthen feelings of a common national identity (ibid, p.81).

Pye (1962) also argues that military institutions are most likely to induce modernisation since at one level military organisations are very close to the ideal type for an industrialised and secularised enterprise in a non-industrial country.

However, the modernisation arguments about the military have been criticised by a number of writers.

Nordlinger (1970) points out that military values stress nationalism, discipline, custom and ritual which are likely to hinder economic progress. Nationalism can also be an ideological tool used by the state, the bureaucracy and the military to divert attention away from domestic problems and conflicts.

Woddis (1977) distinguishes between what he calls a) interventions by the military with a progressive character; b) those of a reactionary character which pre-empt a possible civilian change of government; and c) coups of a clearly reactionary character aimed at removing a progressive government.

He argues that although progressive military interventions or coups do take place it is not rare that although they declare a progressive course in the beginning they later turn against existing democratic movements "towards which they display suspicion, fear, contempt and even open hostility" (ibid, p.56). Although for him there are exceptions to this he argues that in order for military interventions or coups to retain their progressive character there must exist a strong link with other progressive forces in the society especially with progressive popular movements.

One can point to a number of reasons as to why military interventions in the political life or coups take place especially in developing or peripheral countries. Mirsky (1969) cites four main reasons:

a) The presence in the country of extensive, mainly nationalistic, dissatisfaction with an insufficiently independent or openly pro-western political ruling elite, which does not want to and is unable to carry out the necessary social reforms, in the absence of a strong and organised civilian opposition to the regime.

b) A long drawn out inner political crisis, due to the inability of the civilian government to solve internal problems and lead the country out of a dead end.

c) Dissatisfaction of the educated elite with an inert and archaic despotic regime.

d) The inefficiency of the civilian government, combined with corrupt administration, the apathy and disappointment of the masses and the fear of the privileged elite that the left forces

may gain ground and bring about a people's revolution.

To these Woddis (1977) adds:

a) Coups to overthrow progressive governments or even moderately liberal governments

b) Coups in which "tribalism" or ethnic factors are important

c) Coups in which imperialist conflicts are fought out by proxy.


Milliband (1973) argues that an almost essential precondition must exist in order for military interventions to succeed: "It is only where the labour movement is exceptionally weak, or paralysed, that military men bent on seizing power can afford to ignore its hostility or hope to overcome it" (ibid, p.120). He furthermore points out that in the case of advanced capitalist societies the military have not sought more frequently to challenge and defy the civilian power may be attributed not to the existence of a strong labour movement but to the fact that "military men have mostly had to deal with politicians and governments whose outlook and purposes have not been radically different from their own. Even when "left wing" governments have been in office, the military, however poor their opinion of such governments has been, have very seldom had the occasion to feel a sense of total political and ideological alienation. After all, these governments have generally pursued foreign and defence policies which were not of a kind to suggest to the military that collaboration with such governments was utterly impossible" (ibid, p.121). Hence the absence of direct military interference in the political process.

## 5.12 The Military in Greece

As it has already been discussed in previous sections the military in post-war Greece were part of the triarchy, throne-parliamentary forces-army, which dominated political life up to the mid-70s. In fact many writers have argued that the military were "the most powerful institutional group in modern Greek society" (Stavrou, 1970, p.18). According to the same writer, the Greek military of the post-war years "has functioned in accordance with the principles of an interest group" (p.19) and having been able to insulate itself from the civilian authorities it sought "to promote its membership interests" (p.20). If we accept that the Greek military would also derive higher levels of utility from the power and prestige that higher levels of ME would bring them, then it is not wrong to assume that one of the interests that they promoted during this period was higher levels of ME. If we bare in mind the power the military enjoyed during this period then it will be also sensible to assume that they were successful in doing so.

However, it has been pointed out by many that the Greek military in pursuing its interests "it has become the magnet of detrimental foreign influences" due to its needs for modernising the armed forces' equipment and since this was foreign supplied (up to recently almost exclusively by the US) the Greek military like those of other states of similar size and level of development "has become the first and perhaps the most crucial factor of reduced national sovereignty" (Iordanides, 1970, p.14). The Greek military as already seen, has a long history of

intervention in the political affairs of the country partly to maintain and increase the interest of its membership and partly to maintain its strong and dominant position in the country's power structure which also ensured its interests.

The post-war army's role in Greek politics can be traced back to the late 30s with the Metaxas military coup in 1936 with which "the pattern of military intervention and the role of the army started to change in a way that presaged the post-Civil War developments" (Mouzelis, 1986, p.72). From that time onwards the army became the guardian of the bourgeois system of power against threats from below. With the Metaxas coup massive purges took place in the armed forces expelling officers who were not considered to be "ideologically pure". The army thus became "a bastion of supernationalism and extreme right wing ideology" (Stavrou, 1970, p.47).

The German occupation of Greece and the subsequent mobilisation of the masses under the left wing dominated resistance movement the National Liberation Front (EAM) threatened the post-war status quo in Greece and with it the army's position in the power structure of the country, since the objectives of EAM were not only to fight against the German occupying forces but also to bring about drastic changes in the social and political system of the country. This also implied the democratisation of the military which would have affected the position of many officers. Furthermore, the image of the Greek military suffered a great loss as the result of the notable absence of many of its officers from any active resistance during the years of Nazi occupation which would have weakened the army's

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position even further in an EAM dominated political scene in post-war Greece.

Even before the war was over many officers were looking well beyond it, having in mind "the domestic enemies of the existing social system" (Stavrou, 1970, p.46) (i.e the EAM dominated resistance movement) and with it their own future professional interests. In August 1943 when the fate of the Third Reich was sealed a number of Greek officers met secretly in a training camp in Palestine[13] to look into their own future and the post-war course of Greek politics in the face of the "threat by EAM", which by now was virtually dominating almost the entire country. In this meeting the first secret army organisation was set up named the Union of Young Officers (ENA). With the intensification of the political struggle after the liberation and the outbreak of the Greek Civil War the small conspiratorial organisation of those officers expanded in size and changed its name. Under the new name of the Holy Bond of Hellene Officers (IDEA)[14] the organisation expanded its influence among the entire officer corps. IDEA was an "ideologically pure" group of officers, i.e staunch nationalists, with extreme right wing ideology which sought to defend the existing social order and its members' professional objectives and ambitions.

The existing environment i.e the lack of political leadership, the civil war which was dividing the country, strong foreign influences (British and American) and the beginning of the Cold War contributed to the "emergence of an ideologically monolithic military in Greece which carved a dominant role for itself and functioned above the reach of governments as the supreme

arbitrator of Greek political life" (Stavrou, 1970, p.53).

It is commonly accepted that the post-war governments in Greece never gained true control over the military and IDEA dominated the army's hierarchy until the military coup of 1967. With the total victory of the right wing forces in the Civil War "a quasi-parliamentary regime was established in Greece ... in which the army, and more specifically IDEA, the members of which were holding key positions in the state and army apparatus, had as one of its major tasks to make sure that the regime of limited democracy functioned smoothly and that left wing "agitators" were kept firmly under control" (Mouzelis 1986, p.135). The decisive influence over the political process of the country that the military exercised in post-war years reached its maturity with the military coup of the 21st April 1967.[15] The army and especially the hard core of IDEA officers took over the government of the country until 1974 when the military dictatorship finally collapsed under the weight of the Cyprus tragedy.

Broadly speaking there three main types of analysis in the debate of the rise and fall of the Greek dictatorship. Before outlining them it should be mentioned that all three agree that there are major differences between the Greek dictatorship and the fascist or quasi-fascist regimes of the Spanish and Portugese type. The Greek colonels did not have nor they managed to built up totalitarian organisations for mass mobilisation and support like in the case of Nazi Germany or Fascist Italy. They did not manage to create large-scale popular support either in the countryside or among the urban masses. Some writers have even argued that the colonels did not even manage to win the active

support of the Greek establishment which however cannot be accepted as being entirely correct.

The first of the three types of analyses of the dictatorship emphasises the role of the so-called "foreign factor in Greek politics" i.e the role of the US. In a some times simplistic manner it is argued that the main reason and the most important factor in the rise and fall of the Greek dictatorship were the policies of the CIA and other American agencies which by controlling everything and everybody planned and executed the coup in 1967 (Theodorakopoulos, 1977). Although there is little doubt that the CIA and the US government had strong links and exercised great influence over the Greek military and particularly the IDEA officers, both before and after 1967, it is an oversimplification to argue that US policies towards Greece were the only factor behind the military dictatorship. Having said that, it can be argued that it is wrong and it is a drastic underestimation if the role of the US is not taken into account. Many would argue, and up to a point correctly, that the colonels would not have moved if their plans did not meet the approval or at least the passive acceptance of the US if we bear in mind the influence the US had over Greek affairs during that period. Furthermore although most political forces (perhaps with the exception the right wing) accept the important role of the US in this matter very little historical evidence has been produced (except from reports and personal accounts) to prove the case. However, the ordinary Greek in the street has no doubt in his mind of the decisive role of the US.

The second approach places the emphasis on the role of the

class struggle and tries to establish direct links between the role of the big capital (foreign or indigenous) and the emergence of the dictatorship. In particular Poulantzas (1974) sees the rise and fall of the dictatorship as the result of the conflict between different fractions of capital. For him the basic factor in understanding the rise and fall of the colonels is the conflict between what he calls the "interior bourgeoisie" and the more traditional, commercially oriented comprador bourgeoisie. However, it has been argued (Mouzelis, 1978, 1986) that he fails to produce any convincing evidence for this. Furthermore, even if it is accepted that there existed a certain conflict of economic interests among fractions of the bourgeoisie, this conflict never assumed any significant proportions and in any case the dominant classes had more things that united them rather than divided them, and thus it is very difficult to establish the view that the Greek bourgeoisie or any of its fractions were the creators or instigators of the military coup. This, however, does not diminish the fact that Greek and foreign capital took full advantage of the new situation. Some of the agreements signed with the military government at the time were so scandalous that had to be cancelled or re-negotiated after the fall of the dictatorship.

The third approach (Mouzelis, 1978, 1986) tries to explain the Greek military dictatorship in terms of the pattern of development that the country had followed. Mouzelis argues that the main contradiction that gave rise to the dictatorship was between "the expanding model of capital accumulation which by creating severe disruptions and inequalities was mobilising and

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radicalising the masses and, on the other hand, the political system of repressive controls engineered to prevent the masses from taking an autonomous part in the political process". For him therefore the system of "repressive parliamentarism characterised by the triarchy of throne-army-parliament (in which the army was dominant) could no longer survive". For him the possible solutions were two: "either parliament, through it opening up to the masses, had to become the dominant force" in which case this meant that the military and possibly the throne would eventually lose their leading position and privileges or "the army had to prevent this by the overall abolition of parliamentary rule" (1986, p.136). The solution that the colonels and those behind them chose was the latter. In this approach however the role of the foreign factor i.e the US is almost totally ignored. This seems to be a major weakness of this analysis if we bare in mind the dependent character of a peripheral country such as Greece and the influence the US exercised over Greek affairs in this period as already seen.

Perhaps a more satisfactory explanation would be one that takes into account both the role and policies of the US towards Greece and the area in general, as well as the need of the military to preserve their dominant position in the country's affairs which was secured in the first place by the foreign assistance needed to win the Civil War in the late 40s and to establish the repressive regime of quasi-parliamentarism, in which the army was the dominant force.

Concluding we can say that the Greek military due to their position in the power structure of the country up to 1974 were

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able to promote their interests and thus affect to a certain degree the level of the country's military expenditure.

## 5.13 Testing the Underconsumptionist Thesis

We have already discussed to some extent the contributions made by the underconsumptionist school on the topic of military expenditure. We also looked at the criticisms and limitations of this approach.

Here, it was decided to test the underconsumptionist hypothesis in the case of Greece to see whether indeed such an approach helps us explain the high levels of defence expenditure in the case of Greece for the period 1951-1985. Regression analysis was used. The core of the argument is that capitalist countries are likely to experience deficiencies in aggregate demand as they become richer, there is therefore a growing surplus and the problem becomes one of absorbing this surplus. In the underconsumptionist view military spending is one way that this surplus can be absorbed and thus counteracting the inherent tendency towards stagnation and crisis. The aim of our test is to see whether the share of military expenditure in GDP is related to GDP, GDP per capita (GDPC) or Unemployment (UNMP). In a second equation a dummy variable (DUM) is included with value of one for 1975,76,77 and zero elsewhere. In a third equation unemployment is lagged one year to allow time for the state to respond to the increasing levels of unemployment by adjusting its expenditure.

(32) ME = 7.174    +9.359 GDP    -0.00089 GDPC    -0.0067 UNMP
        (7.678)    (3.841)        (3.655)          (1.928)

$$R^2 = 0.590 \quad s.e = 0.743 \quad DW = 0.834 \quad F\text{-stat} = 14.909$$


(33) ME =   7.699    +0.000104 GDP    -0.00102 GDPC
          (10.913)    (5.717)          (5.557)

        -0.0051 UNMP    +1.903 DUM
        (1.960)          (5.057)

$$R^2 = 0.779 \quad s.e = 0.555 \quad DW = 0.985 \quad F\text{-stat} = 26.444$$


(34) ME = 7.205    + 9.173 GDP    -0.00089 GDPC
        (10.915)    (5.770)        (5.522)

        -0.0039 UNMP(-1)    + 1.913 DUM
        (1.563)              (5.033)

$$R^2 = 0.780 \quad s.e = 0.562 \quad DW = 0.991 \quad F\text{-stat} = 25.816$$

The explanatory power of the equations is satisfactory with the exception of equation (32) where it is slightly low. In all three equations there appears to be a significant degree of autocorrelation. Thus, the equations were also estimated with a first order autocorrelation scheme which however did not work. The signs of the variables remain the same throughout all the equations. The results in all three cases show that there is a positive relation with the GDP and not with GDPC where the sign of the coefficient is negative. This may be taken as casting doubt on the underconsumption thesis since it is the gross domestic product per capita that is a better measure of affluence and not GDP. At the same time, the sign of the coefficient of unemployment is also negative but not significant. However, the

sign of the unemployment variable appears to be in contrast to what the underconsumptionist school proposes. If the government responds to rising levels of unemployment by increasing its expenditure then one would have expected a positive sign. On the other hand, it may be that the causation runs the other way and that higher levels of ME result in higher levels of economic activity and, ceteris paribus, lower levels of unemployment. Generally, however, the results obtained here appear to be inconclusive as far as the validity of the underconsumption approach is concerned in the case of Greece.

## 5.14 The Growth of the Public Sector

Defence expenditure is probably the best example of a pure public good in the sense that it is, in almost all the cases, exclusively provided by governments. In contrast other items of public expenditure, such as education and health, have their counterparts in the private sector. Furthermore the share of military spending in total budgetary allocations is usually quite high in most countries. Table 5.13 below shows the share of military expenditure in government total revenue for various groups of LDCs and the industrialised countries. Since defence expenditure is only one item among a vast array of public expenditure catagories, the relative high values of this share show the importance attached to it as a purely public good.

Table 5.13

Military spending as percentage of government revenue

|  | 1965 | 1970 | 1975 |
|---|---|---|---|
| All less developed countries (LDCs) | 17.6 | 19.0 | 16.5 |
| High income LDCs | 15.5 | 16.7 | 11.6 |
| Middle income LDCs | 25.9 | 23.9 | 20.6 |
| Lower income LDCs | 19.3 | 21.1 | 21.9 |
| Oil producing countries | 15.4 | 19.4 | 19.5 |
| Industrialised economies | 18.8 | 16.2 | 12.7 |

Source: World Tables (1976)

Various theories have been proposed regarding the relationship between government expenditure and economic development. Much attention has also been focused in recent years to the growth of the public sector in advanced industrialised countries and how this affects the economic performance of the country. In Britain for example Bacon and Eltis (1976) have argued that the poor performance of the British economy especially after 1965 has to a large extent been due to the growth of the public sector. Greece has also experienced a very considerable growth of the public sector and its importance in the economy. If fact as we have discussed elsewhere the public sector in Greece played a key role in the post-war development of the country. The size of the Greek public sector can be seen in table 5.14. It is interesting to note from the table how government expenditure significantly increases in 1975 and in 1981. In the first case the rise is mostly attributed to sharply rising military spending as a result of the rearmament program that got underway due to the invasion

# Table 5.14

## The Size of the Public Sector in Greece 1950-86

| Year | Public Consumption as % of GNP | Public Investment as % of GNP | Government Expenditure as % of GDP | Government Non Military Expenditure as % of GDP |
|------|------|------|------|------|
| 1950 | 15.48 | 8.23 | 19.96 | 13.96 |
| 1951 | 16.52 | 5.15 | 18.23 | 12.63 |
| 1952 | 16.81 | 4.68 | 17.41 | 12.68 |
| 1953 | 14.20 | 4.13 | 20.14 | 14.94 |
| 1954 | 14.89 | 3.91 | 20.26 | 14.76 |
| 1955 | 14.40 | 3.92 | 19.52 | 13.77 |
| 1956 | 15.63 | 4.60 | 18.94 | 12.94 |
| 1957 | 14.20 | 4.25 | 18.66 | 13.56 |
| 1958 | 14.24 | 5.00 | 18.46 | 13.66 |
| 1959 | 13.89 | 5.97 | 19.55 | 14.65 |
| 1960 | 14.09 | 6.78 | 19.81 | 14.91 |
| 1961 | 13.22 | 7.28 | 20.30 | 16.01 |
| 1962 | 13.86 | 7.23 | 21.75 | 17.65 |
| 1963 | 13.10 | 6.30 | 20.56 | 16.66 |
| 1964 | 13.22 | 6.41 | 21.50 | 17.80 |
| 1965 | 13.18 | 6.49 | 21.47 | 17.87 |
| 1966 | 13.20 | 6.12 | 22.33 | 18.63 |
| 1967 | 13.56 | 6.41 | 24.21 | 19.71 |
| 1968 | 12.86 | 6.43 | 25.71 | 20.91 |
| 1969 | 12.63 | 7.29 | 25.57 | 20.67 |
| 1970 | 12.39 | 6.55 | 25.24 | 20.34 |
| 1971 | 12.08 | 7.77 | 25.13 | 20.23 |
| 1972 | 11.72 | 8.09 | 26.38 | 21.68 |
| 1973 | 11.64 | 7.27 | 24.49 | 20.29 |
| 1974 | 13.56 | 6.04 | 25.50 | 21.30 |
| 1975 | 14.37 | 5.38 | 28.74 | 21.09 |
| 1976 | 14.18 | 5.14 | 29.12 | 22.22 |
| 1977 | 14.56 | 4.45 | 30.20 | 23.20 |
| 1978 | 14.17 | 4.47 | 29.56 | 22.86 |
| 1979 | 14.45 | 4.78 | 30.52 | 24.22 |
| 1980 | 14.21 | 4.59 | 28.64 | 22.94 |
| 1981 | 15.20 | 4.59 | 33.61 | 26.61 |
| 1982 | 15.56 | 4.92 | 34.06 | 27.16 |
| 1983 | 16.08 | 5.61 | 38.52 | 32.22 |
| 1984 | 16.37 | 6.05 | 39.78 | 32.58 |
| 1985 | 16.80 | 6.52 | 42.95 | 35.85 |
| 1986 | 16.10 | 5.19 | 43.37 | 36.77 |

Source: The Greek Economy Bank of Greece Vol III,(1984)
and my own calculations

of Cyprus by Turkey the previous year. In the second case this may be due to increasing military spending but also to the welfare programs and social spending by the then newly elected government of PASOK.

One of the earliest theoretical contributions to the subject of the growth of government expenditure is that of the 19th century political economist Alfred Wagner. His contribution can be stated as the "law of expanding state expenditure" more widely known nowadays as "Wagner's Law". He argued that there is a positive and rising relationship between state activity and economic growth. He believed that the continuous growth of society and the economy will cause an expansion of government activity at a faster rate than other sectors or branches of the economy. For him there were three basic reasons for this. First, with economic development the government is obliged to increase its activities in the fields of policing, defence and law and order in general. This is due to increasing legal relationships because of the increasing division of labour in society and the accelerating trend of urbanisation which forces the state to expand its protective and administrative functions. The second reason is that cultural and social welfare spending will increase with development since, with social progress, the above become superior goods the demand for which increases with rising standards of living.

Finally due to technological progress the average size of the units of production will be increasing as a result of which the government will tend to participate more in the production process through publicly owned corporations which will be

preferred to private monopolies.

Here it was decided to test whether Wagner's Law can help to explain changes in military expenditure in the case of Greece for the period 1950-1985. With annual data for this period regression analysis was used to see whether the increasing share of state expenditure in GDP (GEX) could be explained by industrialization. The gross domestic product per capita (GDPC) was used as a proxy for industrialisation. With constant 1970 prices the following result was obtained:

(35)     GEX =    +12.653          +0.00046 GDPC
                  (10.957)          (11.940)

$R^2 = 0.807$    s.e = 2.885    DW = 0.378    F-stat = 142.570

From the result reported above it appears that the validity of the general proposition of the rising relative importance of the public sector, with GDPC as the proxy for industrialisation appears to have been confirmed. The explanatory power of the equation is high but the Durbin-Watson statistic seems to indicate that there is significant positive serial correlation. Thus, a first order autocorreletion scheme was used which improved the equation:

(36)    GEX =    +8.500        +0.0006 GDPC
                 (4.046)        (9.646)
                                            AR(1): 0.574 (5.459)
$R^2 = 0.815$    s.e = 2.867    DW = 1.35    F-stat = 72.940

In a second equation it was tried to see whether military spending in the case of Greece was positively related to GDPC since Wagner gave the growth of security spending as one of the

reasons for the more rapid growth of the public sector. For the
same period the following results were obtained:

(37) ME =  4.174    +4.050 GDPC   +1.150 DUM
          (11.534)   (3.186)       (2.036)

$R^2$ = 0.376    s.e = 0.894    DW = 0.369    F-stat = 9.958

The above result shows that there is a positive relationship
between defence expenditure and GDPC which is once again taken
as a proxy for industrialisation. The previous result in equation
(36) is not contradicted by this result which seems to indicate
that the growth of defence spending is one of the contributing
factors to the growth of state expenditure in the case of Greece
for the period 1950-1985. However, the explanatory power of the
equation is quite low and the Durbin-Watson statistic indicates
positive serial correlation. A first order autocorrelation scheme
failed to improve the eequation.

Then it was decided to take the examination a step further and
to make defence expenditure (ME) a function of GDPC, the share
of the secondary sector in GNP (IND), and government expenditure
as a proportion of GDP (GEX). A dummy variable was also included
in the equation. The following results were obtained using
regression analysis and annual data for Greece for the period
1950-1985:

(35) ME = 8.936  +0.0001 GDPC   -0.324 IND   +0.052 GEX   +1.475 DUM
         (4.991)   (2.514)       (4.071)      (1.107)      (3.770)

$R^2$ = 0.726    s.e = 0.610    DW = 1.017    F-stat = 20.596

The explanatory power of the equation as indicated by R2 is

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satisfactory  and the results are interesting but to a certain extent contradictory. On the one hand, there is a positive relationship between military expenditure (ME) and government spending (GEX) as one would expect. The GDPC coefficient is also positive and significant as expected. The coefficient of the secondary sector (IND) however, is negative the reverse of what would have been expected. Since both the latter variables (ie GDPC and IND) are proxies for industrialisation the results are contradictory and inconclusive in the case of Greece at least. Here too, a first order autocorrelation scheme was used to improve the equation but it did not work.

Wagner's theory makes long-term factors, such as population, income and growth, the major causes of a secular rise in state activity with development. Most of the empirical studies made on Wagner's Law appear to support it. However they don't seem to have established what factors determine the growth of state expenditure neither have they identify the channels through which it takes place. It will not be wrong to say that, as with most things, there is no single factor which can be used to adequately explain the relative growth of the public sector. It is also more than likely that there are different contributing factors to this process in different countries. Furthermore, different factors would have different relative importance for each country at different stages of development.

## 5.15 Conclusion

In this section we have discussed several possible explanations of the growth of military expenditure in the case of Greece for the period under examination in this study. As it was noted in the beginning of the section it is not possible to classify the various factors in terms of importance since their influence on greek military spending has not remained unchanged throughout the period. Nevertheless certain factors seem to have played a particularly important role throughout the post-war period.

Undoubtedly the external security factor is one of them. In the post-74 period its relative importance has substantially increased and currently is probably the dominant factor influencing military expenditure in Greece. Another important contributing factor has been the country's membership of NATO. Oddly enough however, as we have seen, what NATO considers to be its primary adversary is only considered (since 1974) to be of minor threat to her security by Greece and this only in the case of a generalised conflict. Greece finds herself in the internationally unique and odd position to feel that her security and interests are under threat by a country belonging to the same alliance as her, and therefore not only an ally but also a potential "comrade in arms". At the same time some of the alliance's adversaries are seen by Greece as potential allies in the case of a conflict with her NATO ally. This was manifested in March 1987 when Greece and Turkey were at the brink of war, the Greek Foreign Secretary was despatched to Bulgaria as a token

diplomatic gesture to the West so that to stress the seriousness of the situation and Greece's determination to see the conflict out and at the same time to secure Bulgaria's support in the case the conflict flared up. Turkish-Bulgarian relations are also tense and it is felt in Greece that the latter may be able to influence the outcome of a Greek-Turkish conflict in favour of Greece.

This odd situation is set to continue in the foreseeable future as long as Greece considers her security threatened by Turkey. This creates problems for NATO's south-east flank but at the same time provides the alliance with certain "fringe" benefits. These include high military spending by both countries and large standing armies which contribute to NATO's defence; and also the unrivaled experience gained by Greek and Turkish pilots due to their daily confrontations over the Aegean skies in real, and not simulated, battle conditions.

From the foregone discussion and analysis in previous sections, it would appear that there is no strong evidence to suggest that defence spending has been used as a tool of economic policy by Greek governments in order to control unemployment or other macroeconomic variables. This however may no longer be the case in the future in the light of the development of a domestic arms industry in Greece in recent years. In the following chapter we will discuss in some detail this development and the possible effects that the arms industry may on the economy of the country.

CHAPTER 6


## THE DEFENCE INDUSTRY IN GREECE


## 6.1 Introduction

Greece has not in the past possessed developed arms production facilities. Some years ago a Greek arms industry was virtually non-existent and it is only in recent years (since the mid 70s) that attempts have been made in establishing and developing an arms industry. However, small explosives firms mostly serving the commercial mining market and then the military have been operating as far back as the late 19th century. There have also been earlier efforts to produce military equipment such as KEA (State Factory of Airplanes) a plant which manufactured British Blackburn Dart planes under the Greek translated name "Velos" with the first planes delivered in 1926. Also there was the Greek Powder and Cartridge Company mostly serving the commercial mining sector.

Due to weapons embargoes by the US during the Colonels rule and the increased tensions between Greece and Turkey after the 1974 Cyprus invasion by the latter the impetus was given to a planned development of a defence industry with the primary aim of a) producing spares for the weapons and equipment in the inventory of the Hellenic Armed Forces and b) the production of various types of weapons systems such as armoured personnel carriers (APCs), cannons, rifles, fast patrol and attack boats,

missile boats etc.

The original arms industry program, in the mid seventies, comprised the following five projects as grouped by Albrecht (1984):

a) The Tanagra project of establishing a major maintenance and overhaul facility for advanced military aircraft with a view to later licenced production. This ambitious aim, with the given industrial base of the country, was scaled down by legislation submitted by the Karamanlis Government in April 1975 which established EBAY (National Industry of Airplane Materials) no longer aiming at the generation of technology for economic growth but rather stressing employment and balance of payments benefits. The Karamanlis Cabinet hoped that EBAY would create 3.000 jobs and that it would lead to the saving of foreign currency in aircraft procurement and that it would do contract work for foreign customers.

b) The project to promote the Greek electronics industry, sponsored by UNIDO and the Greek Planning Authority. First orders for military radio and digital communication equipment, as well as for laser technology, were placed by the Hellenic Armed Forces as well as OTE (Greek Telecom) in 1975.

c) The embryonic Greek capacity for the production of small naval crafts would be expanded to the manufacture of torpedo boats, the assembly of small and medium-sized naval crafts, and the building of components of modern naval vessels.

d) Heavy army equipment were to be made at the expanded tank repair shop at Volos. The Austrian firm of Steyr-Daimler-Puch was seen as a principal source for the licenced production

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projects such as the Kurassier tank destroyer, the Pinzgauer
transport vehicle and APCs (Armoured Personnel Carriers).

e) Military infrastructures, such as airports, camps, naval
ports, military fortifications etc were programmed for a major
build up.

After fifteen years the balance of these undertakings appears
to be contradictory. In many cases the original ambitious targets
were not fulfilled. Today the domestic defence industry supplies
only just above 20% of the Hellenic armed forces needs. The
remaining 80% still has to be imported, and this includes the
most important and expensive weapons systems such as fighter
planes, helicopters, missiles, frigates, tanks. In 1977 the
Defence Industry Directorate was set up to supervise the state-
owned sector of the defence industry and to co-ordinate the
different companies. The project has not been totally free of
problems and set-backs. In 1987 the Defence Industry Directorate
proclaimed its aim to be a 50:50 share between imports and
indigenous production. This is not only aiming at greater self-
sufficiency in armaments but also to support the restructuring
and modernisation of the domestic economy which is passing
through a period of stagnation and decline.

Before moving into a more general analysis we first proceed
with a detailed assessment of the Greek arms industry, its
progress and the current state of affairs. This microeconomic
level of assessment should provide us with some evidence for a
more general discussion and conclusions about the actual and
potential role of the arms sector in the Greek economy and its
development. It is to this that we now turn.

## 6.2 The Big Five and Others

The Greek Defence Industry essentially comprises five major firms and a cluster of more than 100 small or medium-sized enterprises that can claim to a defence role, 30 of them on a near exclusive basis.

Almost exactly a century separates the oldest of the big five firms, PYRKAL (Greek Powder and Cartridge Company) set up in 1874 from the three relative newcomers - the Hellenic Aerospace Industry (EBA), the Hellenic Arms Industry (EBO) and the Hellenic Industry of Vehicles (ELBO, formerly Steyr Hellas); and while Hellenic Shipyards is over a quarter of a century old, it is only now beginning a new lease of life as a constructor for the Hellenic Navy. Together the big five cover the basic requirements of the Hellenic Army, Navy and Air Force while some of them are reportedly steadily increasing their activities in terms both of product development and exports. In a sense this is icing on the cake, for, with the exception of Hellenic Shipyards, they were set up with the initial purpose of reducing the dependence of the domestic armed forces on foreign suppliers and relieving the economy of a proportion of armed forces import costs. Together the five firms directly provide close to 14.000 jobs (1986 data) plus several thousand more through subcontractors and suppliers.

1) The Hellenic Aerospace Industry (EAB), one of the largest companies in Greece with about 3.200 employees, started operating in 1979. It was established with an initial $ 400 million Greek state investment with contracts between the Greek government and

four American multinational corporations - Lockheed, General Electric, Westinghouse and SNECMA. Lockheed Aircraft Services handled systems and equipment requirements, Lockheed Aircraft International was responsible for management and control, General Electric undertook the design and commissioning of the engine maintenance and overhaul facility and Westinghouse Electric Corporation handled electronics and avionics equipment installations. Construction and site supervision was the responsibility of the Austin Company of the US. The contracts with the American multinationals were prematurely cancelled (the last one with Lockheed in 1984) among allegations in the press (Rizospastis 15/12/85) of malpractices and mismanagement (EAB sued Lockheed in 1986). The basic goals when EAB was set up were: a) To increase the operational readiness, technical autonomy and support self-sufficiency of the Hellenic Air Force and aviation sectors of the Army and Navy, b) To save foreign exchange and increase currency inflows, c) To create an industry that would become a pole of attraction for technology and know-how that could be made available to other sectors of the Greek economy.

These original aims have now become both wider and more specific and are currently stated as a) Acquisition, integration, development and application of new technology in selected areas, b) Co-production and production of aeronautical products, c) Manufacturing of innovations originated by Greek research centres, d) Development of capabilities to meet future requirements for weapon systems and, e) Integration of the company into Greece's industrial complex.

The skilled manpower sources for EAB were mainly three:

a) retired air force personnel, b) employees of Olympic Airways, on occasions causing a manpower drain on Olympic which led to an agreement between the two companies not to continue competitive hiring and, c) skilled Greek nationals (between 400 and 500 people) from countries such as US, Canada, Britain, Australia which were promised conditions that were comparable to those in the host countries. An attempt in fact to slow down and, if possible, reverse the brain drain which in the case of Greece is one of the worst in the world. It is in fact identified as one of the main reasons for the failure of the Greek manufacturing sector to adjust to changes in international trade patterns and to modernise the antiquated Greek economy (International Management, February, 1988).

Many of the aims of this $ 700 million investment in high technology have not so far materialised. The EAB facility at Tanagra is reportedly utilised to 75% of capacity which nevertheless is a reasonable figure by international standards. However, anything more than a repair and maintenance shop has not so far emerged from this major investment in military aircraft technology. According to earlier plans, production of a primary training aircraft should have commenced at the complex in 1981 let alone expectations to proceed to licence production of advanced military aircraft such as the Dassault - Breguet Mirage fighters. This failure to turn to more demanding technologies and undertakings may be an indication that over-ambitious programmes cannot be supported in a country with the given technological development of Greece and a particularly weak manufacturing sector. Furthermore, it has been reported

(Albrecht, 1984) that the original hopes of earning tens of millions of dollars by doing maintenance work for foreign military establishments and thus improving the country's balance of payments position have not yet come to fruition.

In particular we can say that, although in technological terms EAB can claim to be able to service some 20 different types of military aircraft some of these types, such as the american A-7 Corsair bomber, are used by nobody else than Greece and the US in the Mediterranean region and thus prospects for maintenance orders were to remain limited from the very beginning. Furthermore, many of the region's countries, operating similar types of aircrafts (mostly of US and West European origin), have or try to develop similar maintenance facilities and thus would be inclined to support their own domestic firms by placing contracts with them (eg Turkey, Egypt, Israel). In the case of Turkey for example, due to the tense relationship with Greece as we have seen, it is very difficult to envisage a situation where Turkish fighter planes would be maintained and/or repaired by EAB or vise versa. National pride in one's industries also prohibits such a development. We have to bear in mind that, in the case of Greece's northern neighbours, Bulgaria, Yugoslavia and Albania, they are equipped with Soviet made airplanes and in the case of the former she is also a member of the Warsaw Pact Alliance. This makes very difficult, to say the least, the possibility to have their planes serviced/maintained in the facilities of a NATO member. It seems therefore at the outset, that the chances of EAB doing a lot of maintenance work for foreign clients were fairly slim. Recently though, EAB has been able to gain, for the second

time running, a contract to overhaul the F-4 fighter planes of the Royal Air Force in the face of stiff international competition. This may signal changing fortunes for EAB, at least in this front.

A further important reason explaining this apparent failure by EAB to gain substantial maintenance work from foreign clients is provided by Albrecht (1984). He argues that, although EAB may be competitive in the contract terms that it offers, the reason that large-scale foreign orders did not materialize are of a political nature. He argues that "the acquisition of foreign military technology always creates a clientele relationship which works as long as donor and recipient pursuit roughly comparable political aims" (ibid, p.5). This creates certain constraints if the non-producer of military equipment wants to do some of the follow-on-work, such as repairing and maintenance, on equipment of other countries supplied from the same source. In order to do this successfully the recipient country "would be expected to cooperate extremely well with the source of these weapons" (ibid, p.6). The original hope of being able to do maintenance and/or repair work on US types of fighter planes of other countries in the region, was implicitly based on the assumption that Greece would politically cooperate in an intimate manner with US strategies in the region and on a world level as well. Given therefore the fact that, the PASOK government since 1981 has been in the eyes of the Reagan administration the black sheep of the Western Alliance, especially in the early years of the Papandreou administration, there is little surprise that hopes eg to service the fleet of Egyptian F-4Es did not materialise. This of course

is slowly changing as relationships between the two countries have substantially improved since the years of the anti-american rhetoric.

Currently EAB has servicing contracts with Jordan, Dubai, Bahrain and Abu-Dhabi but its main work is of course for the Hellenic Air Force and Olympic Airways. It has been claimed that EAB has saved the Greek state hundreds of millions of dollars a year (EAB Chairman P. Fotilas) in foreign exchange from actual exports and import substitutions. EAB's losses have in fact been declining steadily in recent years a sign perhaps of more efficient operating from 1,3 billion dr ($ 9.7 million) in 1982 to 1 bil Dr ($ 7.5 mil) in 1983 to 22 mil. Dr ($ 0.16 mil) in 1984 to approximately 15 mil Dr ($ 0.11 mil) in 1985.

EAB is also participating in a number of international programmes within and outside NATO. These include the "Hermes" communications command and control system for the Greek Military and participation in the European "Stinger" portable anti-aircraft system production venture, it also has manufacturing contracts with Aeritalia for control surfaces, floor panels and lower lobes of the Italian G-222 transport aircraft, with Augusta for the complete cabins of A-109 helicopters, with Aerospatiale for assembly and manufacture of Airbus door frames, with Dassault for servicing and overhaul of Mirage F-1 and 2000 engines and for the engines of Phantom F-4 fighter-planes, with SNECMA for various engine parts, with Thomson-CSF for electronic components and with Canadair for spares for the CL-215 fire fighting aircraft.

Furthermore, EAB has a small R & D group which is engaged in

the development of prototype systems in the field of electronics and aeronautics. Current R & D activities include electronics, weapon systems, informatics, aeronautics, energy systems, secure communications, flight mission electronics, opto-electronics, guided weapons, small/light aircraft development and wind turbines. However, many of these projects are mostly on paper rather than being actually pursued.

EAB is the first component of the Greek defence industry to participate in the offsets programme connected with Greece's purchase of 40 Mirage-2000 and 40 F-16 fighter planes. It has been estimated that 80% of the compensation orders of this rearmament programme are to go to EAB offering further prospects of expansion. EAB is engaged in discussions with General Dynamics which according to EAB chairman P. Fotilas "will definitely lead to our producing one or major parts and components of the engines for the 40 F-16 aircraft to be acquired by the Hellenic Air Force" (in Walker, 1986. p.68). Here, once again, the "aim is not just the work load but the acquisition of new technologies that will help us to proceed to new areas of R & D and manufacturing" (ibid, p.68).

The offsets programme, however, has not been entirely free of problems especially concerning the offsets agreed with Dassault for the purchase of the 40 Mirage 2000 planes. The Greek press, in recent months has been full of accusations for set-backs, delays and contract violations. (Defence and Technology,43, May 88). The offset program may be of major importance for EAB's future which, as mentioned, expects a share in the products of the new fighter planes and for a basic trainer

for the Hellenic Air Force.

A major objective of EAB is to further expand its manufacturing activities. Manufacturing as a proportion of total operations has been raised from near zero in 1979 to between 30 and 35 per cent in 1984 with the potential to increase this figure to about 50% in the next five years. But much of this will depend on the offset and buy-back arrangements mentioned above which may be an indication of EAB's need to rely on foreign know-how and direct state support. EAB, like all major firms engaged in defence production, is under state control.

2) The Hellenic Arms Industry (EBO), is a state owned group of companies, set up in 1977, with two main plants which, according to Howarth (1984), are credited abroad with high standards of modernity.

The first of these companies was in fact set up with part financing out of the West German military aid to Greece, in order to manufacture the Heckler & Koch G3 assault rifle, with which it has been decided to re-equip the Hellenic Armed Forces. The G3 was to be manufactured under licence from Heckler & Koch, a leading multinational in small arms production, running facilities in about 26 countries, mostly in the Third World. Monthly production rates of the G3 were recently estimated at around 2,000 pieces, in order to meet an initial order of 200,000 for the needs of the Hellenic Armed Forces. Indeed, the original intention was that, after the needs of the forces had been met, the factory would either close down or continue as a mere maintenance facility for the existing rifles. However, the

agreement with the German firm, had given EBO the right to market the entire Heckler & Koch range in all parts of the world other than West Germany. Encouraged by the income generated from the first export sales, the policy was reversed and the decision was taken that EBO should not simply stay in business as a manufacturer, but should enter a rapid course of expansion and diversification. Today the company employs about 1,500 people and may be described as an export oriented company, operating mostly in the Third World market, but also targeting markets in other NATO countries.

The company's product spectrum includes: G3 assault rifles, the MP5 submachine gun, the MG3, HK11, and HK21 machine guns, 81mm and 120mm mortars, 20mm and 30mm cannons, sporting guns and rifles and a variety of other products. In 1981, as a result of a request by the Greek government, EBO turned in the production of ammunition and explosives, in one of the largest complexes of its kind in Europe (Walker, 1986), at Lavrion. It is now producing nitrocellulose powders of various types and propellant charges, has a filling plant for medium and large calibre ammunition for aircraft bombs, HEAT ammunition and TNT. According to EBO officials, their aim is to make the Lavrion plant "a vertical manufacturing complex covering all the chemicals required for the production of ammunition with totally new equipment incorporating the latest technology" (in Walker 1986, p.72).

One important aspect of EBO operations in the 80s, is the production of the Artemis 30 anti-aircraft weapon system. The programme was started in the early 80s in collaboration with a

number of European firms, among them Mauser, Ferranti, PEAB, Kupa, and Siemens. The Artemis-30 system has been described as a Greek concept developed to Greek requirements ... and it is a first step in the direction of advanced technology" (ibid, p.73). It is designed to offer protection against low flying, fast attacking aircraft. It consists of a search radar system equipped with an IFF (Identify Friend or Foe) capability, a fire control system and twin 30mm guns. Not surprisingly, the Hellenic Armed Forces have decided to procure the system, and there are also plans to integrate missiles in the system. Deliveries of the Artemis-30, however, have been constantly delayed. There are reports that the project has run into financial and technical difficulties. It appears that there are problems with the IFF capability, as well as with tracking the target. This may point to difficulties in assimilating and working with advanced technology due to the lack of previous experience and know how. Here, it is worth pointing out that most of the components of the system are produced under licence by EBO whereas most of the sophisticated electronics are imported. If the aim in this case was to reduce dependence on foreign sources we can say that it has not been achieved to a substantial degree. The system has to rely on imported equipment without which it is rendered useless. This, as we will see, is not an isolated case. The first units were to be delivered in 1987 but, it seems possible that the whole future of the venture may now be in doubt.

EBO is also engaged in R & D and has been reported that as much as one employee in every ten is engaged in the research and development programmes of the company which include the new ERA

and ERMIS range of ammunition systems.

We have mentioned earlier on that EBO has been given the right to market worldwide the entire range of the Heckler & Koch products. In fact, it may now be described as an export oriented company. Very early on, it was realised that, if the company was to survive and to have a secure future, it could not live on the limited Greek market alone. It had to look for markets abroad. Walker (1986) reports that by the mid 80s, export sales accounted for between half and two thirds of EBO's total annual output. Most foreign clients of the company are to be found among African and Middle Eastern countries. Apparently both Iran and Iraq have often been among the group's best customers. It seems that companies such as EBO, tend to step in and supply countries with weapons whenever this can not be done by the big arms producers of the metropolitan countries due to embargoes and sometimes (but not often) due to popular outcry in advanced western countries.

Indeed, big arms producers may use such companies to bypass stringent rules and regulations at home. Also, they often use them as transhipment points for their products due to more relaxed implementation of rules and regulations in countries such as Greece. It is, therefore, no surprise that EBO has been regularly accused of breaking international arms embargoes, malpractices in export operations, and for issuing false End User certificates.

In conclusion we can say that EBO is a very good example of a company that has been set up with import substitution in mind: to domestically produce the G3 assault rifles as a better alternative to importing them; and has turned to the

international marketing in order to secure its future due to the small size of the domestic market and, therefore, its inability to absorb substantial quantities for the company to have a financially viable future.

3) The Greek Powder and Cartridge Company (PYRKAL) is the oldest of the big five and has done considerably less well than EBO. It was founded in 1874 as a privately owned company to produce black powder, dynamite and bullets. Small arms ammunition was added to PYRKAL's products around the turn of the century. After years of accumulating losses and losing export markets the company came under state control in 1982. The company's shares are currently in the hands of state-owned banks.

PYRKAL is a major ammunition producer in Greece and one of the major suppliers of the Hellenic Armed Forces. It supplies them with small ammunition, ammunition for mortars, tanks and artillery, and training bombs for the air force. PYRKAL is also engaged in R & D in the field of improved conventional munitions. The management of the company claims that the company is currently the only producer in the world of a 4.2 inch mortar bomb which contains an expulsion charge and 20 grenades each one equipped with point detonating fuse and delay parachute. Another new product is a 2.74 inch air to ground rocket warhead with 12 bomblets each equipped with a time fuse which is set before launching by the helicopter. Both products, especially the 4.2 inch mortar bomb are, aggressively marketed on the international market and there are hopes of picking up orders even from the US forces.

The company is hoping that increased exports will help it overcome the financial difficulties it has been facing over many years. Indeed, PYRKAL's attempts to reduce its dependence on the Hellenic Armed Forces by expanding its exports, were spurred by those financial problems which have resulted in an accumulated deficit of $100 million. It was this that led to its inclusion among some 40 companies that were taken over by the state as the only alternative to closure.

In 1986, on the basis of the company's contracts under execution, exports were set to exceed domestic sales with projected earnings of 11 billion drachmas ($ 82 mil) from exports compared to between 7 and 9 billion drachmas ($ 52 to 67 mil) to be earned from sales to the Hellenic Armed Forces. In fact it has been claimed by the management that as much as 60 to 70 per cent of PYRKAL's production is exported. Once again, as in the case of EBO, PYRKAL has been engaged in sales to countries such as Iran an Iraq. The Middle East and Africa are probably the two regions where most of the company's export activity is currently directed. It is also hoped that it will be able to penetrate both the West European and the US markets. Indeed, in recent months, PYRKAL has gained a contract to supply with ammunition the British forces stationed in West Germany.

Despite the sustained attempts to increase export sales and to develope a new range of products, the company still faces financial difficulties. Only in 1983 did the company show a modest pre-tax profit of 2.5 billion drachmas, with a total turnover of 8.5 bil Dr.

The future of this firm, which does not operate with any

foreign support, and has also embarked in the development of new products of rather demanding technology, has been in doubt for a number of years. In 1986 the total amount owed to various banks by PYRKAL reached 21 billion Dr. and has been estimated (Magrivelas, 1987) that it would take at least 7 billion Dr. in new capital investment to make the company viable again. The same study estimates that the firm, which currently employs 3,700 people, needs to shed at least 850 jobs. Officials of the company however have been reported to be confident that the necessary modernisations can be pushed through without any significant redundancies among the workforce and that their immediate target is to reach break-even point while maintaining full employment. A target that seems to be ambitious judging by the state the company is currently in.

Even if the company is not made viable in the near future, there is little doubt that, with almost 4,000 jobs at stake in times of rising unemployment, the government will not fail to come in to support PYRKAL. Furthermore, it can also be said, that the company will be supported by the state for as long as required if only for strategic reasons or until such time when it is no longer considered of national importance for PYRKAL to operate.

4) The Hellenic Industry of Vehicles (ELBO), formerly known as Steyr Hellas, was founded in 1972. It was the result of a joint venture between the Austrian company Steyr-Daimler-Puch and the Greek state. It was established for the manufacture and distribution of agricultural tractors, trucks and two-wheeled

vehicles. In 1979 the majority of the shares (60%) came under the control of the Greek government through the Greek Industrial Development Bank, the Air Force Stock Fund and the General Bank of Greece. Since 1977 the company has become a principal supplier of the Hellenic Armed Forces producing over 7,500 trucks (2 and 3 axled) and busses. In 1981 the company started production of an armoured personnel carrier (APC), the Steyr Leonidas-1 and has supplied the army with about 200 units, sold a small number to the Cyprus National Guard, and probably a small bunch to Third World countries possibly in Africa. The original plan for the Leonidas-1 APC was to gradually replace all about 1,000 american built M113 APCs in the inventory of the Hellenic army. However it has been reported that the Leonidas-1 costs three times as much as the M113 and the original plan may be fulfilled at a much lower pace. Recently it was given an order for about 530 infantry fighting vehicles (IFV) of the Leonidas-2 type for the Hellenic army and for 2,000 Mercedes G-Wagen jeeps produced under licence in Greece. The company is also looking to expand its current activities in the civilian truck market. In 1983, the turnover ratio of military to civil products was 60:40 and it is currently moving towards 50:50. ELBO is also engaged in exports of trucks, APCs and diesel engines to countries such as Saudi Arabia, Nigeria, Sudan and Austria. In fact, in 1983 a domestic to foreign sales ratio of 1:4.3 was achieved and exports sales reached 3,233 million Dr. ($24.1 mil) as against 752 million Dr ($5.6 mil) of domestic sales.

The company has a workforce of about 1,000 employees and it also provides work for several thousand employees of some 900

subcontractors. In the past the company has been profitable, recording profits of 84 million Dr. in 1981, 412 mil Dr. in 1982, and 1,020 mil Dr. in 1983. However, in more recent years, it has apparently run into difficulties, the main reason for this being the limited Greek market (both military and civilian) and at the same time the firm is not competitive enough to fully compete in the international market. However, it is highly unlikely that the state will not intervene to support ELBO.

5) The Hellenic Shipyards Company, which is based near Athens, was founded in 1956 by S. Niarchos. Through the years the yard grew to become the biggest of its kind in the east Mediterranean region. In April 1985 the yard was closed down as a result of the country's economic recession. The management at the time blamed losses of $44 million over a three year period on the disruption caused by labour disputes, the inability to trim the workforce because of labour legislation covering dismissals, and falling orders for shipbuilding and repairing. Protracted negotiations resulted in a state buy-out and the yard reopened later the same year under state appointed management and, what the government called, socialised administration with union officials participating on the board of the company. The workforce has been trimmed down to 3,800 from 4,000 people, and a modernisation and retraining programme got underway.

Through the years the yard has acquired extensive experience in commercial ship-building and repairing and has also undertaken maintenance and repair work on many warships and auxiliaries of the US navy's Sixth Fleet. The yard would have followed the same

path to decline as many other european shipyards did in recent years had it not been for a large number of orders by the Hellenic Navy in the past few years. The orders included the complete retrofiting of six Gearing class destroyers with a 76mm OTO Melara gun, a new fire control system and surface to surface Harpoon missiles. The shipyards have also build six missile boats of the Combattante III-B type for the Hellenic Navy, a significant venture in terms of acquiring technology and know-how in this area. The boats were built under licence from CMN of Cherbourg-France and each was armed with six Norwegian Penguin surface to surface missiles, two 76mm OTO melara guns, two SST4 torpedoes and other smaller armaments. Other orders have included 10 patrol boats of 29 metres overall length, build under licence from Abeking & Rasmussen of W. Germany. It has also built two fast attack crafts for the Hellenic Navy which were indigenously designed. A number of auxiliaries of the navy have also been build and/or repaired by the yards.

According to official announcements Hellenic shipyards are going to play an important role in the extensive navy modernisation programme which is currently underway. This includes the construction of two small tankers, a fleet tanker and a number of LSTs. However, some of the navy's work is very likely to be channelled to the other major state owned shipyard, the Elefsis Shipyards, situated across the bay from Hellenic, which forms part of the Commercial Bank of Greece group of companies. Already the construction of five domestically designed LSTs at Elefsis Shipyards is already well underway at an estimated cost of $200 million.

Perhaps the most important prospect for the Hellenic shipyards, amounting to a possible 50% occupation of the yards construction capacity over the next few years, is offered by its participation in the Hellenic Navy's frigate programme. The navy has decided to replace a number of elderly destroyers with four new MEKO-200 frigates ordered from Blohm & Voss of W. Germany. The vessels were ordered in April 1988 at an estimated cost of $1.2 billion excluding the cost of armaments and most electronic systems. It was announced that, of the total cost about $200 million will be spent on work done by domestic contractors. It is planned that the first of the four frigates will be build in W. German shipyards where Greek technicians will be trained so that the other vessels will be build in Greece, by Hellenic Shipyards. Under certain circumstances, this may will result in a substantial transfer of technology and know-how in the area of construction of larger military vessels to add to the already acquired knowledge in building smaller crafts such as the Combattante-III type missile-boats, six of which were build by Hellenic shipyards a few years ago.

The yards are also due to build two open sea patrol boats of the Osprey-55 type designed and developed by the Danish company Danyard. The contracts, signed in March 1988 between Hellenic and Danyard, will result in the transfer of the whole design package and licence to build the two patrol boats in Greece at the cost of $15 million for the design package and production licence alone. The two vessels will be commissioned by the Hellenic Navy and a third one will be build for export. There are also plans to build a further eight vessels for future needs of the Navy.

Recent years have also seen the slow return of commercial ships' repairing and building at the yards but they are still relying for their work on orders coming from the Hellenic Navy.

So far we have been concentrating on the five major companies in the Greek arms industry. However, as already mentioned, there is a number of other small or medium sized enterprises operating within the defence industry. In fact in 1982 the Hellenic Association of Defence Material Manufacturers (SEKPY with greek initials) was set up which has approximately 100 members. These are private sector firms with a workforce in the range of 50 to 300 workers each, and for them defence accounts for between 20 and 80 per cent of their activities. They consist largely of manufacturers of spare parts, small components and light infantry weapons such as grenades and mines. A number of them are also engaged in export activities. SEKPY however, is not a sales or exports promotions organisation, but its declare aim is to help members "to solve problems and prepare solutions for common objectives". It offers assistance to its members, particularly with regard to absorption of new technology, to gain international contracts, quality control etc. A characteristic of the private sector of the defence industry are its very close ties with foreign capital and multinational firms. This is particularly true for the leading firms in this sector. Some of the main companies in this sector are:

a) EBEX is a steel and aluminium structures manufacturer, founded in 1975 and currently employing 350 people. Its main activities are in the commercial field but its range of military

products such as light tactical bridges, aircraft refuellers, runway repair decking and aluminium foot bridges account for 20% of the company's turnover.

b) EBME with about 50 employees was established in 1950. The company's defence activity is concentrated on the production of spare parts and modification kits for military equipment which include spare parts and kits for the M-47 and M-48 tanks. The company cooperates with foreign firms on military products in line with the off-set agreements that are reached when Greece buys products from abroad. Krauss-Maffei of W. Germany, Dassault of France, Oerlicon-Contraves of Switzerland and the FMC Corporation of the USA are some of the foreign companies that EMBE has in the past or is currently cooperating with.

c) ELVIEMEK, a company established in 1945 to supply commercial explosives, has been engaged in military production since 1978 and it is currently employing about 180 workers. Apart from commercial explosives the firm also manufactures hand and rifle grenades. It has been actively engaged in export sales to other countries including Syria, Iraq, Egypt, Jordan, Thailand, Libya, Lebanon, Austria and W. Germany. Many of ELVIEMEK's products are produced under licence from foreign companies. For example the grenades are produced under licence from the austrian firm ARGUS, the anti-personnel mines with licence from the Italian firm MISAR. It has a capacity to produce 3,000 grenades daily and recently has turned to the production of the technically more advanced plastic splinter mines and cluster bombs. ELVIEMEK is one of the most controversial firms engaged in defence production and, in recent years, many press reports have linked the company

to many dubious and, what some may consider, unethical activities. In 1986 (see Anti No 311) questions were raised about the true owner of the company. At the time it was claimed that the South African arms producer ARMSCOR controlled ELVIEMEK through its representative in Athens and that the firm was used to bypass the UN arms embargo against S. Africa. The same magazine (Anti No 351), using material from research conducted by the Danish National Union of Seamen, claimed that the firm was involved in the Irangate affair. It was claimed that by issuing false End User Certificates Iran was supplied with arms that supposedly were destined for Greece and various other countries. Recently, another magazine (Defence and Technology No 5), on the basis of reports in the national as well as international press (eg the spanish periodical "EL Globo") argued that ELVIEMEK has passed under Chilean control (70% of the company's shares) through the firm "International Hellenic Operations LTD" based in the British island of Guernsey. The magazine claimed that the firm supplied Iraq with large numbers of S. African designed cluster bombs. It was also claimed that as a result of this S. Africa was supplied with oil from Iraq. ELVIEMEK is by no means the only Greek firm which associated with similar activities. Similar allegations have been made for the state owned EBO and PYRKAL companies.

d) Standard Electric Hellas was founded in 1948 and it currently employs about 300 people. It is fully owned by the American ITT Group and has a close co-operation with Standard Electrik Lorenz of W. Germany. The company is producing telecommunications' equipment. Its major customers are the Hellenic

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Telecommunications Organisation the armed forces of Greece and many customers abroad.

e) P. Petropoulos founded in 1922, employing approximately 110 people, is today a producer of diesel power generators. Other products include diesel engines and four-wheel drive vehicles for both military and civilian use.

Other companies in this group are Olympic Tool Hellas a subsidiary of the Olympic Tool and Machine Company of the USA; the General Engineering Group which started operations by manufacturing drop-tanks and other subcontract work for a Swiss business aircraft producer; Elfon LTD a producer of harness and cable assemblies, electromechanical equipment and communication equipment for defence applications etc.

Most of the products of the firms in this group are produced under licence from abroad or are based on foreign design, technology and know-how. Indeed, a lot of them seem to be just assembling plants of components imported from abroad and only low tech parts of the final products are in fact manufactured locally. However, a number of them make claims of technological competence and innovation. Claims that more often than not have to be treated with a degree of caution since it appears that purely Greek undertakings are to be found only at the lower end of the technological scale. Most of them are very much dependent on multinational firms for advanced technology and know-how. Compared, however, with the state owned companies, the firms of the private sector have recently shown more dynamism and one may go as far as saying that in the important sectors of electronics and technologically advanced components these firms may indeed

be in the lead.

Finally, as well as the various state or privately owned companies engaged in defence production, there are also three research and development centres run by the Hellenic Armed Forces: a) the Air Force Centre of Research and Technology,

b) the Research Centre for National Defence and c) the Naval Research and Technology Centre. Not a lot of data is available on their activities but apart from some limited research work and coordination of arms procurement all of them seem to be underutilised and not well maned. Furthermore, their work seems to be hampered by bureaucratic procedures (Flight No 52, May-June 1988). To these research centres we must add the tank repair and maintenance works at Volos. Apart from the ability to undertake all the maintenance work for all the types of tanks in the inventory of the Hellenic army, the shop is currently engaged in the modernisation and upgrading of the M-48 A3 and A5 tanks of the army. The modernisation includes the replacement of the tanks' engines, a new fire control system, a new 105mm cannon and various sensors and electronic equipment. A similar modernisation programme is planned for the 200 AMX-30 tanks so that to be upgraded to the B-2 type. The modernisation kits are going to be bought from abroad and some parts will be produced locally.

So far we have been concentrating on an examination of the various firms that make up the Greek arms industry. Before we proceed to a more general level of assessment and analysis of the actual or potential role of the defence sector in the Greek

economy it will be useful to first turn to a theoretical discussion about the role of a defence sector in the economy and draw upon some international examples.

## 6.3 International Examples

As we have pointed out in the previous section, the Greek arms industry is a fairly new sector in the Greek economy. Since the mid-70s there has been a continuous policy by successive governments to develop an indigenous arms industry and to increase the supply of domestically produced weapons for the Hellenic Armed Forces. Not many years ago, almost 100 per cent of the weapons had to be imported and at best only assembled locally.

This shift from arms imports to domestic production is by no means an isolated Greek phenomenon. In fact, ever since the end of the Second World War, there has been an increasing trend towards local production of arms in many peripheral countries. In recent years this trend has accelerated. Many countries that previously relied almost exclusively on imported weapons have in recent years turned to domestic production of at least some of their arms and weapons systems. A further aspect of this situation has been the fact that many countries have turned from production for domestic use only to production for exports; from import substitution policies to export oriented economic strategies. Worth noticing is the fact that some countries have targeted the arms markets of advanced western countries for their export sales. Indeed, some have succeeded in partly penetrating

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such markets of traditional arms producers. The sale to the Royal Air Force of the Brazilian Tucano trainer is one such example.

The annual value of the production of major weapons in Third World and peripheral countries has grown constantly since 1950. In 1950 production was valued at about $2.3 million. In 1984 this had risen by about 500 times in constant 1973 prices. However, despite this substantial growth, arms production in the Third World is still limited. Most of these countries still remain dependent upon the developed ones for a substantial part of their weapons, usually those that require the use of advanced technology. Nevertheless, their own defence industries are growing fast. It is estimated that such countries, in 1980, accounted for about 1.5 to 2 per cent of the global production of major weapons. Worth noticing is the fact that their arms exports have increased tenfold since the mid 70s. The emergence of Third World countries as arms producers may also partly explain the recent slump in total world trade to $40 billion in 1984, down from $50 billion in 1982.

In the 50s only five or so Third World countries - Argentina, Egypt, India, Cambodia, North Korea - were serious arms producers. Today about 27 such countries are competing with advanced countries in the international arms market. Eleven of them sell fighter aircrafts, nine sell ships, six sell missiles. Brazil, the South's biggest arms exporter, sells almost half of all armoured fighting cars outside the socialist bloc. It is estimated that she sells more arms than coffee and her arms exports are estimated to be worth more than her defence budget.

It has been reported that weapons from Brazil will soon go into production under licence in the US where companies plan to build a Brazilian designed armoured car and aim to start a joint development of a new tank in the 1990s. From the Third World arms producers, eight countries account for more than 90 per cent of weapons output and nearly half originates from Israel and India. South Africa, Brazil and Taiwan account for another 17 per cent; North Korea, Argentina and South Korea for about 18 per cent and Egypt and the Asian countries for a further 4 per cent. The rest is shared by 12 Third World producers. From 1965 up to about 1979 India was the biggest such producer. In the early 70s however, Israel and South Africa raised weapons output sharply and Israel currently leads India.

The Israeli arms industry now meets 96 per cent of domestic requirements and sophisticated missiles account for about 25 per cent of total arms output. The Lavi (before the project was scrapped) and Kfir fighter planes, designed and produced locally are on a par with the advanced US F-15 and F-16 fighters. However, it should be pointed out that the almost unlimited access to US technology and know how has greatly helped in the development of the Israeli defence industry. In the case of South Africa the international arms embargoes of 1963 and 1977 failed to stop the country's arms buildup. With its highly developed industrial base and strong financial and technological resources Pretoria has been able to design and develop its own arms. In contrast to the previous two, Taiwan depends on foreign technology for arms production. About 85 per cent of the total arms output between 1968 and 1984 was produced locally under

licence.

Finally, we should note that although arms production, in what is nowadays known as the Third World, has been increasing in recent years it is by no means a new phenomenon. In the 19th century small arms and warships were produced in a number of those countries. Advances in arms production technology around the turn of the century resulted in those arms producing countries in the Third World being overtaken by the industrialised countries. Arms production in those countries increased again in the 1930s because the global economic crisis stimulated import substituting manufacturing in many peripheral countries. The Second World War however generated extremely rapid developments in military technology in the advanced countries and thus the technological gap in this area was firmly established. But arms production in the periphery gained a new momentum during the second half of the 60s and we are now witnessing an internationalisation in arms production and the penetration of big capital in the defence sectors of the economies of peripheral countries.

Before this is discussed further, we first turn to discuss the motives for the establishment of domestic arms production facilities in peripheral countries.

## 6.4 Motives for Arms Production

For a number of internal and external reasons that have been discussed in chapter two, all states no matter how small maintain armed forces. There are two main ways in which demand for weapons

can be met. Arms can be either bought from abroad or produced domestically. Since the two options are not mutually exclusive a country can opt for a combination of both. At most, as Platias (1984) points out, any given state has four alternatives for weapons acquisition: it may purchase weapons from one or several suppliers who can either be located at home or abroad. These four alternatives are shown on figure 6.1. Clearly, whichever alternative a country chooses it must involve some costs and benefits of economic, political and military nature. This still applies if the country opts for a combination of the four alternatives.

Figure 6.1: Alternatives for Weapons Acquisition

Number of Suppliers

|  | One | Several |
|---|---|---|
| Location of production — Foreign | Total Foreign Concentration (Type A) | Diversification among Foreign Suppliers (Type B) |
| Location of production — Domestic | Total Domestic Concentration (Type C) | Diversification among Domestic Suppliers (Type D) |

For many years many developing or peripheral countries have relied for their military hardware on imports and for a few of them type A of weapons acquisitions applied. In the case of Greece, for example, the US was almost the exclusive supplier of the Hellenic Armed Forces up to the early seventies. It is not surprising, therefore, that even today the large majority of weapons in the inventory of the Hellenic Armed Forces is of US origin. As it has already been pointed out, recent years have seen an increasing trend in indigenous arms production by many peripheral countries. This was based at the beginning on foreign patents and know-how, and later in indigenously developed patents. Nowadays, all types of conventional weapons are being produced in countries outside the industrial centres ranging from the most basic weapons and ammunitions to highly sophisticated jet aircrafts and guided missiles. The different types of weapons produced by such countries reflect, to a certain extent, varying military requirements, technological capabilities as well as different political and economic goals. This process of arms production has advanced so much that there are now clear indications that a number of these countries are actively pursuing the development and production of nuclear weapons, thereby violating the Non-Proliferation Treaty. Such countries are Israel, India, South Africa, Pakistan, Brazil. Indeed, for Israel, there is enough evidence to suggest that it is already in possession of nuclear weapons and this may also be true for India and South Africa. Pakistan is reportedly actively pursuing the development of what is termed the "Islamic Bomb". This may become in the future a source of particular worry for Greece

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given the close ties between Pakistan and Greece's adversary Turkey.

Clearly, by its very nature, arms production is expected to be motivated by political, economic, security and military factors. Perhaps the most common reason behind the decision to produce domestically all or part of the required arms by a country is the wish to seek a degree of independence and relative self sufficiency in arms. To a large extent this is due to the fact that weapons suppliers and especially the major powers often use arms supplies as instruments of national policy. They can use them as means of exerting pressure and influence over the recipient country especially in times of conflict.

There are six major suppliers of arms internationally: the USA, USSR, UK, France, West Germany and China. Between them they account for about 90 per cent of the international arms trade. Ayres (1983) points to three main factors that may determine the arms supply policies of the supplying state:

a) The hegemonic factor, which may influence the flow of arms from the supplier with the aim of achieving or maintaining a position of hegemony or domination over the recipient country or in the region.

b) The industrial factor, which refers to the economic advantages of arms sales which may result in large scale production runs of the particular weapon.

c) The restrictive factor, whereby the supplier may refuse to provide any arms or certain types of weapons if it is felt that this may turn to be against any of the interests of the supplying state.

Over the years there have been many occasions when the major arms suppliers have applied restrictions concerning the flow of arms. Examples of such cases include Greece during the colonels' rule, Turkey after the invasion of Cyprus in 1974 and the subsequent US arms embargo, Argentina during the Falklands war, and more recently Iran and Iraq engaged in the Gulf War. Perhaps the best example of an international arms embargo is that concerning the sale of arms to South Africa. Needless to say that such embargoes seldomly have the required affect and are usually bypassed by the country concerned. In most cases they are nothing more than an inconvenience forcing the country to turn to covert methods of purchasing arms or changing her principal arms supplier. Most embargoes are political gestures signifying disapproval by the countries enforcing them.

Nevertheless, it is the way that major arms producers have imposed restrictions on the flow of arms, even though not always successfully, that has prompted many countries to rely on more than one external source of arms supply (Type B) and also to seek to develop an indigenous arms industry (Types C and D) which would at least offer a minimum level of self sufficiency in armaments. It can be said that countries with such motives are engaged in import substitution policies.

The achievement of total self reliance in weapons may be the aim of indigenous arms production, but this is seldomly achieved. Nevertheless, the benefits of complete autarchy in weapons acquisition can be very substantial. These benefits can be political, economic and of course military.

Domestic production of arms and of course their maintenance

may promote a nation's independence in pursuing its own policies or at least offer a degree of manoeuvre that would not have been available otherwise. This may mean that small states can use their weapons when, where and how they want. It means that the risk (and concominant fear) of cutoffs, embargoes or slowdown in supply of arms and/or spare parts is significantly reduced. Furthermore, some important channels of penetration by the supplying power into the state and the army of the client country are blocked or at least narrowed. Weapons that are produced domestically can be designed in a way that may maximise their fit to the specific military needs and socio-political and economic conditions of the particular country. Domestic arms production is also bound to be more sensitive to the priorities of production of the country's military and of course can respond faster in times of crises to meet urgent needs by increasing and/or adjusting its production accordingly. A national arms industry also enables the country to maintain secret military R & D, production and acquisition of weapons if it is desired.

The establishment of an arms industry, particularly in a small developing country, may have considerable domestic political significance as a source of national pride and as a sign of increased sovereignty and independence. It may even earn the particular country prestige and respect in the international scene. Indeed, this may have been one of the factors that prompted the country to develop an arms industry in the first place. Thus the desire to increase the importance of a country and perhaps the aim of regional dominance may be further reasons for indigenous arms production.

Having established an arms industry governments more often than not emphasise the economic benefits of such an enterprise. Domestic arms production may save the country much needed foreign hard currency and may have important spillover effects on the rest of the economy. These may include the introduction of new technology in the economy and the rise of inter-industrial demand with beneficial effects on employment and growth. Furthermore, a successful arms industry may be able to export its products thereby providing the country with new sources of revenues and hard currency and may even reduce the actual cost of the weapons purchased by its own armed forces as a result of long production runs and mass production. It may also prevent a substantial brain drain of the country's scientists and may be used as a tool to spur growth and development.

Thus, it can be said that one may point to economic as well as political and military motives for establishing a domestic arms industry.

In the case of Greece, as already mentioned, the main reason for establishing indigenous arms production facilities was to achieve a minimum level of self-sufficiency in weapons. The establishment of the Greek arms industry was part of the process of diversifying the supply sources of weapons after the Turkish invasion of Cyprus, the collapse of the Greek junta and the increased tensions between Greece and Turkey. Up to that time the Hellenic Armed Forces were mainly supplied with US equipment. But, as a result of the worsening relationship between the two neighbouring countries due to what Greeks considered to be excessive US support for Turkish policies in the region, Greece

looked for alternative sources of weapons and also an effort got underway to establish some domestic production and maintenance of weapons facilities. This process of diversification in weapons sources can be seen in table 6.1 below.

Table 6.1

Foreign Suppliers of Arms to Greece 1965-85
------------------------------------------------

|                         | 1965-74 | 1974-81 | 1981-85 |
|-------------------------|---------|---------|---------|
| USA                     | 81%     | 65%     | 42%     |
| Other Foreign Suppliers | 19%     | 35%     | 58%     |

Source: Platias in ELIAMEP (1988)

From the previous table we can see that although in recent years the dependence on US arms has been significantly reduced the United States still remains the single biggest foreign supplier of arms to Greece. The importance of the US as a supplier is further increased if we bare in mind that many weapons already acquired still rely on spares from the US. The other foreign suppliers are to be found among EEC partners of Greece, mostly France and W.Germany.

This move to type B (figure 6.1) of weapons acquisition, as well as the development of domestic arms production, were aimed at increasing independence of actions when pursuing Greek policy objectives in the region especially in the area of Greek-Turkish relations. The increased contribution of the domestic production facilities to the needs of the country's armed forces, currently just above 20% of the total needs of the forces, as well as the diversification of foreign suppliers has reduce to a certain

extent the ability of the US to exert pressure over Greece especially in the case of an armed confrontation with Turkey.

It can be said that, since the first attempts at establishing an arms industry, Greece has been trying to move away from type A (figure 6.1) of arms procurement which involves a high degree of dependence towards a combination of types B and C which result in a gradual decrease in the degree of dependence. This movement can be illustrated below.

Figure 6.2

Degrees of Dependency
------------------------

High Degree                                          Independence
of Dependence

---

Type A        Type B        Combination        Type C        Type D
                            of Types B & C

------------→
Decreasing Dependence
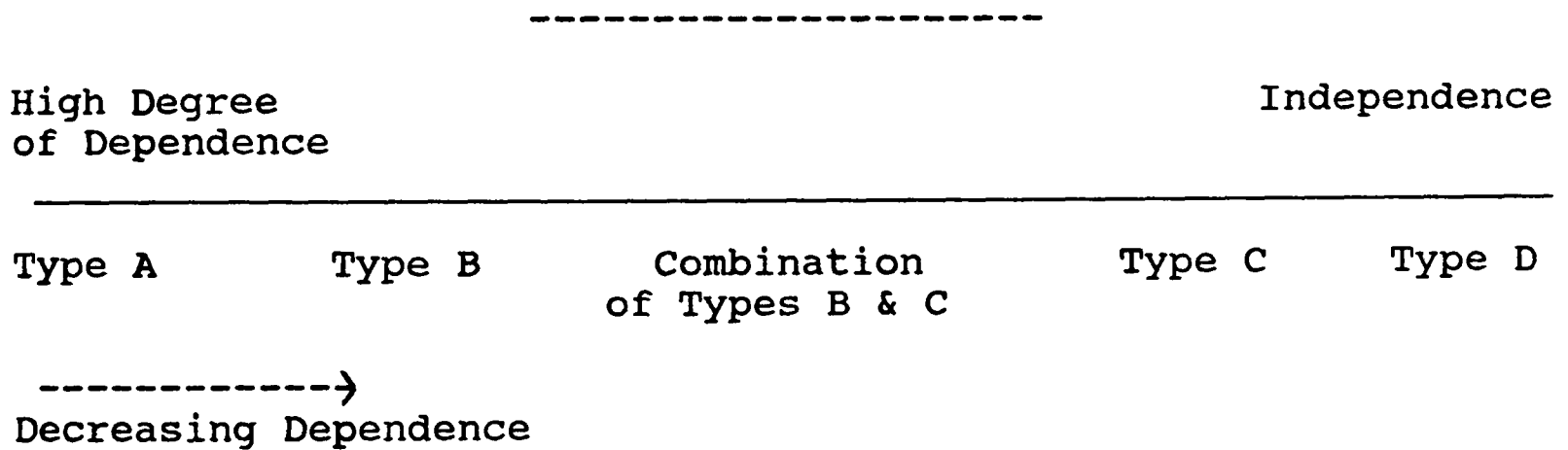
As Greece, or for that matter any other country, sets on a movement from left to right along the line above her dependence on foreign suppliers of arms is gradually decreased. Of course, for a number of reasons that will be discussed later, very few countries actually reach type D which means a high degree of independence.

Although, as already seen, achieving a certain degree of independence in arms supplies is usually the main reason for embarking on domestic arms production, the possible economic benefits of such a policy tend also to be emphasised once the first steps are made. We turn now to discuss those possible economic benefits of such a policy and the necessary

preconditions for such a venture to be successful.

## 6.5 Economic Consequences

Once the decision to embark on domestic arms production has been taken, it becomes natural for countries to stress the economic benefits that may accrue from such an undertaking. These benefits may include foreign exchange savings, export earnings, improved balance of payments and substantial spin-offs from the arms sector to the rest of the economy. The defence sector may become a leading sector in the economy attracting new investment, modern technology and production techniques, create backward and forward linkages and thus may stimulate economic growth and development. In fact a number of countries have aimed to make their respective arms sectors the vehicle for industrialisation and development.

In difficult economic situations and in times of economic crises such arguments - no matter how unrealistic they may be in many cases - become especially powerful. Many peripheral and Third World countries have often difficulties in identifying sectors of manufacturing where they can increase their market shares in reaction to those of the industrialised countries. The relative export success of some countries such as Brazil and Israel in the arms market has stimulated similar efforts by others such as Chile, Egypt, Singapore, and South Korea. Furthermore, the comparatively low cost of many weapons produced by such countries, makes them particularly attractive to Third World buyers.

The economic benefits of the arms industry have also been

stressed by Greek government officials as well: the arms industry "is characterised by being one of the most effective levers of industrial and general economic growth ... and will facilitate the transfer of technology and know-how" to other sectors of the economy, and similarly "the existence of a strong defence industry is of paramount importance for our national defence but at the same time it is an important contributor to our economic development" (Giotas, alternate minister of Defence, Athens 1988).

We have seen that the most common reason for indigenous arms production is to increase the country's independence from foreign suppliers and to achieve a degree of self sufficiency in arms. A country that embarks on domestic production of military equipment that was previously being imported can be said to be engaged in import substitution. This has been the case for many peripheral countries that decided to establish a domestic arms industry. Greece, Turkey, India, South Africa may be cited as such examples. However, at least in a number of cases, this was applicable only in the first stages of domestic arms production. A number of countries such as Brazil and South Korea their policies were not so much aiming at import substitution but were and are very much export oriented as well.

Since arms production is a branch of the manufacturing sector of a country we can say that it may be reasonable to expect some links between weapons production and the industrialisation strategies followed by the particular countries. We may group countries in two broad groups: a) those with inward looking import substitution policies and b) those which have outward

looking export promotion policies. Of course, countries will not be either in group A or B only since in many cases import substitution may have been/is the main goal but at the same time they may also be engaged in export sales. What matters is which is the dominant of the two possible alternative policies. The fact that in most cases countries have found that without export sales it is difficult to develop an arms industry that is, to a certain degree at least, economically viable, is an indication that for firms engaged in arms production it is very difficult to survive on the limited domestic market alone.

The question that needs to be addressed is whether or not countries that embark on import substitution for their arms supply ever succeed in reaching near autarchy and at establishing a completely vertically integrated defence industry. Experience so far seems to suggest that this is very rarely if ever achieved. In fact, with the possible exception of the superpowers, not even advanced industrial centres can claim to be totally self sufficient. Ayres (1983) suggests that the build-up of domestic arms production facilities can be considered in terms of seven major stages:

1) Arms are imported but are serviced and maintained domestically.

2) A licence to produce arms locally is acquired and production facilities are built which, however, require a lot of technical and personnel assistance from the supplier.

3) Production begins and to start with it involves local assembly of imported sub-assemblies.

4) The sub-assemblies are now assembled locally from imported

components and some may be re-exported to the licensor.

5) Components are manufactured locally from imported raw materials.

6) Local production of raw materials.

7) Complete indigenous production including design, raw materials and manufacture.

Countries such as India, Brazil, Israel and South Africa which have given high priority to their arms industries for many years in their pursuit of self sufficiency have not reached stage seven for a number of weapons systems that are required by their armed forces. Significantly those weapons systems are in most cases ultra modern high technology systems such as advanced electronic systems and fighter planes. Such weapons still have to be imported or at best produced locally under licence. Such weapons not only require a strong industrial base and know how but also very expensive R & D facilities which in many cases can not be supported by a single country. Groups of countries need to combine their respective facilities and financial strength in order to develop and produce such weapons. The Tornado fighter plane developed and produced by G. Britain, Italy and W. Germany is such an example.

Since the defence industry is a branch of the manufacturing sector we can expect some links between domestic production and the rest of the industrial sector of the given country. Deger (1986) points out that such links are twofold: First, a relative well developed industrial base may be a necessary (but not sufficient) precondition for a given country to embark on the process of manufacturing arms. Second, after the arms industries

have been set up, they will have backward linkages and they will create inter-industrial demand and concominant spin-off for the underlying industrial base.

However, if the production of arms is to generate backward linkages in the domestic economy then, the manufacturing sector must be able to supply the necessary inputs that will be required by the defence industry. Needless to say that not all the branches of the manufacturing sector are relevant to the production of arms. There are only certain branches of manufacturing that may be of use in terms of linkages to the arms industry. It is with these specific industries rather than the whole of the existing industrial structure that the arms industry will have to develop crucial technical linkages. Ayres (1983), using UK data identifies and lists nineteen industries as being important for arms production in a country.

All of them are contained within seven major groups of the manufacturing sector which can be considered to be of particular importance for the establishment of an arms industry. They are:

1) Iron and steel

2) Non-ferrous metals

3) Metal products

4) Non-electrical machinery

5) Electrical machinery

6) Shipbuilding and repairing

7) Motor vehicles

Kennedy (1974) calls the above sectors the Potential Defence Capacity (PDC) group of industries while on the other hand Wulf (1983) prefers to name them as the Potential Arms Production Base

(PAPB). Whatever name is adopted the PDC or PAPB group of industries is accepted as being important in terms of arms production. What one needs to examine further is whether the prior existence of the PDC group of industries and their relative importance within a country's economy may affect and in what way the establishment of an arms industry and the volume of arms manufacture.

In fact, a number of studies have been undertaken in order to rank countries according to their respective PDC or PAPB capacities. Wulf (1983) has suggested five main criteria for this: a) the share of manufacturing as a percentage of GDP, b) the volume of production of the relevant PDC industries as a percentage of manufacturing output, c) total output in the PDC sectors, d) the number of scientists and technical personnel engaged in R & D, e) the labour force employed in the PDC group of industries. The final result of Wulf's study is shown in table 6.2 where part of the available data is reproduced. In the table the first three categories, i.e (3), (4) and (5), constitute the industrial base for the domestic arms production while columns (6) and (7) constitute the human capital base relevant to the defence industry. Greece, according to Wulf's ranking, occupies the tenth position just below Turkey. Notable is the fact that Wulf ranks Israel twelfth, below Greece and Turkey despite the fact that it has a defence industry much more advanced than that of both countries. However, we should note that Wulf does not give any explicit indication of how the final rank orders of the various countries are derived. If we accept Wulf's ranking order as more or less correct then, it can be concluded that apparently

Greece has an arms production potential far greater than the current level of arms production. It seems also that her industrial base can support the development of a defence industry at least as advanced as that of Israel. Such conclusions however may not be entirely correct.

Table 6.2

Potential Arms Production Base Relevant for PDC

| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|-----|-----|-----|-----|-----|-----|-----|
| 1 | India | 16 | 32 | 5,025 | 97 | 1,688 |
| 2 | Brazil | 25 | 36 | 17,025 | 8 | 1,194 |
| 3 | Yugoslavia | 31 | 40 | 4,800 | 32 | 578 |
| 4 | S. Africa | 23 | 38 | 3,925 | - | 396 |
| 5 | Mexico | 28 | - | - | 6 | 167 |
| 6 | Argentina | 37 | - | - | 19 | 112 |
| 7 | Taiwan | 37 | 38 | 3,375 | - | 263 |
| 8 | S. Korea | 25 | 21 | 2,500 | 19 | 322 |
| 9 | Turkey | 20 | 21 | 2,050 | 9 | 218 |
| 10 | Greece | 19 | 23 | 1,375 | 4 | 114 |
| 11 | Iran | 13 | 35 | 3,500 | 6 | 90 |
| 12 | Israel | 30 | 33 | 1,300 | 3 | 97 |
| 13 | Portugal | 36 | 20 | 1,275 | 4 | 130 |
| 14 | Egypt | 24 | 20 | 875 | 11 | 98 |
| 15 | Chile | 20 | 45 | 1,325 | 6 | 76 |
| 16 | Venezuela | 15 | 22 | 1,300 | 4 | 79 |
| 17 | Philippines | 25 | 15 | 900 | - | 80 |
| 18 | Colombia | 19 | 17 | 625 | 1 | 88 |
| 19 | Thailand | 20 | 21 | 900 | 6 | - |
| 20 | Singapore | 25 | 32 | 600 | 1 | 91 |
| 21 | Indonesia | 9 | 12 | 525 | 19 | 61 |
| 22 | Pakistan | 16 | 12 | 325 | 9 | 78 |
| 23 | Peru | 19 | 25 | 425 | - | 49 |
| 24 | Malaysia | 18 | 15 | 425 | - | 72 |
| 25 | Nigeria | 9 | 17 | 465 | 3 | 23 |
| 26 | S. Arabia | 5 | - | - | - | - |
| 27 | Zimbabwe | 21 | 30 | 225 | - | 47 |

Key to columns: (1) Rank of countries  Source: Wulf (1983)
                 (2) Name of countries
                 (3) Manufacturing as % of GDP
                 (4) Relevant industries as % of manufacturing
                 (5) Output of relevant industries in US $ million
                 (6) Scientists, engineers, technicians in R & D (thousands)
                 (7) Employees/persons engaged in the relevant industries

Deger (1986) attempts a more formal method of aggregating over the rank ordering of each individual criterion of the seven that have been suggested by Wulf (1983). Deger places the various countries in two separate groups. In the first group countries are ranked according to the industrial base relevant for PDC. In the other group they are ranked according to their human capital base. Table 6.3 reproduces the rank order for industrial base relevant to PDC and table 6.4 that of human capital.

In tables 6.3 and 6.4 countries are first ranked according to each category of criteria based on the information of table 6.2. This is done in the first three columns {(1), (2), (3)} in table 6.3 and in the first two columns {(1), (2)} in table 6.4. Countries for which there is no information on all the five criteria set by Wulf (1983) are excluded from the tables. The last two columns in each table show the Borda scores of each country and the final ranking on the basis of their Borda scores. Deger follows "Borda's method of rank-order scoring, giving points equal to the rank value of each country in each criterion of comparative ranking. This produces a complete ordering based on all the criteria taken together in terms of lowness of the sum of ranks (Borda scores)" (ibid, p.169). This is done both for the industrial base relevant to PDC criteria in table 6.3 and for the human capital in table 6.4. Greece is ranked thirteenth (13th) in terms of the industrial base of her economy most relevant for arms production and tenth (10th) in terms of the manpower base necessary for weapons manufacture. Then Deger proceeds by using

## Table 6.3

### Rank Order for Industrial Base Relevant for PDC

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| Israel | 4 | 7 | 11 | 22 | 5 |
| India | 19 | 8 | 2 | 29 | 8 |
| Brazil | 5 | 5 | 1 | 11 | 3 |
| Yugoslavia | 3 | 2 | 3 | 8 | 1 |
| S. Africa | 10 | 3 | 4 | 17 | 4 |
| Taiwan | 1 | 3 | 6 | 10 | 2 |
| S. Korea | 5 | 14 | 7 | 26 | 7 |
| Philippines | 5 | 21 | 14 | 40 | 14 |
| Turkey | 12 | 14 | 8 | 34 | 12 |
| Indonesia | 23 | 23 | 19 | 65 | 23 |
| Egypt | 9 | 17 | 16 | 42 | 16 |
| Pakistan | 19 | 23 | 23 | 65 | 23 |
| Singapore | 5 | 8 | 18 | 31 | 9 |
| Iran | 22 | 6 | 5 | 33 | 11 |
| Colombia | 15 | 19 | 17 | 51 | 20 |
| Portugal | 2 | 17 | 13 | 32 | 10 |
| Greece | 15 | 12 | 9 | 36 | 13 |
| Peru | 15 | 11 | 22 | 48 | 19 |
| Thailand | 12 | 14 | 14 | 40 | 14 |
| Venezuela | 21 | 13 | 11 | 45 | 17 |
| Nigeria | 23 | 19 | 20 | 62 | 22 |
| Malaysia | 18 | 21 | 21 | 60 | 21 |
| Chile | 12 | 1 | 10 | 23 | 6 |
| Zimbabwe | 11 | 10 | 24 | 45 | 17 |

Key for table 3: In the first three columns countries are ranked
according to (1) Manufacturing as % of GDP
(2) PDC industries as % of
manufacturing
(3) Output of PDC industries
based on data from table 2
and columns (4) Borda scores
(5) Rank by Borda scores

Source: Deger (1986)

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## Table 6.4

### Rank Order for Human Capital

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Israel | 16 | 11 | 27 | 14 |
| India | 1 | 1 | 2 | 2 |
| Brazil | 9 | 2 | 11 | 4 |
| Yugoslavia | 2 | 3 | 5 | 2 |
| Argentina | 3 | 9 | 12 | 5 |
| S. Korea | 3 | 4 | 7 | 3 |
| Turkey | 7 | 5 | 12 | 5 |
| Indonesia | 3 | 18 | 21 | 10 |
| Egypt | 6 | 10 | 16 | 7 |
| Pakistan | 7 | 16 | 23 | 12 |
| Singapore | 18 | 12 | 30 | 17 |
| Iran | 10 | 13 | 23 | 12 |
| Colombia | 18 | 14 | 32 | 18 |
| Portugal | 13 | 7 | 20 | 9 |
| Greece | 13 | 8 | 21 | 10 |
| Venezuela | 13 | 15 | 28 | 16 |
| Nigeria | 16 | 19 | 35 | 19 |
| Mexico | 10 | 6 | 16 | 7 |
| Chile | 10 | 17 | 27 | 14 |

Key for table 4: In the first two columns countries are ranked
according to (1) No of scientists in R & D
(2) Total employees in relevant
industries
columns (1) and (2) are based on information in table 2
and columns (3) Borda scores
(4) Rank on basis of Borda scores

Source: Deger (1986)

the Borda scores for both industrial base and human capital
availability to give the final aggregative rank ordering for
PDC/PAPB for the countries for which data was available for all
five criteria suggested by Wulf (1983). This is done by adding
the Borda scores in tables 6.3 and 6.4. This final aggregative
rank ordering is shown in table 6.5, where column (2) indicates
the potential for arms production of each country while on the
other hand column (1) shows the actual level of arms production.

## Table 6.5

Ranks of actual and potential capacity for defence industries

| | (1)<br>Actual Arms<br>Production | (2)<br>Potential for Arms<br>Production |
|---|---|---|
| Israel | 1 | 6 |
| India | 2 | 3 |
| Brazil | 3 | 2 |
| Yugoslavia | 4 | 1 |
| S. Korea | 5 | 4 |
| Turkey | 6 | 5 |
| Indonesia | 7 | 15 |
| Egypt | 8 | 11 |
| Pakistan | 9 | 16 |
| Singapore | 10 | 12 |
| Iran | 11 | 9 |
| Colombia | 12 | 14 |
| Portugal | 13 | 8 |
| Greece | 14 | 10 |
| Venezuela | 15 | 13 |
| Nigeria | 16 | 17 |
| Chile | 17 | 7 |

Source: Deger (1986)

From table 6.5 above we can see that in a number of cases there are important differences between the actual arms production in some countries and the potential capacity of those countries for arms production. For example, on the one hand, in the case of Israel, Pakistan and Indonesia their actual arms production level exceeds by far their potential production level with their given industrial base and human capital. On the other hand in the case of Greece, Chile and Portugal the opposite situation is observed. Their actual arms production is far lower than their existing potential for such production. A number of exogenous factors may help explain these differences between the actual arms production level of some countries and their potential. In the case of Israel, Egypt and Pakistan for example

the existence of a major external threat may explain the differences between actual and potential arms production. Israel is perhaps the most obvious example of such a case of a country isolated in a hostile area. A case of a siege economy. Oil revenues may help to explain Indonesia's case, while Pakistan's case can be understood in relation to the hostile relations with her larger neighbour India. Membership of a security alliance such as NATO may well be a contributing factor to the difference between actual and potential arms production in the case of Greece.

Deger (1986) suggests "that having a pre-existing industrial base and specific capital endowments may be quite helpful in setting up and maintaining an arms-industrial complex" but "countries with special security problems may be locked into weapons manufacture which they can barely afford" (p.170). This point was well illustrated recently when Israel had to abandon the Lavi fighter aircraft programme due to excessive development costs that were endangering other defence programmes. We can say that as a general rule, countries which have a smaller potential capacity for defence production compared to actual arms production may have, as Deger (1986) puts it, "a disproportionately high burden of defence industrialisation since the manufacturing and human capital base is inadequate to support the military-industrial superstructure" (p.171).

In the case of Greece we can see from table 6.5 that she is ranked fourteenth (14th) in terms of actual arms production and that according to Deger's ranking she has a potential capability to increase this production well above the current levels given

her industrial and human capital base. It seems, therefore, that Greece has not yet fully exploited her potential for defence production. In order to assess further the country's capability for domestic production of arms we proceed to examine in more detail the PDC industries and their relative importance in the manufacturing sector of the country.

As we have seen there are seven three-digit or major group categories within the International Standard Industrial Classification (ISIC) that encompass those industries that are important for arms production.

They are: 1) Iron and steel (29 sub-categories)

2) Non-ferrous metals (33 sub-categories)

3) Metal products (15 sub-categories)

4) Machinery (64 sub-categories)

5) Electrical machinery (32 sub-categories)

6) Ship-building and repairing (4 sub-categories)

7) Motor vehicles (10 sub-categories)

For these branches of the Greek manufacturing sector we will examine their employment, gross output and value added levels and share in total manufacturing in order to assess their contribution and relative importance. The first data that we will look at is for 1975 since it was in the mid seventies that the first attempts to establish an arms industry in Greece were made. Thus it will be useful to know the state of the PDC sectors at the time in order to draw some conclusions as regards the effects of the attempts to establish an arms industry. Table 6.6 shows the size of the PDC industries and their share in total manufacturing in terms of employment, gross output and value

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added in factor prices.

## Table 6.6

Employment - Gross Output - Value Added in PDC Industries  1975

| ISIC | Employment (000s) | Gross Output (bil Dr) | Value Added (bil Dr) |
|---|---|---|---|
| Iron and steel | 8.05 | 16.95 | 3.17 |
| Non-ferrous metals | 4.37 | 10.85 | 3.95 |
| Metal products | 51.13 | 21.10 | 7.84 |
| Machinery | 20.68 | 9.30 | 3.57 |
| Electrical machinery | 21.77 | 14.16 | 4.98 |
| Ship-building & repairing | 18.05 | 7.56 | 4.68 |
| Motor vehicles | 4.18 | 2.60 | 0.99 |
| | | | |
| Total PDC | 128.23 | 82.52 | 29.18 |
| Total Manufacturing | 572.90 | 374.28 | 117.76 |
| | | | |
| Total PDC as % of Manufacturing | 22.4% | 22.04% | 24.77% |

Source: UN Yearbook of Industrial
Statistics (1977)

From the data in table 6.6 it can be seen that the share of
PDC industries in employment, gross output and value added in
total manufacturing in 1975 was considerable. When compared with
other countries such as India and Brazil at the time of the
building of their respective arms industries, the PDC sector's
share in Greece was about that level that would be sufficient to
support the initial stages of the creation of a modest and not
over-ambitious arms industry. As we have seen in an earlier
section, at the start of the undertaking ambitious plans were
made especially concerning EAB, the airplane industry. Later on
these plans had to be scaled down to more feasible targets. Six
years later, after the first undertakings, the picture was not
very much different. This can be seen in table 6.7. Notable is
however the fact that there has been a fairly substantial drop

both in PDC employment levels but also in employment levels in the manufacturing sector as a whole. This is not particularly surprising since there has been a decline in the industrial sector during this period. This fall in employment can also be partly explained in terms of the introduction of more capital intensive techniques in this sector during those years. Further comparing tables 6.6 and 6.7, we can see that there has been a fall in gross output share of the PDC group of industries as a percentage of total manufacturing. On the other hand however, there has been a small increase in the share of the PDC branch in the value added of the manufacturing sector.

Table 6.7

Employment - Gross Output - Value Added in PDC Industries 1981

| ISIC | Employment (000s) | Gross Output (bil Dr) | Value Added (bil Dr) |
|---|---|---|---|
| Iron and steel | 7.35 | 45.4 | 10.08 |
| Non-ferrous metals | 5.27 | 33.6 | 9.75 |
| Metal products | 25.05 | 56.1 | 19.61 |
| Machinery | 9.31 | 15.2 | 6.37 |
| Electrical machinery | 17.82 | 45.3 | 16.10 |
| Ship-building & repairing | 15.98 | 24.1 | 15.03 |
| Motor vehicles | 5.55 | 17.1 | 5.45 |
| Total PDC | 86.33 | 236.8 | 82.39 |
| Total Manufacturing | 379.90 | 1131.0 | 315.77 |
| Total PDC as % of Manufacturing | 22.72% | 20.93% | 26.09% |

Source: UN Yearbook of Industrial Statistics (1983)

From the data in tables 6.6 and 6.7 and from the works of Wulf and Deger that we have seen earlier it appears that Greece has the necessary potential, in terms of industrial and human capital

base, to further develop her defence industry.

However, as Ayres (1983) points out, the three-digit classification so far used gives wide industrial groupings which may not indicate the true potential of a country for establishing an arms industry aiming to substitute a substantial part of imported weapons with domestically produced ones. If we try to classify the PDC group of industries in the six-digit ISIC level then the picture that emerges is substantially different.

For example, the Machinery group (ISIC: 382) has a total of 64 six-digit sub-categories. Of these only 21 were to be found in Greece in the early 80s. This leaves 43 six-digit sub-categories which are not produced domestically. They include: steam turbines (ISIC: 382101), gas turbines (382113), hydraulic turbines (382116), forging, stamping and die-casting machines (382307), grinding and sharpening machines (382310), metal-forming machines (382331), rolling mills for rolling metals (382337) and electro-mechanical hand tools (382343). Almost all of the above groups could be necessary for arms production and yet they are not produced domestically. They are all imported. Only internal combustion engines (382108) and other metal-cutting machine tools (382319) that may be required for the defence industry are produced locally. Even those, however, are produced in small quantities and are heavily dependant on imported parts and components. Most production in the machinery group (382) is of agricultural machinery and tools.

To take another example: in the Motor Vehicles group (ISIC 3843) there are ten sub-categories of which only four can be found in Greece. They are: passenger cars assembled from imported

parts (384307), buses and motor coaches assembled from imported parts (384307, since 1979), lorries including articulated vehicles assembled from imported parts (384315) and trailers and semi-trailers (384322). The other six sub-categories that are not produced locally include: passenger cars (384310), buses and motor coaches (384313), lorries and agricultural vehicles (384316) and most significantly internal combustion engines for motor vehicles - gasolene (384304) and diesel type (384301) - are not to be found in Greece.

Clearly such industries would be quite important for arms production, not only in terms of industrial linkages and for providing the necessary industrial base, but also in terms of lessening the dependence on external sources. In fact the PDC group of industries far from being near self-sufficient is heavily dependant on imports for many of its inputs. For example in 1978 the SITC group 7, which is Machinery and Transport equipment, accounted for 42.2% of total imports and only 3% of exports. In 1986 however, the position seems to have improved and the same group accounts for 25.8% of all imports which is a significant change. At the same time the group's contribution to exports is almost unchanged at 2.9% of all Greek exports. It seems, therefore, that in the short and medium term it would be very difficult for Greece to get anywhere near self-sufficiency in armaments. As it was shown in chapter two, due to the peculiarities of Greek post-war development, there is a distinct lack of an indigenous technological base and the country relies almost exclussively on imported technology and know-how. In the same chapter we also noted that in important branches of the

secondary sector there has been a steady decline in Greek value added. This, as we pointed out, may imply that many products are imported as components and merely assembled locally. This means that many of the inputs that would be required by the defence industry are not available locally either because they are relatively too technically sophisticated or in short supply. Obviously they will have to be imported which, apart from adversely affecting the balance of payments and foreign exchange position, will only create a new dependency links at a different level. The net result is that dependency on foreign sources for weapons is not actually reduced.

This point seems to have been recognised by Greek governments which only aim for a 50:50 share between imports of arms and indigenous production. "It is obvious that the domestic defence industry cannot possibly meet all the defence requirements of Greece ... we thus emphasise selective production of specific products ... to achieve independence and self-sufficiency of the country in products of crucial importance" (Giotas, 1988, pp.5-6). However, even the above target seems to be quite ambitious and difficult to achieve in the short term at least.

The Greek defence industry has been steadily increasing and expanding its activities in recent years. As we have seen in table 6.5 Greece has apparently the potential capacity to increase further the local production of arms within the constraints however imposed by the given industrial and human capital base. The domestic defence industry meets about 20% of the total requirements of the Hellenic Armed Forces with an upward trend. This can be seen in table 6.8.

Table 6.8

Satisfaction of weapons requirements by domestic production
------------------------------------------------------------

|  | 1981 | 1985 |
|---|---|---|
| Ammunitions | 67% | 75% |
| Portable weapons | 59% | 90% |
| Trucks - Lorries - Jeeps | 41% | 100% |
| Airplane - Helicopter maintenance | 70% | 100% |
| APCs and IFVs | 0% | 100% |

Source: Minutes of the Conference
for the future of PYRKAL,
(July, 1988)

From table 6.8 it appears that the domestic arms industry has over the years supplied more and more of the needs of the Hellenic Armed Forces. In fact in certain areas, such as APCs, IFVs, trucks, lorries, jeeps, airplane and helicopter maintenance, it seems that Greece has reached autarchy. The figures appear to be quite impressive. The true position however is very much different. The number of military requirements that are not even partially met by domestic production are far greater and much more important than those catered for by the domestic arms industry. They include fighter planes, helicopters, ships and submarines, radars, MBTs, missiles and other equipment of paramount importance to a modern army. Even the weapons produced locally are dependant on imported components and parts. It appears that the Greek arms industry is still at an infant stage of development and it is very difficult to see how it will reach maturity in the foreseeable future.

Despite the infancy of the Greek defence sector it is still

a very important sector of the Greek economy. In fact, during the years of the economic decline since the late 70s, this sector was probably the only one that developed. Currently the four biggest firms engaged in defence production, EAB, EBO, ELBO, PYRKAL, represent about 12.35% of the total fixed capital of the fifty biggest industries in Greece. In fact, EAB is the biggest Greek industry. The sector as a whole, with or without Hellenic Shipyards, is the second most important branch of the industrial sector after petrochemicals. The sector's share in GDP has been claimed to be above 1.5% in 1986 (Giotas, 1988) while the industrial sector's share as a whole is about 29% currently.

## 6.6 State Intervention in the Defence Industry

From our earlier survey of the Greek arms industry we can identify three basic elements in this sector: a) the public sector, b) the private sector and c) foreign investment by multinational companies in both publicly and privately owned firms of this sector. Thus there are a few generalisations that can be made from the detailed sketch of the Greek defence industry.

First of all, as we have seen, the public sector has played a crucial role in the establishment and development of the arms industry in Greece. In fact, the arms sector "has relied almost exclusively on state investment in the past decade" (Giotas, 1988, p.10). The state has expanded significantly its operations and involvement in this sector. State owned enterprises are to be found by now in all branches involved in military production

as indicated by the fact that the biggest five firms in this sector are state owned. The involvement of the state in this sector of the economy and its increasing role over the years is shown in table 6.9 below, along with the increasing importance of the state defence industry in the manufacturing as a whole.

Table 6.9

The State Owned Defence Industry
(EAB, EBO, PYRKAL, ELBO only)

|  | 1977 | 1985 |
|---|---|---|
| Total capital of state defence industry (Billion Dr) | 9,8 | 133,4 |
| Employment in state defence industry | 3,879 | 9,139 |
| Share of state defence industry in total capital engaged in manufacturing (%) | 2.3% | 6.7% |
| Share of state defence industry in total capital of the 100 biggest industries (%) | 4.9% | 10.5% |
| Share of employment in state defence industry in total employment in manufacturing (%) | 1.2% | 3.1% |

Source: Magrivelas (1987)

Public ownership in the defence sector seems to be concentrated in the areas were employment numbers are particularly high, such as in EAB with 3,000 employees and PYRKAL with 3,700 people; and also in industries which are of crucial importance for the rest of the sector. The size and importance of the state defence industry become clearer if we remind ourselves of the fact that in the privately owned defence sector there are about 100 small to medium sized firms with total fixed capital around 3.5 billion Dr and total employment of just above

2,500 people (Economicos Tachidromos 20/11/86 p.72). From the same table we can note that in the period 1977-85 total capital in the state owned industries increased by about 13,6 times as has the overall share of this sector in the rest of the economy.

It would appear, therefore, that the state has been the main agent of the development of the arms industry in the past decade. This is fairly consistent with the overall pattern of industrial development of the country since the 50s. As already seen, the state for a number of reasons has played a very important role in the process of industrialisation of the country during the post-war period. In the case of the arms industry, the state apparently takes over when private firms of some importance to the economy such as ELBO, Hellenic Shipyards, PYRKAL etc do not flourish and run into difficulties. The state is then faced with the task of investing in such firms in order to make them financially viable whenever the private sector can not undertake the task itself. This may be due to low rates of return on investment in the initial stages and to high set-up and other fixed costs in the case of setting-up a new arms industry. Thus, without the direct intervention by the state, many of those industries would not have been established or kept running.

This is by no means only a Greek phenomenon. Similar examples can be found in the cases of many small peripheral countries where the state has been instrumental in establishing and supporting the domestic arms industry such as in the cases of India, Pakistan, Egypt etc. This is not particularly surprising if we bare in mind the importance attached to such industries by the state; and the fact that such industries, in the initial

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stages at least, would not be able to survive the stiff competition by established arms producers. All the arguments in favour of protecting an infant industry are here very much applicable. The unwillingness and inability of the private sector to undertake similar ventures in most such cases can also be explained in these terms.

State intervention and the taking over of control is not always a decisive tool in the effort to overcome the problems such firms may face. This is usually a short term solution and does not provide long term answers. For a firm to operate successfully it is necessary to have a large enough market in order to ensure at least a near full capacity utilisation and/or a viable production run so that the large scale investment required can be financially justifiable. In most cases of small arms producers however, the home market for which they cater, in the beginning at least, is limited. This is also the case for the Greek arms industry. Producing only for the domestic market, given its small size, is not possible for such a firm to remain financially viable. Diversification into production for the civilian market and most importantly export sales seem to be the answers to the problem. Indeed, even large industrial countries would barely be able to sustain a domestic arms industry without considerable export sales.

As we have seen, many of Greece's large arms industries regard export sales as an important aspect of their operations. A lot of efforts are made to penetrate and gain new export markets. In the period 1978-82 Greek arms exports reached 125 million dollars of which almost 93% took place in the period 1982 onwards. When

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compared with a massive 1.7 billion dollars of arms imports for the same period, arms exports are very small indeed. We can see the arms imports and exports position in table 6.10 for the period 1972-82.

## Table 6.10

### Arms Imports and Exports 1972-82 (million $)

| Year | IMPORTS current | constant 1981 | EXPORTS current | constant 1981 | Arms Imports Total Imports | Arms Exports Total Exports |
|------|---------|---------------|---------|---------------|-------------------------|-------------------------|
| 1972 | 110 | 213 | 0 | 0 | 4.6 | 0 |
| 1973 | 40 | 73 | 0 | 0 | 1.1 | 0 |
| 1974 | 100 | 169 | 0 | 0 | 2.2 | 0 |
| 1975 | 260 | 403 | 0 | 0 | 4.8 | 0 |
| 1976 | 525 | 771 | 5 | 7 | 8.6 | 0.2 |
| 1977 | 430 | 596 | 0 | 0 | 6.2 | 0 |
| 1978 | 310 | 400 | 5 | 6 | 3.9 | 0.1 |
| 1979 | 380 | 452 | 5 | 6 | 3.9 | 0.1 |
| 1980 | 240 | 262 | 0 | 0 | 2.2 | 0 |
| 1981 | 410 | 410 | 0 | 0 | 4.6 | 0 |
| 1982 | 370 | 349 | 120 | 113 | 3.6 | 2.8 |

Source: Zacharakes (1988)

As seen in the table above and from our earlier survey of the Greek arms industry we can say that many of the firms in this sector have turned in recent years to export sales in order to secure their future survival. The volume of their export sales is still small and for many of them exports represent only a small part of their operations. It is a matter of debate whether they will be able in the future to increase export sales and ensure their future without the constant support of the state.

However, as Ayres (1983) points out, considerable exports of arms "can only be achieved in world markets if the domestic

industry is efficient, its product of good quality and its prices competitive" (p.818). For a country with the given development level such as Greece's, with the manufacturing sector dependant on foreign know-how and technology and with very limited research and development facilities, it will take many years to achieve a satisfactory degree of competitiveness especially in more complex and sophisticated weapons. For example, the Leonidas-1 APC, which is produced domestically under licence from the Austrian firm Steyr-Daimler-Puch, reportedly costs three times as much as the american M-113 APC. This of course makes it very uncompetitive in the international market. The use of a simple diagram can help explain this situation. Diagram 6.1 shows the position of a relative newcomer in arms production compared with an industry that has been engaged in the production of arms for a long period. Such a firm would have the advantage of lower unit costs since each unit produced will require fewer manhours compared with a Greek infant industry which requires more manhours since it is still in the process of "learning" to produce the given product. This example assumes that manhour costs are the same and that production technology is also the same. In real life however this is not the case. On the assumption that the lower labour costs of the Greek industry are offset by the technology advantages of the foreign firm, then the analysis can be said to be fairly correct. If on the other hand the foreign firm enjoys lower unit costs due to technological advantages and mass production then it is difficult to see how the product of the infant Greek industry can compete with that of the established arms producer.

## Diagram 6.1: The Learning Curve

```
Manhours
per unit |
         |\
         | \
         |  \
         |   \
         |    \  Greek industry
         |- - -\|
         |     :\
         |     : \
         |     :  \
         |     :   \
         |     :    \ ___
         |- - -:- -\_____ Foreign industry
         |     :       \|_____
         |     :       :       ------
         |     :       :
         |_____:_____:_____
                                 Number of units
                                 produced
```
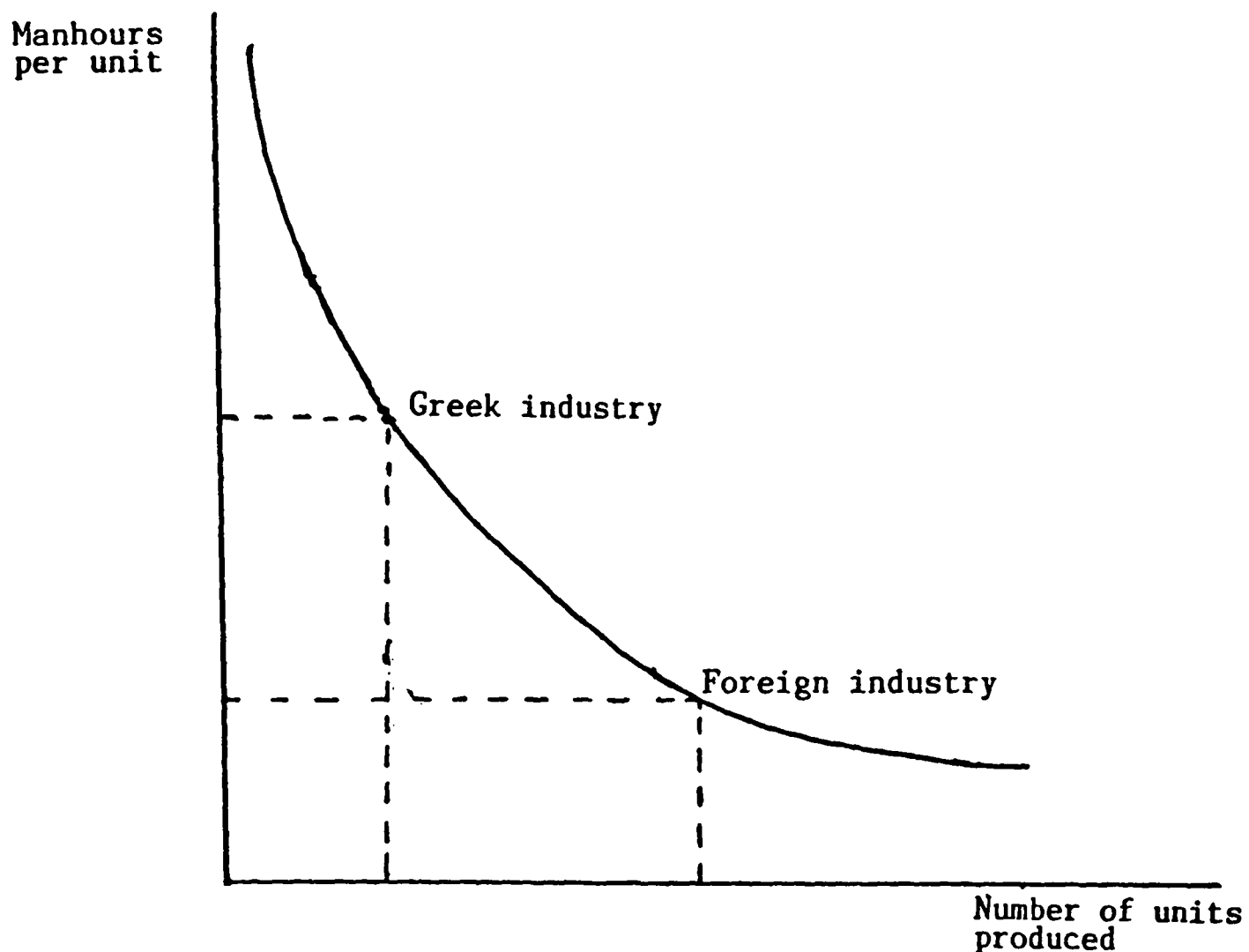
To this we have to add the possibility that the product of the foreign firm may well be more technologically advanced and may incorporate more up to day equipment. The established arms producer is usually also in the position to offer prospective buyers more competitive offset programs and possible coproduction terms.

Thus, it can be said that without competitively priced products it is very difficult to see how a small and possibly unknown newcomer can secure export sales. Without such orders it is difficult to financially justify the mass investment necessary to achieve economies of scale and more competitive unit costs; and without such investment on the other hand it is difficult to

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achieve those lower unit costs and technological sophistication that would secure an internationally competitive product that will bring in export orders. In a sense small arms producers are faced with a catch 22 situation. Once again, they need the active support of the state in the form of high subsidies and public investment. This may help explain, to a certain extent at least, why most Greek arms producing industries are state owned and that privately owned firms heavily rely on government support.

## 6.7 Spin-offs

We turn now to discuss in more detail the possible spin-off effects that indigenous arms production may have through backward and forward linkages with the industrial base of the economy. It is correct to expect that any spin-offs should be mostly felt in the PDC sectors of the economy because of the direct linkages that exist between them and defence production.

Deger and Sen (1983) point out that the economic spin-offs from indigenous arms production will take essentially two forms: "creation of effective demand for underemployed industrial capital (or unutilised capacity) and technological progress through a sift in the production function" (ibid p.75). The latter is achieved through the formation of new skills in the relevant industries, the creation and/or improvement of managerial and organisational expertise, research and development and so forth. In their study they attempt to develop an empirical test to establish the existence of spin-offs using data for India. The sectors that are used in their examination are

a) basic metals, b) metal products, c) non-electrical machinery, d) electrical machinery and e) transport equipment. They use the following equation to estimate any significant positive effect on the aforementioned group of industries generated as a result of domestic arms production:

$$X_{it} = a_{0i} + a_{1i} M_t + a_{2i} V_t + u_{it} \qquad (1)$$

Where $X_i$ is the index of output in the ith industry, $V$ is value added in manufacturing, $M$ is military spending in real terms, i subscript is for the ith industry, $u_i$ is the error term. In order to allow for lagged effects whereby past military spending affects current output they also estimated the following equation:

$$X_{it} = a_{0i} + a_{1i} M_{t-1} + a_{2i} V_t + u_{1t} \qquad (2)$$

Using annual data for the period 1970-86, it was decided to apply the same empirical test in order to establish the existence of any possible spin-offs in the case of Greece. Since the period that will be examined is quite short to provide any reliable and conclusive results, we will treat the results that will be obtained with great caution and will not be accepted as conclusive evidence of the existence or not of any spin-offs. On the other hand, they may help to identify any underlying trends. The year 1970 is chosen as the start of the period for our test since before the 70s a defence industry was almost non-existent in Greece. The sectors used are the PDC sectors where one would expect the spin-offs to be more evident.

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In their examination of the Indian case Deger and Sen (1983) found that "in general it is quite clear that spin-off effects are not strong at all" and they concluded that "overall the results accord with previous findings and military expenditure seems to have no effect on the index of production in industries of the PDC group". Their initial expectation was that "if spin-offs do exist and have a positive effect then this will clearly reflected in the case of India" (ibid, p.78-80). This, as we saw, was not the case. In our case it would be surprising if the results were very different to those obtained by Deger and Sen, since the defence industry in Greece is comparatively new and not fully developed. Possible positive spin-offs may not have filtered to the other industries and thus may not be observable yet. Furthermore, there are questions concerning the reliability of the data and the number of observations, 16 in all, do not allow for very reliable and conclusive results. Generally we would expect some indications of a positive effect of military expenditure on the PDC sectors. At this point it is worth pointing out that the contribution of PDC sectors in manufacturing was in 1981 20.93% of Gross Output and 26.09% of Value Added in manufacturing. However, as seen from table 6.11, some of the PDC sectors have a fairly small participation in total manufacturing. Thus, the net impact of military spending on some sectors would be expected to be relative to the size of the sector concerned.

Table 6.11

Percentage Distribution of Value Added in Manufacturing*
-----------------------------------------------------------

|  | 1980 | 1985 |
|---|---|---|
| Food, beverages, tobacco | 18.4 | 21.2 |
| Textiles, clothing, footwear, leather | 25.2 | 23.8 |
| Wood, cork, furniture | 5.4 | 3.5 |
| Paper, printing | 4.9 | 6.5 |
| Chemicals, petroleum, plastics, rubber | 11.8 | 12.7 |
| Non-metallic minerals | 8.9 | 7.3 |
| Basic metals | 5.6 | 5.9 |
| Fabricated metals and machinery | 17.8 | 16.4 |
| Other manufacturing industries | 2.0 | 2.7 |

*(current prices)        Source: The Greek Economy in Figures,
                                 (1987)


In order to take account of possible lagged effects, whereby past military spending affects current output in the PDC group of industries, equation (2) was also estimated and the results are shown in table 6.13. Using ordinary least squares and data for 1970-86 the following results were obtained (Table 6.12):

Table 6.12

The effect of current military spending on output
---------------------------------------------------------

|  | BM | MP | MAC | EMAC | TRP |
|---|---|---|---|---|---|
| Constant | 113.98 (4.92) | 77.23 (4.11) | 92.49 (4.47) | 133.75 (4.47) | 117.36 (5.25) |
| Mt | 0.034 (1.36) | 0.074 (3.63) | 0.057 (2.54) | 0.030 (0.93) | 0.039 (1.58) |
| Vt | 0.021 (0.66) | 0.016 (0.63) | -0.099 (-3.5) | 0.072 (1.75) | -0.051 (-1.67) |
| R2 | 0.32 | 0.69 | 0.46 | 0.45 | 0.18 |
| s.e | 22.88 | 18.54 | 20.43 | 29.56 | 22.07 |
| DW | 1.30 | 0.97 | 0.66 | 1.09 | 0.64 |

## Table 6.13

### The effect of lagged military spending on output

------------------------------------------------------------

|          | BM     | MP     | MAC     | EMAC   | TRP     |
|----------|--------|--------|---------|--------|---------|
| Constant | 126.52 | 95.03  | 122.98  | 145.87 | 144.13  |
|          | (5.99) | (5.07) | (5.45)  | (5.73) | (7.04)  |
| Mt-1     | 0.029  | 0.064  | 0.030   | 0.028  | 0.016   |
|          | (1.19) | (3.00) | (1.16)  | (0.98) | (0.71)  |
| Vt       | 0.011  | 0.008  | -0.088  | 0.054  | -0.047  |
|          | (0.36) | (0.32) | (-2.69) | (1.45) | (-1.58) |
| R2       | 0.26   | 0.63   | 0.39    | 0.45   | 0.18    |
| s.e      | 20.35  | 18.07  | 21.74   | 24.55  | 19.72   |
| DW       | 1.44   | 1.60   | 0.61    | 1.48   | 0.81    |

Key for tables 6.12 and 6.13:
BM  : index of output in basic metals
MP  : index of output in metal products
MAC : index of output in non-electrical machinery
EMAC: index of output in electrical machinery
TRP : index of output in transport equipment
In parentheses are the t-values and s.e is the standard error of regression.

As a general observation, from tables 6.12 and 6.13, it can be said that the results are not satisfactory and the model does not appear to perform at all well in the case of Greece. The explanatory power of the model (R-squared) is very low. In this sense the best results are obtained for metal products (MP). The coefficients of value added in manufacturing are surprisingly low and indeed in the case of MAC and TRP are negative. In the case of the transport equipment (TRP) this may be explained in terms of its small size and its recent decline. The coefficients of military spending are all positive and they are relatively more significant than those of Value Added, especially in the cases

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of metal products (MP) and non-electrical machinery (MAC). Out of the ten reported cases it appears that the most significant positive effect is to be found in the case of metal products (MP) in both tables and perhaps in that of non-electrical machinery (MAC) in table 6.12.

Overall, it could be said that the results obtained, given the limitations of data accuracy, seem to indicate that there may be positive economic spin-offs from military expenditure in certain sectors, but, in the case of Greece at least, they are extremely weak even in those sectors where the effects should have been more pronounced. Part of the problem may lie in using military spending as such when trying to asses the effects of the establishment of a defence industry. It may be an indirect way of attempting such a measurement. Perhaps a more accurate variable to use would be actual spending by the state in the arms industry in the form of investment as well as in the form of payments for the products of this sector. However, such data is not currently available. Furthermore, it may be said that since the defence sector in Greece is still relatively "young" and since the full arms production capabilities of the country are not yet fully explored (table 6.5), the possible positive spin-offs of such production are not yet evident. If, however, the current emphasis by the Greek state in developing a large defence industry is continued, then, it may be possible in the future to empirically establish the existence of such spin-offs to the rest of the economy. This, however, implies that other sectors of the economy can absorb them. However, given the advanced technology used in modern weapons production, it may be that such technology

may not be suitable for the given level of development of the Greek economy. Indeed, this may be a further reason why such positive spin-offs are not yet evident. On the other hand, it could also be argued that an economy-wide model may be more suitable in capturing such spin-offs rather than empirical investigation undertaken here.

## 6.8 The International Connections

As we have stated elsewhere one of the characteristics of the Greek arms industry is the strong ties with multinational companies and the latter's investment in this sector of the Greek economy. Indeed, from our detailed survey of the main companies in this sector, it is apparent that a number of them, such as ELBO and EAB, were originally joint ventures with foreign capital and that foreign firms still have a substantial involvement in many Greek companies engaged in arms production. It seems that the role of foreign capital in this sector was/is quite important. As Albrecht (1984) points out, many of the past accomplishments of this sector "were achieved largely with foreign support, both by financing these undertakings and by delivering know-how" (p.8). The countries of origin of the foreign companies involved are: Austria in the case of ELBO, West Germany in the case of EBO, the USA in the case of EAB and France and Italy to a lesser extent.

The presence of foreign capital in the Greek defence industry and the participation of Greek companies in international joint ventures is not an isolated phenomenon. A number of writers, such

as Smith and Smith (1983), Buzuev (1985) and Lovering (1987) amongst others, have pointed to the fact that in the past two to three decades arms production has been internationalised. As Buzuev (1985) observes, "one of the most characteristic features of the national military-industrial complexes today is their sharply intensifying internationalisation" (p.5). International bodies such as the UN have also pointed to "the process whereby the military-industrial complexes of the supplying countries expand beyond their borders, take root abroad and set up multilateral production processes" (UN 1978, p.71). In recent years there has been a sharp rise in the number of joint international arms production programmes, agreements on specialisation, cooperation and exchange of the results of scientific, technological and design work in the military field.

This process of the internationalisation of arms production, especially in the field of high technology arms systems, is taking place in the West around a NATO axis and a small group of advanced technology companies and according to Lovering (1987) this takes place within certain distinctive constraints. For him this process is creating an Atlantic Arms Economy and furthermore, "the international military-industrial apparatus which is being constructed will sustain new patterns of transnational accumulation in the 1990s" (ibid, p.130).

With the given US domination in the western arms markets this process of internationalisation means that more and more companies, mostly Western European, enter into new relationships with US capital through subsidiaries, licensing and other collaborative links. These links usually provide those firms

with access to both the US armed forces market and to US defence sales abroad. However, this process according to Lovering (1987) results to "an increasing US influence on weapons procurement amongst US allies thus creating what he terms "massive unified arms markets" (p.130).

At the same time, however, with the increasing pace of West European integration, efforts are being made to create a west European high-technology defence complex in symbiosis, in the beginning at least, with that of the US. The Independent European Programme Group (IEPG), a forum for the integration of arms procurement within NATO, commissioned a study to assess the prospects "for greater rationalisation of European industrial defence capacity" (Bloom, 1985,). For many West European politicians, such as ex-Defence Minister Heseltine, European collaboration in arms production and procurement was and is necessary "even if it caused pain to some entrenched national interests" (Davidson 1984). For many, West European collaboration in this area seems the only way in which the Europeans can preserve their defence industries and avoid becoming even more dependent on the US for high technology weapons systems and for high-tech civilian products results of civilian applications of technology generated by military R & D. A list of some common west European defence projects, past and present, can be seen in table 6.14 below.

## Table 6.14

### West-European Defence Projects

| Project | Countries participating |
|---|---|
| Tornado fighter-bomber | Britain, W. Germany, Italy |
| Alpha Jet airplane | France, W. Germany |
| Puma-Gazelle helicopter | Britain, France |
| ASRAAM air to air missile | Britain, W. Germany, Norway |
| Milan anti tank missile | W. Germany, France |
| Sidewinder air to air missile | Belgium, Denmark, Norway, W.Germany, Netherlands (and the USA) |
| HOT missile | France, W. Germany |
| RC-80 ordnance missile system | Britain, W. Germany, Italy |
| 155-1 field howitzer | Britain, W. Germany |
| Stinger portable anti-aircraft missile | W. Germany, Netherlands, Greece,Turkey (US design) |
| Mistral portable anti-aircraft missile | France, Italy, Denmark, Belgium |
| European Fighter Aircraft (EFA) | Britain, W. Germany, Italy, Spain |
| PARS-3 anti tank missile | France, W. Germany, Spain, Italy, Greece, Belgium, Netherlands |

Source: Military Technology, April (1988)

Smith and Smith (1983) note that up to 1967 only about 8% of arms procurement projects within NATO involved any kind of collaboration and this was mostly a matter of Western European states producing US-designed equipment. In the following decade, however, this proportion rose to 20% of which just under half involved the USA. Nowadays though, several major projects, such as the European Fighter Aircraft (EFA) project, involve only Western European states. This process, as Taylor (1986) points out, will probably accelerate even further with the increasingly fast movements towards West European integration which may not only be economic but it will involve closer political and finally military cooperation. However, like most things, it is not a

smooth process since it can on occasions come against narrowly defined national interests (MacDonald, 1986).

Due to accelerating costs of R & D, development and production of sophisticated modern armaments required by the military, a single West European country cannot afford to develop and produce independently the full range of the most sophisticated new equipment. If the military will not accept second best and if total reliance on the US for such equipment is politically, economically and militarily not acceptable, then the only option is to attempt to share the costs of development with other states in similar position. This also guarantees longer production runs which may reduce unit costs and it secures demand for the specific product. Involving smaller states in the project also secures their markets and at the same time makes them dependent not only for spare parts and maintenance but also probably ensures demand for other products in the future.

However, this process of internationalisation of arms production is by no means smooth. It involves contradictions and generates rivalries within the participating states and within their governments as well. These may be due to factors of national prestige but also they may be a reflection of competition between national capitals jostling for a better position and a larger share of the cake. The decision of France to pull out of the EFA project and proceed with the independent development of her own Rafale project is an example of such competition. The Westland crisis in Britain is an indication of differences in attitudes within governments concerning collaborative defence projects.

Another form of foreign capital penetration into the defence industry of smaller states is trough the increasingly popular practice of "off-sets". This involves the supplier of military equipment offering the buyer opportunities for local production and/or assembly of components of the weapons, transfer of technology and know-how, investment in the indigenous arms industry and/or in other sectors of the economy. This secures the market for the supplier for future orders and it also gives the buyer access to relatively advanced technology and in theory helps the domestic arms industry reach higher stages of arms production. Because of such possible advantages off-set programmes are not only offered by the sellers but nowadays are demanded by the buyers.

From our survey of the Greek arms industry we can note that many of the major firms of this sector rely heavily on offset programmes from the purchase of the F-16 and Mirage-2000 fighter planes. For example, from the total offsets agreed from the above purchase, around 327 billion Dr, over 145 billion Dr are planned to be absorbed by the Greek arms industry within the next decade. In fact there is great emphasis placed in collaboration aiming to participate in co-production projects at all the production stages. This, is hoped, will facilitate "selective specialisation of high standards" in areas that "can be compatible with civilian production" aiming to maximise potential spin-offs to the rest of the economy (Giotas, 1988). Technological linkages with other branches and sectors of the economy, the transfer of technology, familiarisation with new techniques and their adaptation to local conditions, the spread of new skills, stimulation of the economy

through inter-sectoral demand and balance of payments benefits are some of the possible benefits of participating in international collaborative projects and setting up joint ventures with multinational companies in the arms production sector. However, this may not always be the case in practice, and in the case of small not very advanced countries this process may have contradictory results. For example, although "aspects of technology involved in producing sophisticated weapons are transferred to the poorer country, control over the technology is not" (Smith and Smith 1983, p.80). Furthermore, the technology adopted by the defence sectors may be far too advanced for the rest of the economy to absorb, it may not be suitable for the factor endowments of the economy and may even be kept secret and not allowed to spread to civilian production (Deger and Sen 1985). There is therefore "the likelihood that one form of dependency will be replaced by another" (Ayres, 1983, p.821) and it may even increase the dependency of smaller countries to the major arms suppliers, something that indigenous arms production in theory aims to reduce.

However, given the problems outlined earlier, collaboration and participation in international projects seems to be the only viable way for the Greek arms industry for the future if the existence of indigenous arms production capacity is considered to be strategically important.

This point seems to be recognised by many officials in Greece and given the momentum of W. European integration and the increasing W. European defence collaboration, many believe that the future of the Greek arms industry "must be sought in W.

Europe, participating in the development and production" of West European weapons systems. (Marinakis, 1988, p.36).

Apart from the factors discussed so far there is another important twist in the tale explaining the presence of multinationals in the Greek arms industry. Albrecht (1984) argues that there are a number of motives for this, but above all of them considerations of expansion are most important. "Arms exports require under the conditions of an international buyers market aggressive strategies for sales. The multinational companies who manufacture military equipment in Greece apparently do so to bypass restrictions of a political nature in their main base countries" (ibid, p.14) and he points to companies from countries such as Austria and W. Germany. The then alternate minister of defence Giotas (1988) lists this as one of the advantages that foreign investment in the Greek arms industry may enjoy: "... collaboration with Greek companies and investment in this important sector has many advantages (i.e for foreign firms) ... Greece is on many occasions a preferred source of arms supply for buyers ... since Greek law is less easily influenced by ephemeral political considerations when compared with other countries and this stability (of supply) allows better long term planning" for arms procurement. Recently the Greek press has been dominated by an unprecedented scandal concerning the arms producers EBO and PYRKAL both state owned. It is claimed that both companies have been engaged in the covert supply of arms and ammunition to both Iran and Iraq, and have both been involved in this international operation as transhipment points of weapons from other countries. They have also sold to both countries large

quantities of Greek produced ammunition and arms. Allegations
have also been made (Anti no 334, 335, 351) implicating them in
the Irangate affair. Further allegations have been made
concerning arms shipments to South Africa against the UN arms
embargo. This was done with the issue of false End User
Certificates by the Defence Industry Directorate. The arms were
supposedly bought by the Greek companies but then they diverted
to South African ports (Anti no 311). In our earlier survey of
this sector we have pointed out that the presence of South
African interests in the defence sector in Greece is quite strong
and that ELVIEMEK, a major explosives and ammunitions producer,
is thought to be under South African control.

It seems that the Greek arms industry has been used by foreign
companies to bypass export restrictions on weapons imposed by
their national states since such controls are less stringently
applied by the Greek authorities. In a sense, strictly from an
economic point of view and leaving moral and ethical questions
aside, this export practice has been justified by a few observers
since it is very difficult to see how companies engaged in
defence production can survive on the limited Greek market only.
Markets on which restrictions of arms sales are applied by the
major arms producing countries, such as S. Africa, Iran, Iraq,
are the ones that are more easily penetrated by the arms
industries of smaller countries.

## 6.9 Conclusion

We have seen that since the mid-70s, with the increasing tensions between Greece and Turkey especially after the invasion of Cyprus by the latter in 1974, attempts have consistently been made to develop an arms industry in Greece.

Potentially there are two alternative methods of establishing arms production in an economy with a development level such as the Greek economy's. The one would try to maximise national independence in arms procurement by aiming at autarchy as much as possible. The other would place the emphasis on the possible economic gains of such a venture, looking to connect a limited industrial base with the arms sectors of more advanced countries mostly by cooperating with multinational companies.

From our examination of the Greek case it can be said that it falls in a middle position, somewhere between the two extreme alternatives. As in most similar cases, the arms industry was set up with very ambitious plans and with the active involvement of the central government and with the help of foreign multinationals. However, the limitations and the difficulties of the project were soon apparent. The original ambitious plans had to be revised downwards. The hopes of a large degree of autarchy have not so far been realised. Most companies in this sector are mostly assembly lines of components imported from abroad. Greek value added in most of the final products is still fairly low. For example when 4,500 jeeps were ordered from ELBO the plan was for local value added to reach 42%, but half way through the completion of the order it is no more than 20% and it appears

that the original plan will not be fulfilled. Most of the products are produced under licence from abroad and only limited indigenous design and development takes place, and this is concentrated in areas of comparatively low technology such as ammunition. Almost all the firms in this sector rely heavily on government support and subsidies for their survival. The major ones are in fact state owned, a fact that underlines the strategic importance attached to the existence and survival of even a small arms industry supplying at least the basic requirements of the Hellenic Armed Forces. Thus, it is hoped, a small degree of autonomy from major foreign suppliers will be secured, especially in times of crises. However, it is very difficult for companies to survive only by supplying the limited Greek market and attempts are made to enter the international arms market, a venture quite difficult at the best of times. This policy has been underlined by a change in official rhetoric emphasising the possible economic benefits of the development of the arms industry as well as political and military benefits. Many of the hopes of technological "fall-out" and economic benefits to the rest of the economy have not so far fully materialised. A number of writers have argued that not fully industrialised peripheral countries, such as Greece, tend not to fully benefit from indigenous arms production and in fact in many cases they substitute one form of dependence for another.

In the case of Greece, it is very difficult to see how in the forseable future any substantial degree of autarchy in arms procurement can be achieved. Perhaps the only way forward, if an arms industry is considered strategically necessary, is to

increase the level of participation in international joint ventures. This can probably easiest achieved within the framework of the W. European community which could also bring about some form of spin-offs to the rest of the economy. However, for this to be successful, many of the current managerial and bureaucratic problems need to be overcomed. It is otherwise very difficult to see how the Greek industrial base could sustain an uneconomical arms industry which heavily relies on imported inputs and cannot compete in the international market. On the other hand, apart from the economic implications, the establishment of an arms industry with the help of multinational corporations and the participation of this industry in international joint arms development and production ventures brings in important political and even military strings. It creates new conflicts of interest between national foreign policy goals and the interests of the international corporations and their base countries. This may be of importance in the case of Greece since in fact it may work against the main original aims when the arms industry got underway. These namely were to increase national independence from Western arms suppliers. Increased independence from such suppliers was and is still considered important because Greece is in an internationally unique position since it belongs to a major alliance but it is felt that the threat to her national interests is no longer originating from members of the opposing alliance but from a member of the same alliance it belongs to, namely Turkey. Domestic defence production with increased indigenous design and development of appropriate low-tech arms as well as arms procurement from other than Western sources of

weapons may be a way of increasing independence and providing space for manoeuvre. The five billion Drachma order of 600 auxiliary military equipment (dumpers, bulldozers, excavators and other earthmoving equipment) from the Soviet Union recently, may be seen as a move intended to emphasise to the West the existence of alternative sources of arms supplies. However, this may not be anything more than a token gesture which nevertheless, according to press reports, has not been fulfilled after diplomatic pressures from Greece's NATO allies. On the other hand, the few efforts of attempting indigenous development and production of weapons systems have constantly been undermined not only by bureaucratic procedures but also, as it has been reported in the national press, by interests aiming at securing orders for weapons systems which they market in Greece on behalf of large arms producing corporations. Such an example is the Artemis-30 anti-aircraft system the production of which has constantly been delayed.

Today it even seems possible that some companies of the arms industry may close down bringing to an end the original high hopes of a fully developed Greek arms industry.

Having discussed in this chapter the issues surrounding the Greek defence industry we now turn to discuss and analyse the effects that arms transfers have had on Greek economic development.

CHAPTER 7


## ARMS TRANSFERS AND DEVELOPMENT


## 7.1 Introduction

In this chapter we will discuss the role of military transfers and their effects. It will be argued that military transfers and in particular post-war US and Western aid to Greece, had a twofold aim. Not only were they used as instruments to secure the country to the West for military and strategic reasons, but also aimed to keep the country open for capitalist penetration. The latter is often of equal importance to military and strategic considerations when it comes to the flow of aid. The economic effects of arms imports will be discussed drawing attention to the cost effectiveness of weapons choices. Finally the role and impact of foreign capital will be addressed drawing attention to the links between military transfers and foreign capital.


## 7.2 Trade and Aid

Since the end of the last war the world has experienced, as we have seen, rising levels of military expenditure and a substantial increase in the value and quantity of arms transfers. These transfers can either take the form of trade or, alternatively, the form of military aid. In theory at least, it

is possible to distinguish between trade and aid. Trade being the exchange of goods and services for money and/or other goods and services at rates determined by the operation of market forces. If for any reason these terms of exchange are modified in favour of one of the participants then it can be said that there is aid being transferred from the looser to the gainer. A widely accepted definition of aid is that "aid includes all official grants and concessional loans, in currency or in kind, which result in the transferring of resources from one country to another" (Todaro, 1981, p.408). In practice and especially in the case of military transfers it is not always possible to make a clear cut distinction between what constitutes trade or aid. Whynes (1979) distinguishes six forms of international military transfers that take place. This flow of arms is usually from developed countries to less developed ones:

1. Donation of military equipment to LDCs which is often surplus to the donors' requirements.

2. Direct financial grants to LDCs, for the purchase of military equipment, or to develop other military facilities such as training schools.

3. The granting of preferential terms for the purchase of equipment, such as credit arrangements or the permission to pay in local currency.

4. "Normal" trade at cost price.

And in addition with respect to labour developed countries might:

5. Provide training facilities in a developed country's institution for selected members of the LDC armed forces.

6. Send military missions or experts to advise and train the LDC

military, in situ.

We can see that (1), (2), (5) and (6) could be categorised as military aid provided that there are no strings attached by the donor country. If conditions are attached then they are tied aid. In the case of (3) however there is a mixture of both aid and trade making such a transaction difficult to categorise. Thus, the term military transfers is often used covering both the cases of trade and aid.

## 7.3 The International Arms Market

Since the end of the Second World War the international arms market has passed through various phases. Through the years there was a progress from a virtual duopoly, through oligopoly to a fairly competitive market nowadays. This, as would be expected, has influenced prices and revenues considerably.

The 50s were a period characterised by the formation of military alliances and aid. Most arms transfers were done on a concessional basis. It was a period dominated by the US Military Assistance Programs (MAP). In the 60s, a period in which the two superpowers dominated the world trade in arms, military aid remained important but not as much as before. It was gradually declining in favour of more commercial oriented forms of transfers of arms.

Subsequently, from the early 70s the importance of concessionary arms transfers was drastically reduced in favour of more commercial transactions. Smith, Humm and Fontanel (1984) point out that this was very much due to a) OPEC oil revenues

providing alternative sources of finance for weapons acquisition on the part of many LDCs and b) supplying DCs wishing to offset the balance of payments consequences of higher oil prices. This resulted in a marked increase of military spending by LDCs at faster rates than the rates of growth of other variables, such as GDP, per capita income, exports etc. There were also important qualitative developments during this period. In the early post-war years most of the weapons transferred to LDCs were predominately second-hand, outdated and often obsolete. During the 70s however, the most modern weapons systems produced by the supplying countries were being sold. Furthermore other countries entered the international arms market more aggressively and the position of countries such as France and Italy significantly improved while Britain's position relatively to them declined. The market had effectively become an oligopolistic one compared to a duopoly in the previous period.

The 80s show the beginning of much harder competition in the international arms market with less developed countries themselves entering the market as exporters of arms. The market became very competitive with a large number of potential suppliers. This is quite interesting to note because, in theory at least, the high research and development overheads associated with modern weapons and falling costs with scale usually mean that large producers can produce more cheaply and thus undercut competition and drive newcomers out of the market. The tendencies in the international arms market should, therefore, have been towards monopolistic or oligopolistic forms of competition, competition among few large producers. In fact, quite the

opposite of this has actually taken place. But, as Smith, Humm and Fontanel (1984) point out, governments and arms producers are tightly coupled even when the particular firm is not nationalised. This produces strong counteracting forces to the above tendencies. These counteracting forces not only include large government subsidies for domestic producers but we have also to allow for the strong desires of many countries to diversify supply sources and thus reduce the degree of dependency. Thus "the end result is a buyers market with excess supply from many high cost producers" (ibid, p.9). Important qualitative changes can also be observed during this period. There is a steady rise in the importance of co-production and offset agreements and counter trade (barter) arrangements as important components of any major weapons purchase.

## 7.4 Motives for Arms Transfers

The question that needs to be addressed now is what are the reasons influencing military transfers from the point of view of both participants. Whynes (1979) points out that in the case of the suppliers, usually the developed countries, there may be two factors in operation: a) the hegemonic, aiming to gain political and economic advantage and influence in the recipient country, possibly at the expense of other potential suppliers with competing political and/or economic interests; and b) the economic factor, to assist their own industry and export trade. Thus, once a country has decided on maintaining a domestic arms industry for the variety of reasons already discussed in the

previous chapter, exports sales at prices that at least cover the marginal cost of production make some contribution to overheads and help spread costs. Furthermore, as Smith, Humm and Fontanel (1984) point out, once production capacity for exports is established, an economic momentum is created which becomes a powerful force promoting export sales. Not only are there possible balance of payments benefits from export sales but also employment in the sector comes to depend on exports. Arms exports also provide a leverage in foreign policy. By supplying arms the exporter can assist friendly countries in strengthening their military position and at the same time can have the potential to influence their behaviour.

On the other hand, demand in the receiving countries, usually LDCs and small peripheral countries, is influenced by factors such as war or the preparations for war or in order to satisfy the military's desire for modernisation and also for reasons of prestige. These reasons have already been discussed in a preceding chapter and we will not deal with them here. Here we will concentrate mostly on the supply side of military transfers and in particular the strategic, political and economic factors that have influenced arms transfers by the US in the post-war period with special reference to Greece.


## 7.5 A Change in Hegemony

The end of the last war show a major shift in international hegemony.[1] The United States emerged as the world capitalist leader and the international defender of capitalism. It was the

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decision of the British government on the 24th February 1947 to withdraw its forces from Greece, engaged at the time in the fighting of the civil war, and the imminent danger of a communist take over that prompted the US to intervene declaring itself the protector of Greece and her neighbour Turkey. The announcement of the Truman Doctrine on the 12th March 1947 marked the beginning of US hegemony in the capitalist world.

President Truman's Doctrine called upon the United States "to help free people maintain their free institutions" against "aggressive movements" seeking "to impose upon them totalitarian regimes". This was a recognition by the US that "totalitarian regimes imposed on free peoples ... undermine the foundations of international peace and hence the security of the US" (in Hartman, 1983, p.393). The implications of this statement were far reaching since it made the defence of "free institutions" in third counties a security interest of the US and hence allowed the US to intervene whenever it felt that such a danger to the "free institutions" of third states existed. Fleming (1961) notes that "no pronouncement could have been more sweeping. Wherever a communist rebellion developed the US would suppress it ... the US would become the world's anti-communist policeman" (ibid, vol 1, p.446).

The assistance that the US was to provide to third countries in cases like that was envisaged by Truman to be "primarily through economic and financial means" without however excluding more forceful measures. The immediate purpose of the Truman Doctrine was to secure that countries that were under British influence would come under the US sphere of influence after

British withdrawal and thus remain within the Western sphere of dominance. Thus the Truman Doctrine marked the beginning of a shift of the centre of gravity from the old Imperial Powers of Europe to the US which emerged as the most powerful capitalist country and the new centre of imperialism after World War II. The immediate implication of the Truman Doctrine was the direct US involvement in both Greece and Turkey. In effect it "proclaimed an American protectorate over Greece and Turkey" (Baran and Sweezy, 1966, p.188).

The reasons for an active US involvement in both countries became clear when Truman "abandoning his moral abstractions" (Hartman, 1983) expressed the strategic factors involved: "It is necessary only to glance at a map to realise that the survival and integrity of the Greek nation are of grave importance in a much wider situation. If Greece should fall under the control of the Communists, the effect upon its neighbour, Turkey, would be immediate and serious. Confusion and disorder might well spread throughout the entire Middle East" (p.394). As a result, a large scale assistance program got underway to help in the reconstruction of the war-torn economies of Greece and other Western countries. A lot of this assistance in the case of Greece was for military purposes.

Throughout the post-war period the US has relied on the following categories to supply weapons and military services to other countries: a) Military Assistance Programmes (MAP), consisting of grants and soft loans to buy arms and services; b) Foreign Military Sales (FMS), which give credit and other forms of financing for commercial transactions; c) International

Military Education and Training Programmes (IMETP), for personnel training; d) the Foreign Assistance Act, providing assistance to friendly regimes threatened by destabilising forces; e) Excess Defence Articles. Table 7.1 gives detailed information concerning US military transfers and assistance to other regions.

The US military transfers during this period can be regarded as attempts to establish and consolidate the economic, political and military hegemony of the US. It was the events of 1947 in Greece that acted as the catalyst which caused the process of establishing US hegemony to begin. In order to assist the post-war reconstruction of capitalist Europe the Marshall Plan was launched in the late 40s. At the same time in order to establish the military counterpart of this economic policy NATO was

Table 7.1
US Military Assistance to Other Regions

| | Middle East & South Asia | Far East | Africa | America | Other DCs |
|---|---|---|---|---|---|
| FMS Cash Sales 1950-72 ($m) | 1,864 | 1,546 | 73 | 313 | 9,786 |
| FMS Credit Sales 1950-72 ($m) | 2,153 | 462 | 53 | 377 | 110 |
| Military Assistance Programme 1946-70 ($m) | 1,770 | 9,640 | 280 | 778 | 21,249 |
| Training of foreign personnel, 1950-70 (000s of men) | 19 | 129 | 7 | 54 | 110 |
| Value of naval vessels delivered 1946-70 ($m) | 8 | 417 | 6 | 200 | 1,106 |
| Value of "surplus" weaponery 1946-70 ($m) | 43 | 551 | 17 | 63 | 606 |
| "Food for Peace" Funds 1946-70 ($m) | 90 | 1,286 | 4 | -- | 132 |

Source: NACLA (1972), p. 44, 57-8, 68, 80-2.

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established. To further strengthen its military position the US entered into numerous bilateral military agreements with countries which were in close geographical proximity to the socialist block. Such countries came to be referred to as Forward Defence Areas. These countries undertook to provide the US with military facilities and installations on their territory. Thus a multitude of US military bases mushroomed throughout the world. They were to act not only as a forward military dam to "forceful communist expansion", but also ensuring the ideological containment of communism by propping up "ideologically sound" and friendly regimes.

Having undertaken the commitment to act as the champion of capitalism the US was obliged to meet words with deeds. In return for the military facilities and bases the US helped to build up and modernise the local armed forces. Throughout the 50s and 60s NATO countries received substantial grant aid, Greece being amongst the major recipients. The strengthening of the local armed forces had two objectives. These armies were not only seen as a potential first stage defence against a military advance of WTO forces but also as counteracting force to any actual or potential internal or even regional revolutionary activities which could destabilise a friendly government and thus jeopardise US strategic and economic interests. This brings us to the second element of the quest for hegemony. Military transfers and in particular military aid do not only serve as a means of securing an ally and thus to achieve specific military and strategic objectives. It can be argued that one of the prime objectives of military transfers is the "need to prevent the expansion of

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socialism, to compress it into as small an area as possible and ultimately to wipe it off the face of the earth in order to maintain and increase the opportunities for US capital to profit from doing business with and in the rest of the world" (Baran and Sweezy, 1966, p.187). In other words to keep as many countries as possible open for capitalist penetration. Thus military transfers and assistance are provided by developed capitalist countries and the US in particular in return for economic benefits, namely the expansion of the activities of capital from metropolitan centres to smaller, peripheral countries. Thus it is not surprising to note that President Truman in his reports to Congress emphasized that the aid granted by the US (under the Marshall Plan) should be considered as "an investment destined to increase the financial prosperity of the USA". The US could consolidate this prosperity only in one manner: by contributing to the reconstruction of the countries devastated by war and by stabilising their capitalist regimes. National capitalism becomes dependent both on US aid and technology and on the economic policies elaborated by the international organisations that sprung in the immediate post-war period and which were dominated by the US (Vergopoulos, 1981, p.301). It can be said therefore that in the case of post-war military policies by the US, "the maintenance of the military establishment and its activities has been a major source of direct and indirect business activity and profits. Industry and finance expanded abroad under the protection of this globe-striding military force" (Magdoff, 1969, p.167).

## 7.6 Post-War Assistance to Greece
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Greece has been one of the major recipients of economic and military aid from the US and from other sources. Especially in the immediate post-war years international aid mostly by the US and Britain helped the country in the first steps towards the reconstruction of its shattered economy. Without the massive inflow of aid the country would have entered an unprecedented economic crisis and would have faced imminent bankruptcy and collapse. This aid, however, also secured the conservative victory in the Civil War and thus ensured that Greece remained within the western system.

The first aid programme for Greece immediately after the liberation was that of the British Military Liaison (ML) mostly in the form of food, clothing and fuel in order to cover the immediate needs of the liberated population. By March 1945 ML provided the Greek population with 142 thousand tons of food, 61 thousand tons of fuel and clothing. From then onwards the aid was administered through the United Nations Relief and Rehabilitation Administration (UNRRA). From April 1945 UNRRA undertook the responsibility of the relief supplies to Greece. Altogether, between April 1945 and May 1947, Greece received from UNRRA 416,2 million dollars of aid, mostly food, clothes etc as it can be seen in table 7.2.

Furthermore, under the 1946 Treaty of London, a loan of 10 million sterling without interest was granted to Greece and a further credit of 500 thousand sterling to purchase clothing and agricultural machinery at cost prices was arranged. The pre-war

loan of 46 million sterling to cover the war needs of Greece was

waived. At the same time Britain met much of the costs of the

reorganisation, upkeeping and the re-equipping the country's

armed forces. By September 1947 Britain had paid more than £1,587

million for military equipment for the Greek forces. Economic

Table 7.2

UNRRA Aid to Greece ($ mil)
-----------------------------

| | |
|---|---|
| Food | 186,3 |
| Clothing | 40,3 |
| Medicine | 11,9 |
| Industrial rehabilitation aid | 53,9 |
| Agricultural rehabilitation aid | 58,3 |
| Other | 65,5 |
| Total | 416,2 |

Source: Zolotas (1978), p. 271

advisors were also sent in order to help the Greek government

with the economic reconstruction and rehabilitation of the

country. Loans with favorable terms of repayment were also

provided by the US. The first dose was $53,8 million and the

second $14,6 million from the Export-Import Bank to finance the

purchase of capital equipment. Very important assistance by the

US was the sale of 100 ships of the Liberty type to Greek

shipowners who had to pay only 25% of their value and the rest

within seventeen years with the Greek state underwriting this.

As a result the merchant fleet of Greece was greatly strengthened

and this had important long term effects on the development of

the country.

With the announcement of the Truman Doctrine the flow of US

aid increased substantially. A total of $400 million were send

to Greece and Turkey in the form of economic and material
assistance. Greece received $300 million of these of which $149
million were for military spending and $146,5 million economic
aid and the rest for administration expenses. It is estimated
that at least $23 million earmarked for economic assistance were
finally used to cover army costs in the Civil War. This aid was
administered by the American Mission of Assistance to Greece
(AMAG).

In March 1948 the US administration decided on the Marshall
Plan for Europe of four years duration. Apart from the assistance
that Greece received from the Marshall Plan in the first year
(table 7.3) a further $798 million was granted as additional
military assistance for both Greece and Turkey.

Table 7.3

Assistance of the Marshall Plan and the Mutual Security Agency*
------------------------------------------------------------------
($mil.)

|          | Total Aid to Europe (1) | Aid to Greece (2) | (2) as % of (1) |
|----------|-------------------------|-------------------|-----------------|
| 1948-49  | 5,300                   | 212.8             | 4               |
| 1949-50  | 3,600                   | 263.6             | 7.3             |
| 1950-51  | 2,200                   | 206.8             | 9.4             |
| 1951-52  | 1,022                   | 182               | 17.8            |
| 1952-53  | 1,282                   | 81.8              | 6.3             |
| Total    | 13,404                  | 946.4             | 7.1             |

* excludes pure military aid

Source: Zolotas (1978), p. 350

All together, Greece from October 1944 to the end of the
financial year 1953 received about $1,176 from the US excluding
the pure military aid to fight the Civil War and to rebuild her

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armed forces. A detailed breakdown of the US aid is shown on table 7.4. It is believed, however, that large amounts of the economic assistance received in this period was covertly used to finance military needs. Nevertheless, this assistance greatly helped the reconstruction effort of the country as apparently the Marshall Plan did for the rest of Europe.

## 7.7 Tied Aid

International aid is presented by governments and is in the minds of most people a conscious effort to break the vicious circle of underdevelopment with gifts and loans from the richer to the poorer nations. The central argument in favour of foreign aid is that poorer countries cannot progress at a reasonable rate, or cannot progress at all without the support of more advanced countries. The potential of such aid programmes was demonstrated by the Marshall Plan in which the US, with massive loans and grants, powerfully assisted the re-establishment of Western Europe after the devastation of the Second World War. However, the true value and usefulness of aid has been widely questioned and it has also been argued that it is very difficult to relate aid to improvements in economic performance in any conclusive or quantifiable way. Furthermore, many have raised doubts as to the true motives of aid giving countries.

Table 7.4:     Total American Assistance to Greece* ($ million)

| | Oct. 1944 Jun. 1947 | 1947-48 | 1948-49 | 1949-50 | 1950-51 | 1951-52 | 1952-53 | Total |
|---|---|---|---|---|---|---|---|---|
| Economic assistance under Truman Doctrine (AMAG) | -- | 112,6 | 6,5 | -- | -- | -- | -- | 119,1 |
| Post-UNRRA Aid | 28,8 | -- | -- | -- | -- | -- | -- | 28,8 |
| Aid from charity organisations | 6 | 1 | 2,4 | 2,8 | 1 | 0,3 | -- | 13,5 |
| Marshall Plan & MSA Aid | -- | -- | 212,8 | 263,6 | 206,8 | 182 | 81,2 | 946,4 |
| Special Assistance in Loans from Allied Surpluses | 22,3 | 22,4 | 9,1 | -- | -- | -- | -- | 53,8 |
| Loan from Export-Import Bank | 6 | 6,6 | 2 | -- | -- | -- | -- | 14,6 |
| TOTAL | 63,1 | 142,6 | 232,8 | 266,4 | 207,8 | 182,3 | 81,2 | 1.176,2 |

*military aid not included
Source: Zolotas (1978) p.353

Hayter (1971) argues that aid has never been an unconditioned transfer of financial resources. She points out that usually the conditions of aid are clearly and directly intended to serve the interests of the government providing it. Similarly, Todaro (1981) argues that "donor countries give aid primarily because it is in their political, strategic, and/or economic self-interest to do so. While some development assistance may be motivated by moral and humanitarian reasons to assist the less fortunate (e.g emergency relief programs), there is no historical evidence to suggest that over longer periods of time donor nations assist others without expecting some corresponding benefits (political, economic, military, etc.) in return" (ibid, p.411-412). Thus it is possible to characterise the motivations of aid giving countries into two broad but closely interrelated categories: political and economic.

In the case of US, foreign aid has been viewed right from its beginnings in the late 40s under the Marshall Plan as a means of containing the international spread of communism. Chenery (1964), one of the stauncher defenders of the role of foreign aid in development process, has also conceded that "in the most general sense, the main objective of foreign assistance, as of many other tools of foreign policy, is to produce the kind of political and economic environment in the world in which the United States can best pursue its own social goals" (p.88). Thus throughout the post-war period most US aid programmes were oriented towards purchasing the security and propping up the sometimes shaky regimes of countries that they were considered to be important for US and Western strategic, military and economic interests.

This brings us to a very important point.

In order to secure such interests the donor countries rarely give foreign aid to be used by the receiving country at will. More often than not restrictions tend to be attached to the flow of aid especially when aid is in the form of grants. Such restrictions may include where recipients can spend assistance and restrictions on how can assistance be used. Spending restrictions normally take the form of tying assistance to purchases from the donor country - so called "procurement tying". This reduces the real worth of assistance because it prevents recipients from shopping around to find exactly the goods they want in the cheapest markets. Thus, as a result of "procurement tying", many countries can end up with equipment not suited for their particular needs and requirements.

As one former US aid official has put it: "The biggest single misconception about the foreign aid program is that we send money abroad. We don't. Foreign aid consists of American equipment, raw materials, expert services, and food - all provided for specific development projects which we ourselves review and approve... Ninety three percent of AID funds are spent directly in the United States to pay for these things". (Gaud, 1968). Similarly, a former British minister for overseas development once noted that "about two-thirds of our aid is spent on goods and services from Britain ... trade follows aid. We equip a factory overseas and later on we get orders for spare parts and replacements ... (aid) is in our long-term interest" (in Todaro, 1981, p.416)

Such procurement restrictions are the rule rather than the exception when it comes to military aid. Thus military aid in the

large majority of cases is strictly tied to increasing the stocks of hardware that the country receives from the donor. However, even with such restrictions one could argue that military aid can indirectly help growth in the sense that it may free domestic resources, that would have otherwise been used for defence purposes, to be diverted into more productive uses. On the other hand though, this can rarely be the case nowadays since the majority of aid is in the form of loans rather than outright grants. This often results in the creation of substantial debt repayment burdens for many aid receiving countries. This has been one of the results of US military aid to Greece in the post-war period as we will see in the next section.

Furthermore, procurement tying is only a part of the restrictions that donor countries attach to aid. Much of US and Western aid in general has also aimed at promoting the interests of capital abroad and at helping its expansion to as many countries as possible. As Szentes (1983) points out, donor countries "often compel recipient countries, by explicit conditions or implicit expectations, to provide, in return for the loans and grants received, guarantees and certain benefits for the metropolitan capital and to create a "favourable climate" for foreign investments" (ibid, p.232). In short to keep the recipient country open for capitalist penetration under as favourable conditions as possible. This can be said to have also been one of the aims of post-war US assistance to Greece.

## 7.8 Military Aid

As seen from table 7.5 a substantial part of the aid received by Greece in the post-war years was used to finance the Civil War and subsequently to build up and modernise the armed forces which, as we have seen, were to play a decisive role in the post-war development of the country. At the time the Hellenic Armed Forces were very much disorganised and weakened as a result of the occupation and the subsequent Civil War struggle. The Greek army was ill equipped and poorly trained, most of its equipment was old and outdated and military infrastructures were not adequate to meet the new conditions and role assigned to the armed forces within the Western Alliance framework. The US through a variety of groups and missions in Greece such as the Military Assistance Advisory Group (MAAG) and the Joint US Military Assistance Group-Greece (JUSMAG) provided the assistance, expertise and much of the equipment for the reorginisation and modernisation of the Hellenic Armed Forces which were considered to be poorly equipped albeit with substantial war experience. Table 7.5 shows the levels of US assistance received by Greece.

In line with US policies at the time the assistance was mostly aimed at developing the country's armed forces primarily for internal security purposes. Greece was considered virtually but not equally as important as Turkey for defence against the socialist block and her forces had a secondary role in alliance military planning. Turkey was assigned the primary role of defence against the socialist countries. As a result more

importance was attached to the restructuring and modernisation
of the Greek land forces rather than the navy or the airforce and
this despite the fact that a substantial part of Greek territory
was made up by thousands of islands.

Table 7.5

US Economic and Military Aid to Greece ($ mil)
------------------------------------------------------

| Year | Total | Military | Military Aid as % of Total |
|---|---|---|---|
| 1946-48 | 723,6 | 198,4 | 27.4 |
| 1949 | 362,0 | 158,7 | 43.8 |
| 1950 | 215,8 | 22,5 | 10.4 |
| 1951 | 240,0 | 83,0 | 34.6 |
| 1952 | 239,1 | 59,3 | 24.8 |
| 1953 | 202,5 | 121,3 | 59.9 |
| 1954 | 117,9 | 95,2 | 80.7 |
| 1955 | 117,8 | 59,2 | 50.3 |
| 1956 | 148,8 | 95,6 | 64.2 |
| 1957 | 120,9 | 62,4 | 51.6 |
| 1958 | 204,5 | 143,4 | 70.1 |
| 1959 | 121,6 | 89,2 | 73.4 |
| 1960 | 184,6 | 116,7 | 63.2 |
| 1961 | 87,6 | 42,8 | 48.9 |
| 1962 | 35,8 | -- | -- |
| 1963 | 26,0 | -- | -- |

Source: Kamouzis (1981)

However, despite the huge modernisation program and the flow
of US aid, the armed forces of Greece by the seventies still
remained equipped with many outdated weapons. As a US Air Force
Colonel attached to JUSMAG noted "the Greeks in 1972 were several
generations of weapons behind, still using M-1 rifles and M-47
tanks while other armies were using M-16 assault rifles and M-
60 tanks" (in Stavrou, 1976 p.75). The true modernisation of the
Hellenic Armed Forces was to begin after the Turkish invasion of
Cyprus in 1974. Since then, as we have seen, an unprecedented

modernisation program has got under way with Greece acquiring the most modern weapons systems such as the ultra modern F-16 and Mirage-2000 fighter-planes and the MEKO-200 frigates recently. However, even today much of the equipment in the inventory of the Hellenic armed forces is outdated and perhaps obsolete. Thus, the airforce still operates F-84 and F-104 fighters designed in the 50s, the navy uses many units of second world war vintage, such as 4 ex-US Bostwick and 6 ex-US Fletcher class destroyers and many elderly minesweepers, minelayers and landing ships; the army still uses 359 M-47 and 900 M-48 tanks (although many of the latter are being upgraded to A5 standard) and M-8 armoured cars. Furthermore, a number of units still use the M-1 rifle which however is being rapidly phased out and replaced by the domestically produced G-3 assault rifle.

Most of the US military assistance to Greece up to the early sixties was provided under the Military Assistance Programmes, consisting mostly of grants and soft loans. However, the importance of military aid declined in the sixties as we have noted above. As it can be seen from table 7.6 arms sales started rising as military aid declined. MAP was replaced by the FMS programmes which formally separated arms sales from grants. Under FMS, credits were granted to countries purchasing arms from the US. These credits were guaranteed by the US Department of Defence. In order to control the level of FMS, credit restrictions were also introduced. Every purchasing country using the FMS facilities has to enter into an agreement with the US government which sets out what is to be purchased, the terms, the interest rate and the repayment schedule.

## Table 7.6

### US Arms Transfers Agreements 1950-78 ($ mil.)

|  | 1950s | 1960s | 1970-73 | 1974-78 |
|---|---|---|---|---|
| Grants | 2,213,877 | 1,080,855 | 3,159,863 | 686,529 |
| FMS Sales | 162,371 | 1,010,749 | 2,523,730 | 12,509,100 |
| Commercial Exports | --- | --- | 405,029 | 1,016,552 |
| Total in Current $ | 2,376,248 | 2,091,604 | 6,088,622 | 14,121,181 |
| Total in Constant $ (1978 $) | 6,137,887 | 5,292,785 | 9,769,081 | 16,399,333 |

Source: SIPRI Yearbook (1980) p.67

## 7.9 The FMS Programmes

If one looks at the FMS programmes from the point of view of smaller countries it can be seen it creates incentives for the purchase of weapons systems from the US arms industry since they offer readily available financial sources for this. Thus, the FMS may be seen as a form of export promotion of US military products and as a means of government support to the US defence industry in the extremely competitive arena of the international arms trade.

On the other hand, however, it can be said that the FMS programmes create disincentives for the purchase of weapons from other non-US sources and/or the establishment of indigenous arms production facilities since FMS funds can rarely be used for such purposes. Thus, for small countries, the FMS program is

often the easy solution to the problem of arms procurement. In the long term, however, this can have important adverse side-effects for the recipient country. Platias (1988) notes that such side-effects for small countries may include:

a) The neglect of indigenous arms production.

b) FMS create a one-sided dependence on the US for weapons.

c) The outflow of substantial amounts of foreign exchange.

d) The purchase of weapons systems not suited for their operational needs.

e) They create channels of influence by the US on their armed forces.

f) The forfeit of an important lever of economic and technological development.

The provision of US aid can also result in the maintenance by the recipient nations of a military capacity well above their economic abilities and to strive for the procurement of expensive weapons systems which they may not afford to pay from internal financial sources. Furthermore, weapons purchased from FMS programmes may seem initially as financially attractive propositions but quite often, in the medium to long run, recipients of US aid may find that they can scarcely afford the repayments due on accumulated loans. Often the interest rates of FMS programmes may exceed the current commercial rates and that makes FMS financing or arms purchases more expensive. For example many of the FMS financing of Greek arms purchases bear quite high interests, many above 11-12% at a time when commercial rates are not higher than 6-7%. In the case of Greece for example, total repayment obligations for the next few years are estimated to be

higher than three billion dollars. Indicative of the vicious circle is the fact that the 1987 FMS loans were about $343 mil. while interest payments for that year were around $400 mil. Such examples indicate that countries may end up borrowing ever increasing amounts just to be able to keep up with repayments due on previous FMS credits. A break down of Greek obligations up to the mid-90s can be seen in table 7.7.

This situation is likely to put an enormous strain on the already heavily indebted country and will not only worsen the currency position but will also reduce the import ability of necessary for economic growth inputs. Greece has extensively used FMS facilities to purchase weapons systems. Many of the most modern equipment in the inventory of the Hellenic Armed Forces have been acquired under the facilities offered by the FMS

Table 7.7

Greek repayment obligations on FMS loans ($ mil)

| Year | Loan Repayments | Interest Payments | Total |
|------|----------------|-------------------|-------|
| 1987 | 52.250 | 162.356 | 214.606 |
| 1988 | 41.309 | 179.669 | 220.978 |
| 1989 | 24.484 | 183.715 | 208.199 |
| 1990 | 30.354 | 182.988 | 213.342 |
| 1991 | 63.889 | 179.930 | 243.819 |
| 1992 | 98.168 | 175.046 | 273.214 |
| 1993 | 111.826 | 169.348 | 281.174 |
| 1994 | 130.850 | 161.531 | 292.381 |
| 1995 | 148.949 | 152.080 | 301.029 |
| 1996 | 156.888 | 141.641 | 298.529 |
| Grand Total | 1.683.812 | 2.189.205 | 3.873.017 |

Source: United States of America, Congressional Presentation for
    Security Assistance Program, Fiscal Year (1988), p.137

Programmes. Thus, many of the 900 M-48 A5 MBTs were bought and/or upgraded with FMS credits and so were the 300 extra units on order. Most of the electronics and weapons systems of the four MEKO-200 frigates on order from W. Germany will be bought with FMS credits. So have been the Harpoon surface to surface missiles (SSMs), the TOW anti-tank missiles, the Improved HAWK surface to air missiles (SAMs), the 500 STINGER shoulder-fired SAMs on order with 1,000 reload missiles and the SIDEWINDER and SPARROW air to air missiles (AAMs).

It can be argued that, in the case of Greece, the procurement of weapons systems through FMS funds has created serious problems. These according to Platias (1988) include:

a) It has created a one-sided dependence for arms and spares on the US.

b) It has provided the US with a lever with which to influence the force structure of the Hellenic Armed Forces.

c) It has made the political and financial control by governments of the armed forces more difficult.

d) It has created the myth that the US finances the arming of the forces.


## 7.10 Costs and Benefits of Arms Transfers

In this section we turn to discuss the costs and benefits that may be associated with the transfer of arms. These will obviously vary depending on whether arms transfers take the form of aid or trade. Thus, when arms transfers take the form of aid, one would expect that this will initially have very little effect on the

balance of payments and the import capacity of the aid receiving country. It is obvious that this will no longer be the case if weapons are commercially imported.

Thus, in the case of Greece, when in the first post-war decade most transfers of arms from the US took the form of aid the direct effects on the economy were comparatively small. However, from the early sixties onwards more and more military transfers from the US took the form of credits and cash sales rather than grants and aid. This began to place strains on the balance of payments of the country and reduced the capacity of Greece to import more vital inputs for the development effort of the country. On the other hand benefits may be associated with the transfer of arms. However, before we proceed in a more detailed discussion of the costs and benefits of arms imports a note of caution is in order. As Whynes (1979) stresses, if a country imports arms for the purpose of waging and winning a war it is not realistic to attempt to isolate the possible economic costs and benefits of such imports. Importing weapons may be necessary to preserve the very existence of a nation or the maintenance in power of a regime. Thus "on this level of self- preservation, economics ceases to have any true meaning and resource costs, in the abstract, become largely irrelevant to policy decisions" (ibid, p.96). This probably holds true up to the point of internal economic collapse.

Perhaps the most apparent benefit of arms transfers in terms of spin-offs is the training of personnel in the operation and maintenance of the imported weapons which tend to be of relatively advanced technology. Thus, it can be argued that

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familiarisation with sophisticated imported weapons systems might lead to learning-by-doing as well as adapting the technology to domestic civilian uses. Training abroad can also result in the adaptation of modern and efficient methods of organisation and management which may then spill-over to other sectors of the economy. In the case of Greece, as we have noted in chapter two, more than 52.000 Greek officers have received training and military education in the US since 1950. Stavrou (1976, p.186) estimates that the number of such trainees in the US is between 1.5-2% of the Greek officer corps annually.

However, serious questions can be raised regarding the beneficial affects of such training. First of all, as pointed out elsewhere, the contacts and links that are established during training may lead to the development of professional camaraderie, identification with the interests of the supplying country, familiarisation with and dependency on specific weapons systems and military dogmas, and ultimately to a lessening of national control over the armed forces. Secondly, studies such as that of Barber and Ronning (1966), have shown that substantial parts of education programmes in the US did not only comprise of technical teaching but also revolved around possible solutions to internal security threats by left wing activity and also of ideological "indoctrination" in western capitalist values. Finally, given the nature of military technology, serious questions can be raised regarding its suitability for use in countries with a much lower level of development. This is particularly true as regards possible applications of such technology in civilian sectors of the economy.

## 7.11 Arms Imports

Perhaps the first area where one would try to locate any costs involved in arms imports would be the balance of payments. It can be said that arms imports represent a burden on the balance of payments position of a country and reduce the country's import capacity.

It is possible to understand better the burden of military imports on the Greek economy by referring to those imports which may be regarded as essential inputs to the development effort of the country. Such imports are classified under Category 7 of the Standard International Trade Classification (SITC). This category consists of machinery and transport equipment. It can be said that such imports represent the contribution of imported technology in total imports and that they contribute to the development effort of the country. The importance of these inputs lies in the generation of increases in productivity and facilitating industrialisation. On the other hand, military imports on the whole represent a reduction in the potential rate of increase of productivity and industrialisation. Military imports seldomly contribute to an expansion of the productive capacity of the country. Furthermore they do not increase present or future consumption. Thus it can be said that military imports reduce the import capacity of the country as far as important inputs to her development effort are concerned.

In table 7.8 we can see the share of imported armaments to the SITC Category No 7 imports as well as their share in total imports for the years examined below. On average their share of

foreign capital imports was 13.2%. Here it should be noted that this figure is probably an underestimation of the actual position. Governments, for a multitude of military and strategic reasons, often do not reveal accurate data concerning arms imports and they tend to publish underestimations of the value of such imports thus showing a lower level of military preparations and also in order to hide the quantity and perhaps quality of military imports.

Table 7.8

Share of Military Imports in Greek Trade (mil Dr)

| Year | Total Imports | Imports of SITC No 7 | Military Imports as % of Total Imports | Military Imports as % of SITC No 7 Imports |
|------|---------------|----------------------|----------------------------------------|--------------------------------------------|
| 1970 | 58,750 | 27,937 | 8.1 | 17.03 |
| 1971 | 62,942 | 28,499 | 12.8 | 28.27 |
| 1972 | 70,373 | 28,825 | 4.6 | 11.23 |
| 1973 | 102,978 | 37,517 | 1.1 | 3.02 |
| 1974 | 132,181 | 37,007 | 2.2 | 7.86 |
| 1975 | 172,041 | 61,399 | 4.8 | 13.45 |
| 1976 | 223,159 | 91,902 | 8.6 | 20.88 |
| 1977 | 252,151 | 115,023 | 6.2 | 13.59 |
| 1978 | 287,729 | 118,167 | 3.9 | 9.50 |
| 1979 | 356,822 | 136,610 | 3.9 | 10.19 |
| 1980 | 452,881 | 162,839 | 2.2 | 6.12 |
| 1981 | 493,765 | 137,828 | 4.6 | 16.48 |
| 1982 | 665,919 | 169,950 | 3.6 | 14.11 |

Sources: US ACDA Yearbooks,
The Greek Economy in Figures, (1987)
Electra Press, and own calculations

Furthermore, in the available data of military imports of such organisations as SIPRI and ACDA only the transfers of major weapons are included. Smaller weapons such as assault rifles, pistols, light ammunition, small calibre mortars, light vehicles such as jeeps and lorries and spare parts for larger weapons

systems are often not included in such data. The trade in such weapons is quite difficult to keep track of and such deals often are not announced by the parties concerned. Therefore, statistics on arms transfers generally are underestimations of the true level and value of such transfers.

## 7.12 Hidden Costs

The true cost of imported arms is not only the price that it is paid in order to acquire the particular weapon. Modern weapons carry with them additional "hidden costs". As a result the final expenditure on a modern weapon may be well above the price tag that the weapon carries. Such "hidden costs" may include training expenses for both the operating and maintenance personnel, running costs such as fuel, spare parts and back-up equipment and facilities, special buildings if required, administration, maintenance etc.

An example of the "hidden costs" associated with modern weapons, as in the case of the F-4 Phantom fighter, is given by Barnaby and Huisken (1975). They point out that the F-4 Phantom fighter aircraft has a unit cost of about $5 million including spares and, in the US experience, requires thirty-five maintenance man-hours for every flying hour. To operate a squadron of twenty-four of these aircraft, assuming that each flies fifty hours per month, requires a work-force of nearly 1,000 persons, the bulk of them skilled technicians. Furthermore, it requires an inventory of 70,000 spare parts just to keep a squadron operational. The F-4 fighter has for many years been the

backbone of the Hellenic Airforce and, along with the Mirage F-1C, was one of the two most modern types of fighter planes until the acquisition of the ultra modern F-16s and Mirage-2000 fighters recently. The airforce operates three interceptor squadrons with about 53 F-4Es and also has 6 RF-4E. The other modern fighter operated by the airforce is the Mirage F-1C, 40 units of which form two interceptor squadrons. Whynes (1979) estimates the cost of each unit to be about $750,000. The additional costs to operate them include $250 per plane per flying hour for servicing the machines, a task which requires 50 trained personnel per machine for maintenance, overhaul and support. The cost of training such a mechanic has been estimated at about $50,000 over three years. On the basis of these figures he concludes that the cost or training the personnel to operate these aircrafts far exceeds the actual cost of the aircraft itself. With the current level of technological advance a fighter aircraft has a life cycle of about 15 years. At the end of the period the costs of maintenance, training, operations and other such costs will be well above the original acquisition cost. Similar examples can be cited from the other branches of the armed services. The maintenance, spares, fuel, back-up facilities, buildings, administration and other operational costs of a company of tanks may be as high as $2 million per year in addition to the costs of the tanks themselves. Although the accuracy of such figures may be disputed the basic point concerning the "hidden costs" of weapons remains correct.

The majority of weapons imported by Greece over the years, and especially in the post-74 period, have tended to be fairly

sophisticated and technologically advanced. This means that every time a new system is imported the country is forced to make large additional investments in the training and education of operators and maintenance personnel, to build up stocks of spares and to create the necessary infrastructure to receive and operate the new weapons. This raises questions concerning the choice between different weapons which will be dealt with presently. Such expenses are necessary if the modern weapon system, for example a modern fighter aircraft, is to perform at anything near its potential effectiveness. All these expenses are included in the debit side of the balance sheet. If there are potential civilian spin-offs from military investment then the cost of importing the weapon is reduced. However, as pointed out earlier on, there are serious doubts as to whether military skills and capital have substantial positive external effects. Furthermore, it is not at all certain if this is the most cost effective way of promoting development objectives.

Perhaps one area where imported weapons can have positive spin-offs for the rest of the economy is the generation of demand for domestically produced spares and other equipment. This may stimulate industrial demand and production and may also result in the importation of technology and know how. Even more, it may stimulate the development of domestic technics of production, know-how and technology which may have a beneficial effect on the technological base of the country and civilian applications and spin-offs. However, detailed information on the chain of supplementary domestic demand generated by arms imports is not available. Given the requirements of modern weapons systems

mentioned above it is possible only to guess what this demand may comprise. Once again though, questions must be raised about the cost-effectiveness of this.

## 7.13 The Choice of Weapons

The extremely high costs of modern weapons systems and the large additional costs required every time a new system is imported raises the question of the cost effectiveness of the choice between different weapons systems. Of course the choice between different weapons is only partly based on their cost. A prime factor influencing weapons choices is their operational characteristics and their suitability in meeting the specific defence requirements of the particular country. However since the resources available to any country for the purchase of armaments are not unlimited the question of cost it is very often the determining factor when it comes to the purchase of new weapons. Obviously any country and the military would prefer to have in their possession the most up to date and sophisticated weapons that are available or can be developed. Resource limitations however force even rich countries to take into consideration not only the price tag of the weapon but also the additional costs of operation and maintenance.

What will be attempted here is an assessment of the weapons choices that Greece has made. Our attempt, however, is constrained by our lack of knowledge of military and operational requirements when it comes to the decision of which weapon to procure. Furthermore, we also lack the necessary technical

expertise when it comes to the characteristics, performance and suitability of different weapons systems. Finally, we do not know all the parameters involved in the decision making process and neither do we know what are the dominant defence requirements and priorities of the Greek state and military when it comes to weapons choice. Our assessment will be based on the limited knowledge we have of such matters resulting from public statements of defence priorities. Similarly, we can make a number of logical assumptions given the present political and military constraints under which such decisions are made. Thus, it is logical to assume that the choice of weapons, as far as Greece is concerned, must be made from what the western world has to offer, and usually from NATO members. Thus, possible alternative choices are only of western made weapons. There is another factor that limits the choice of arms sources for Greece. Since the end of the last World War Greece has been exclusively supplied with western weapons, mostly of US origin. It would be an extremely difficult, if at all possible, exercise to try for example to purchase sophisticated weapons such as fighter aircrafts from other than western sources. It would involve a total reorginisation of infrastructure, stocks of spares, new calibre ammunition, new training to familiarise the personnel with the basic concepts of the new systems. There will also be problems of compatibility of such weapons with other systems already in operation etc. Thus, we can exclude from our discussion the possibility of procuring weapons from non-Western sources if only for the technical compatibility problems this will present which will probably result in the less than full potential performance

of the weapon system.

The factors that influence the choice of weapons for Greece can be said to be: the country's declared defence priorities, namely defence against Turkey; membership of NATO; the US and finally the Greek military. Most of these we have discussed in previous sections and we will not deal with them again. We will concentrate our discussion of weapons choices bearing in mind our foregone discussion and analysis of those factors and concentrating on the choice of armaments given the stated defence priorities of Greece.

Looking at the weapons in the inventory of the Hellenic Armed Forces the inescapable conclusion is that it includes such a large and diverse variety of weapons systems making the maintenance and logistic support of them very difficult, inefficient and expensive.

The army, for example, operates three types of Main Battle Tanks (MBT): 200 AMX-30, 106 LEOPARD 1A3 and 900 M-48, not to mention the 359 M-47s which are of very old design, of little use in a modern war and probably obsolete. Similarly there are three types of Armoured Personnel Carriers (APC) and Infantry Fighting Vehicles (IFV): 240 AMX-10, 300 LEONIDAS-1 and 1,000 M-113 not to mention the 430 M-59s. This situation means that it is necessary to have a different stock of spares for every type, different maintenance manuals and technical personnel training. This, to a certain degree, also reduces the operational flexibility of the army and poses a number of difficulties for logistic support during operations. The operation of one type of MBT and one type of APC/IFV, which with minor alterations and/or

additions to its features could suit different operational requirements, would probably be a more efficient choice since it would reduce maintenance and operational support costs significantly and would probably enchase the army's operational flexibility. Furthermore, the use of old equipment such as the M-47 tanks is also questionable as regards to efficiency and costs. Due to its age such equipment is quite unreliable, prone to constant break-downs, in need of more than average maintenance and probably of little actual value and use in a war situation.

The situation in the airforce is probably worse since the costs involved are much higher. The following types of fighter aircraft are operated: 60 A-7H, 51 F-104G, 59 F-5A/B, 52 F-4E (plus 8 RF-4E), 40 MIRAGE F-1CG, the two types of the recently acquired ultra modern air superiority fighters 40 F-16C and 40 MIRAGE 2000 both being delivered, and about 15 elderly F-84Fs. With the exception of the two new fighters and the A-7H, the F-4E, and the MIRAGE F-1CG the other types are of old designs or even obsolete as in the case of the F-84F. Starting with the F-84F all of them are due to be phased out by the end of this century. Not including the two new types of fighters this would leave Greece with three types of fighter aircrafts at a time when most countries with airforces the size of Greece's are aiming for one or at most two different types of fighters due to the extremely high costs involved in the support and maintenance of each type. Thus, in the next decade Canada, Italy, Belgium, the Netherlands and Norway will be operating one type of fighter, W. Germany two (TORNADO and F-4), Turkey two (F-16 and F-4) and Britain is also aiming to reduce the types from four currently

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to two in the nineties. If we include the recently acquired F-16C and the MIRAGE 2000 types, then, in the nineties, Greece will be operating a total of five different types of fighters. This raises questions as regards the decision to purchase two different types of modern air-superiority fighters instead of one. This decision can be criticised at least in terms of cost effectiveness and possibly in terms of reducing the operational readiness and flexibility of the airforce if we bear in mind that both types of fighters are designed to perform exactly the same tasks and, to our knowledge, there is little to choose between them as regards performance. The 1984 Report of the Air Force Chief to the Cabinet concerning the procurement of the new fighter aircraft, estimated that procuring one type, for example 100 F-16s, would cost in terms of training and the establishment of a maintenance infrastructure only (cost of aircraft not included), about $65,6 million just for the airforce to be able to receive the new aircraft. If, however, two types were ordered, for example 60 F-16s and 40 MIRAGE 2000s, this cost would rise to $184,6 million, a difference of $119 million or the cost of 9 F-16s, a small squadron. The same report also stressed that buying one type will increase the operational flexibility and readiness of the airforce in the case of hostilities. Furthermore, the cost of the investment required to achieve a substantial degree of autarchy in the maintenance and the overhaul servicing of the aircrafts, in line with government objectives, would almost double with two types. Despite the above recommendations and advantages of procuring one type the Greek government decided on a split procurement of 40 F-16s and 40

MIRAGE 2000s. This was mainly justified on the grounds of reducing dependency on one source of arms supplies.

There are numerous such examples in the procurement of weapons systems by the Hellenic Armed Forces which probably result at increased costs and reduced operational readiness and flexibility. Such lack of basic management and planning is not a characteristic of the Hellenic Armed Forces only. The forces of other countries have also been accused of mismanagement and waste of resources.

When assessing the cost effectiveness of the choice of weapons by Greece we should also refer to their suitability and potential usefulness in fulfilling the defence objectives of the country. On the basis of the declared defence priority of the country, i.e defence against Turkey, then one could argue that some of the weapons possessed by Greece are not the best choice as regards cost effectiveness. However, given our lack of military and technical knowledge we are not able to pass full judgement on this. Nevertheless, it could be argued that for example the use of helicopters and aircraft with vertical take-off and landing capabilities, such as the Harrier, would be more appropriate given the geographical features of the area. Similarly, it could be argued that smaller naval vessels such as corvettes and small fast attack missile boats and submarines would be just as effective, if not more, than large surface vessels such as frigates and at a much lower cost per unit. Such weapons systems can take full advantage of the geographical characteristics of the possible theatre of operations, namely the Aegean Sea and the thousands of islands, and probably provide the same degree of

defence at a much lower cost. Furthermore, the loss of a small craft, such as a missile boat, in the hostilities will not greatly affect the outcome of the war compared to the loss of a larger unit, such as a frigate, which would leave a large gap in the defence lines of the country. On the other hand, though, it could be argued that such vessels are required for the protection of sea borne re-enforcements to the islands including Cyprus in case of hostilities with Turkey, and for the Hellenic Navy to be able to operate under adverse weather conditions. It could also be argued, however, that the decision to procure specific weapons systems in same cases at least, has more to do with NATO planning as we have seen rather than the defence priorities of Greece herself. Furthermore, the availability of ready credit from the FMS programmes may also contribute to the choice of more advanced and thus more expensive weapons. Here we should also draw attention to the fact that Greece regularly receives excess military equipment from the US and other NATO members, mainly W. Germany. Such equipment is given at discounted and sometimes nominal prices. All of such equipment is of old vintage which has been replaced by modern systems in the donor country. Although the price is much lower than buying new, it can be argued, that such old weapons have much higher maintenance costs and are less reliable. Finally, the ability of large arms producers to influence the decision process through contacts with officials and even bribes, as recent press revelations seem to indicate, should also be allowed for when examining weapons choises

## 7.14 Military Aid and Foreign Capital Inflows

As we have noted earlier on, military aid and transfers in general may not only serve purely strategic and military objectives. It has been pointed out that one of the prime reasons for military transfers in the post-war period may have been to keep the particular country open for capitalist penetration. Thus, the massive amounts of US military aid and arms transfers in general, and the US military presence in the four corners of the world, can be at least partly understood in terms of the need of US capital to expand its activities internationally.

The factors that influence the attractiveness of any country as an investment opportunity are the general economic and political conditions and the specific policies of the government. In the former we can include factors such as the size of the market and growth rate of the economy, the existence of relatively cheap labour force, the level of education, training and specialisation of this force, raw materials and availability of other inputs, the country's geographic location, and perhaps most important union power, labour militancy and the political and social stability of the country. In short whether or not there exists a "favourable climate" for foreign investment.

In the case of Greece, from the point of view of foreign investors, of paramount importance has been the fact that the country offered a stable socio-political environment for foreign investment to operate in and that union power and the left were suppressed and controlled for most of the post-war period. The army, equipped and reorganised by the US, played a crucial role

in this for most of this period.

It can be said that one of the objectives of US policy in Greece was to promote private enterprise, an open economy and to encourage flows of foreign capital. This was to a large extent achieved through the direct military assistance that the US has given to Greece throughout the post-war years ensuring that the country would develop, both economically and politically, in sympathy with the Western world. Thus, it was active US assistance to the conservative forces that secured the defeat of the left in the Civil War. The army, with direct help and advice by the US missions in Greece, was reorganised and re-equipped to play an important role in internal security. This in effect guaranteed very little or no left-wing and union activity and the availability of cheap, ununionised labour. Furthermore, all post-war governments, ideologically committed to capitalism and free enterprise, have been particularly welcoming to foreign capital. As we have seen in our survey of the Greek economy, an open doors policy was followed as regards foreign capital. With law N.D 2687/1953 concerning foreign investment in the contry, large privileges were granted to foreign capital including the right of unlimited transfer of profits abroad. Thus, private foreign capital was actively encouraged to invest in the Greek economy. As a result, large amounts of foreign capital entered the country especially from the early sixties onwards as it can be seen in table 7.9.

As it has been pointed out in chapter two, foreign capital played an important role in the development of the economy. Indeed it is possible to talk of an externally controlled

dependent industrialisation which, as we have seen in chapter two, has resulted in the development of a dependent and complementary economy with little articulation between the various sectors. It has been argued that many of the structural problems that the Greek economy faces today can to a large extent be attributed to this dependent development.

Table 7.9

Inflow of Venture Capital ($ million)

| Year | Capital Inflow | Year | Capital Inflow |
|------|--------|------|--------|
| 1954 | 3,1  | 1970 | 156,4 |
| 1955 | 5,5  | 1971 | 99,1  |
| 1956 | 3,0  | 1972 | 90,2  |
| 1957 | 3,5  | 1973 | 145,1 |
| 1958 | 13,5 | 1974 | 189,3 |
| 1959 | 22,1 | 1975 | 198,6 |
| 1960 | 15,6 | 1976 | 221,2 |
| 1961 | 18,6 | 1977 | 273,4 |
| 1962 | 27,5 | 1978 | 328,9 |
| 1963 | 44,3 | 1979 | 364,2 |
| 1964 | 48,2 | 1980 | 502,4 |
| 1965 | 84,3 | 1981 | 409,9 |
| 1966 | 69,1 | 1982 | 304,4 |
| 1967 | 53,7 | 1983 | 313,4 |
| 1968 | 53,9 | 1984 | 246,2 |
| 1969 | 82,5 |      |       |

Source: The Greek Economy, Bank of Greece, Volume III, (1984)

In examining US and other Western military aid to Greece it must be shown that keeping the country open for capitalist penetration was of equal or greater value to the US and the West in general rather than simply her military and strategic value. The strategic value of Greek territory to the West has already been discussed. Without underestimating Greece's military value to NATO, it can be said that as far as her military contribution

to the defence of the West is concerned, in a generalised and protracted conflict, her forces would probably be able to offer limited resistance without US and other Western re-enforcements. Thus we also need to look at her value to the US and the West in general as a capitalist and western oriented country. Of course, it is difficult to quantify and measure such value. Nevertheless, we can use some proxy to see whether military assistance to Greece has been influenced by such considerations.

If we accept that one of the aims of military aid has been to keep the country open for capitalist penetration, then there must be a positive relationship between foreign investment and military aid. Thus, it was decided to make foreign investment a function of the growth rate of the country's GDP and the flow of military aid. In the case of foreign investment we use data showing the share of external financing in the total financing of the gross capital formation in Greece. This can be taken to show the flow of foreign investment capital. The rate of GDP growth is used to pick up the effects of the state and level of development of the economy on foreign investment. In the case of military aid the data used includes both US aid in the form of grants only and also the contributions of other NATO members. Due to data limitations the period covered in our estimations is 1962-86. In any case foreign capital in substantial amounts started entering the country from the start of that period as already seen. If our assumptions are correct, then, we would expect to find a positive relationship between foreign investment and western military aid. A similar positive relationship is also expected with the growth rate of GDP. Using regression analysis

the following results were obtained:

(1)  FINV = 1.447   +0.885 GDPg   +0.005 AID
          (0.436)   (2.106)        (4.894)

$R^2$ = 0.531   s.e = 6.301   DW = 1.93   F-stat = 12.479


A second equation where military assistance was lagged one year
was also estimated with the following results:

(2)  FINV = 0.669   +0.760 GDPg   +0.007 AID(-1)
          (0.220)   (2.090)        (5.927)

$R^2$ = 0.637   s.e = 5.632   DW = 2.27   F-stat = 18.427


Where  FINV : Foreign financing of gross capital formation as a
              percentage of the total financing of gross capital
              formation.
       GDPg : The growth rate of GDP in constant prices.
       AID  : US grants and NATO members contributions only.

The results of the regression analysis are quite interesting
and generally they are as expected. However, the explanatory
powers of the equations, as expressed by the R-squared statistic
in each case, are not particularly high. The results seem to
indicate the existence of a strong positive relationship between
the flow of western military aid to Greece and foreign investment
in the country. It is interesting to observe that this positive
relationship is even stronger when military aid is lagged by one
year and that the explanatory power of the equation improves.
This stronger relationship between FINV and AID in equation (2)
may indicate that foreign financing of investment in Greece is
substantially influenced by the flow of aid to the country. It
may be that the allocation of military aid funds by the US and
other NATO governments to Greece is regarded by private capital

as a sign of "approval" by Western governments, indicating the existence of a "favourable climate", and as a form of security for their interests in the country.

To test further the positive relationship between the flow of military aid and investment funds to Greece, it was decided to reverse the relationship and make the flow of Western aid to the country a function of the growth rate of the GDP and of the share of foreign financing in the total financing of gross capital formation in Greece. We would expect the dependent variable to be positively related to the latter whereas the GDP growth rate could enter our equation with either sign. Using regression analysis and data for the period 1962-86 the following results were obtained:

$$(3) \quad AID = 1050.82 \quad -203.91 \; GDPg \quad +101.507 \; FINV$$
$$\phantom{(3) \quad AID = } (2.554) \quad\quad (4.248) \quad\quad\quad (4.894)$$

$$R^2 = 0.690 \quad s.e = 886.02 \quad DW = 1.85 \quad F\text{-stat} = 24.570$$

$$(4) \quad AID = 1354.22 \quad -242.80 \; GDPg \quad +100.47 \; FINV(-1)$$
$$\phantom{(4) \quad AID = } (3.285) \quad\quad (4.889) \quad\quad\quad (4.517)$$

$$R^2 = 0.686 \quad s.e = 911.91 \quad DW = 1.46 \quad F\text{-stat} = 22.940$$

It would appear that there is no contradiction between the results of the two sets of equations. The results obtained here seem once again to indicate a positive relationship between the flow of military aid and foreign investment funds to Greece. The statistical importance of the FINV variable is quite high and enters the equation with a positive sign as expected. Particularly interesting however, is the sign and statistical

importance of the GDPg variable in our equation. This variable is inversely related to the flow of military aid. This may indicate that there is a connection between the flow of US and Western military aid and the growth performance of the Greek economy. It may be that when the rate of growth is low, aid is increased in order to either help Greece maintain her defence commitments to the West or in order help free resources from defence and divert them in other more productive uses and thus improve the performance of the economy. A more dynamic and growing economy also makes the country a more attractive investment proposition and can also improve the performance and profitability of foreign investment in the country.

## 7.15 Dependent Development

The results of our estimations in the previous section seem to indicate that there is an apparently positive relationship between military assistance and the flow of foreign capital in the country. As pointed out elsewhere, assistance is usually followed by explicit or implicit conditions and expectations for the creation of a "favourable climate" towards foreign capital and foreign investment in the country. This leads to the question of the effects that foreign capital may have on the host economy.

Few areas in development economics arouse so much controversy and are subject to such varying degrees of interpretation as the question of the costs and benefits of private foreign investment. This controversy on the effects and role of foreign capital on development has as its underlying basis a fundamental

disagreement about the nature, character, objectives and direction of a desirable development process.

The traditional neo-classical analysis views foreign investment (as well as foreign aid) as a way of filling in gaps between the domestically available supplies of savings, foreign exchange, government revenue and skills, and the planned level of these resources necessary to achieve development targets. Direct foreign investment brings to the recipient country not only capital and foreign exchange but also managerial ability, technical personnel, technological knowledge, administrative organisation, and innovation in products and production techniques, all of which are ussually in short supply in less developed peripheral countries. These may be included in the credit side of the balance sheet of the impact of foreign capital.

On the other hand, there are those who argue that the debit side of the balance sheet far exceeds any positive impact that foreign capital may have on development. Their criticisms are based on more fundamental disagreements regarding the role of foreign capital. For such critics the net impact of foreign investment on development in the majority of cases is very uneven. It creates serious imbalances between the various sectors of the economy resulting in a weak economic articulation and in most cases its activities reinforce dualistic economic structures in the host economy. The result is long term structural problems. Furthermore, it usually exacerbates income inequalities, stimulates inappropriate consumption patterns and inappropriate products may be produced. But most importantly, foreign

investment results in the importation of inappropriate technologies of production, generally not suited for the needs of the host country and, above all, this can inhibit the creation of a local technological base. This increases the long term dependency of the country on foreign sources for technology, capital equipment and know-how.

As it has been seen in the survey and discussion of the post-war development of the Greek economy in chapter two, foreign investment played an important role during this period. Indeed, we have seen that important branches of the economy are wholly or partly owned by foreign capital. These sectors, as Papandreou (1981), points out are mostly concentrated in the relatively advanced technology branches of the economy and on average tend to be larger units than corresponding Greek ventures. This situation is the result of the industrialisation policy followed by the country. This policy attached to foreign capital a prime role and provided many privileges that made investing in Greece a very attractive and profitable proposition. Military assistance and other forms of aid apparently have contributed in the establishment of such favourable conditions in the country ensuring her western, capitalist orientation, and thus securing her availability for foreign capital penetration.

However, it is not easy to establish to what degree the structural problems of the Greek economy are owed to the presence of foreign capital and ventures in the country. The inability and/or the unwilligness to intervene in a positive manner in the economy, and even the incompetence of successive governments also share much of the blame for the current situation. What is

certain is that the structural problems of the economy can not be attributed with a simplistic manner to some sinister plot on behalf of foreign capital against the Greek economy. Rather, the type of development that its presence promotes or results into is largely determined by the objectives, structure and dynamics of its own development requirements, which can often be in clash and contradiction with the needs and requirements of a balanced development. Perhaps the most important effect of foreign capital and at the same time the most worrying aspect of Greek dependence, is the inability of the national economy to generate an indigenous technological base which can act as a source of dynamism for development. The dependence on foreign sources of technology and capital equipment has a tendency of self-perpetuation. Technology is constantly imported by foreign firms in the country and has very important consequences not only on industrialisation but also on the social and economic structure of the country. The problem is not only one of how appropriate such technology is for the country but also that this importation kills off any chances of developing sources of indigenous technology. Greek owned firms are forced to use the same technology in order to remain competitive. As a result, all new technology, all new products associated with it, and most importantly all new ideas have to constantly be imported from abroad. This creates a society with a mentality of always being dependent for her progress on foreign sources and support, of always being led from abroad.

## 7.16 Conclusion

In this section we have examined the role and motives of military transfers. Our empirical tests seem to indicate that there is a positive relationship between military assistance and foreign investement in the case of Greece. It could therefore be assertained that one of the objectives of post-war US assistance to Greece was to ensure that the country would develope in sympathy with the west and western economic values, thus ensuring a favourable climate for foreign capital. The assistance that the US provided played an important role in the establishment of such a climate. It secured a conservative victory in the Civil War and as a result of this victory the post-war orientation of the country as well. In our survey of the Greek economy in chapter two we have argued that many of the current economic problems that the country is facing are attributable to the develoment model followed. This development model would probably have been different had a different political situation existed in the country after the war. It could be said therefore that US and other western assistance have contributed to the current position of the country. The roots of many of the country's current stuctural problems can be traced to the those early post-war years when the foundations and basic directions of the development path followed were drawn.

Having discussed the contribution of external military relations to the development of the country we can now turn and examine the effect that military expenditure has had on the growth performance of Greece during the period under question.

different aspects of defence spending have different relative importance in different countries. It must also be remembered that defence spending is only but one variable in a complex economic situation and its impact may vary with the general state of the economy of the country, the way that such spending is financed and other policies of the government.

Economic theory cannot provide us with a clear cut answer to the question and different studies have come up with different and apparently conflicting empirical results. If a generalisation can be attempted, then, one may say that two main trends can be identified.

On the one hand, it has been argued that defence spending is on the whole unproductive and has adverse economic effects on growth since it uses up scarce resources that could have otherwise been used for more productive civilian use. Ethical and moral questions are also raised in this approach. Examples here include a number of United Nations Reports (1972, 1977, 1981, 1982): "...A halt in the arms race and a significant reduction in military expenditures would help the social and economic development of all countries..." and elsewhere "...Some of the major economic problems of recent years, rapid inflation, trade imbalance and the disequilibria in international payments, are aggravated by the maintenance of large military efforts..." and also "...Progress in other areas such as health, education, housing and many more is delayed owing to lack of resources..." (in Jolly, 1978) due to defence spending. The aim here is to emphasise defence expenditure as a burden and as such that it has an opportunity cost, in the sense that resources used for

military purposes could have been used in more productive or more socially preferable activities such as education and health. However, in this sense any use of any resource has an opportunity cost in the alternative uses that are foregone. Kennedy (1983) argues that such an approach "...trivialises the proposition - defence is a burden in the same sense that everything else is a burden..." and,therefore, he sees the need to move away from "banal calculations of opportunity costs" (ibid, p.181) and to try to develop a theoretical explanation of defence spending and its impacts.

The other main trend of thought on the subject argues that military expenditure may have a beneficial impact on the economy mainly through spin-offs from military activities, particularly from innovations due to military research and technical developments. Another view is that, high levels of military spending help to stimulate aggregate demand and thus may help prevent or reduce the impact of a depression. This argument was applied by Baran and Sweezy (1966) for the US economy: "On what could the government spend enough to keep the system from sinking into the mire of stagnation? On arms, more arms and even more arms" (p.213).


## 8.2 A Literature Survey
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There have been a number studies trying to evaluate and quantify the effects of military spending on the economy. The results are contradictory and no overall consensus exists on whether the net impact of defence spending is negative or

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positive.

Perhaps the most widely referred to study of the relationship between growth and defence expenditure is that of Benoit (1973 and 1978) where his main finding, contrary to his original expectations, was that "developing countries with a heavy defence burden generally had the most rapid rate of growth, and those with the lowest defence burdens tended to show the lowest growth rates" (1978, p.271). His study, done primarily by means of correlation analysis using data on 44 LDCs for the period 1950-65, found that unlike in the case of developed countries, where defence expenditures reduce resources available for investment and so slow down growth, the opposite was true for less developed countries. His study found that in the case of developed countries defence burdens were inversely correlated with growth rates (-0.2557) and with investment (-0.5114). For him "the direct interaction between growth and defence burdens seems to run primarily from defence burdens to growth rather than vice versa" (ibid p.276). He recognised that there may be negative effects on growth from military expenditure but he argued that "higher defence burdens stimulate growth, at least to the extent of fully offsetting any adverse growth effects that defence expenditures may have had" (ibid, p.276). The possible positive contributions of military spending to economic growth may be generated through: "a) Feeding, clothing and housing a number of people who would otherwise have to be fed, housed and clothed by the civilian economy ... in ways that involve sharply raising their nutritional and other consumption standards and expectations; b) Providing education and medical care as well as

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vocational and technical training that may have high civilian utility; c) Engaging in a variety of public works ... that may in part serve civilian uses; and d) Engaging in scientific and technical specialties which would otherwise have to be performed by civilian personnel. Military forces also engage in certain R & D and production activities which diffuse skills to the civilian economy and engage in or finance self-help projects producing certain manufactured items for combined civilian and military use which might not be economically produced solely for civilian demand" (ibid, p.277).

A positive strong correlation between military expenditure growth and per capita income growth was also reported by Whynes (1979) with correlation coefficients of 0.649 for developed countries and 0.496 for LDCs. He also reported a positive coefficient (0.224) between defence burden and per capita income in LDCs, in line with Benoit's findings. However, he found the coefficient to be negative (-0.355) in the case of DCs. Nevertheless, he pointed out that the results could "partially be explained by virtue of the inherent inflationary trends within each series" (ibid, p.72) since he used data expressed in current prices.

In a study of 38 Third World countries Kennedy (1975) found that more countries with high defence burdens exhibited high growth rates and concluded that "the growth rates for GDP of individual countries did not seem to have been affected by their defence allocations" (ibid, p.188) but he also pointed out that there was no obvious relationship between rates of growth and defence expenditure.

On the other hand, there have been a number of studies that generally conclude that military spending on the whole has a negative impact on growth.

A cross-national study by Smith (1977) shows a strong negative relationship between the average military expenditure as a share of GDP and the share of investment in GDP in OECD countries, with a coefficient of -0.73. Smith also examined time-series data for individual countries, all of which yielded negative coefficients. He pointed out that "there is a resource trade-off between the shares of output devoted to military expenditure and investment between nations in the advanced capitalist world" (ibid, p.73). The same study also reported a burden/growth coefficient of -0.54 and was explained by postulating that defence spending and investment are mutually conflicting claims on resources.

Subsequent work by Smith and Smith (1980) strengthened the case of a negative impact of military expenditure on growth through its adverse effect on investment. The study indicated that defence spending has a positive effect on growth through increased R & D expenditures and spinoffs. This, however, in the study was largely offset by the negative effect on growth through the displacement of investment. The results of a negative effect of -0.28 and of a positive of +0.15 led them to conclude that for OECD countries defence spending reduces the rate of growth.

Lim (1983) attempts a further examination of the relationship between military expenditure and growth using data for 54 LDCs over the period 1965-73. The results obtained showed that "defence spending is detrimental to economic growth in LDCs a conclusion that is diametrically opposite to that reached by

Benoit" (ibid, p.384). The regression coefficients of military spending to GDP ratio and defence expenditure to total government current and capital expenditure were negative and significant indicating a negative relationship to the dependant variable taken to be the growth rate of output. Lim also reported marked regional differences in the relationship between defence and growth.

A study by Cappelen, Gleditsch and Bjerkholt (1985) using a growth model developed by Kaldor (1966) and further elaborated by Cornwall (1977) with data for 17 OECD countries for the period 1953-54 to 1963-64 concluded that "international comparisons indicate that industrialised countries with a high defence burden also have a low economic growth" (ibid, p.372). The analysis was for the whole group of countries as well as three subgroups: Large, Mediterranean and Other Small countries. It was found that "the net impact of defence spending on the growth rate of GDP (GDPg) was negative for the sample as a whole (-0.14) and for the two subgroups of highly industrialised countries (Large and Other Small) with coefficients of -0.21 and -0.23 respectively. For the group of Mediterranean countries the net impact of defence spending was found to be positive (0.16)" (ibid, p.371). Military expenditure also had a negative impact on the investment rate and the growth rate of the manufacturing sector except in the case of the Mediterranean countries. The results of the study are interesting since they seem to provide further evidence in support of earlier theoretical contributions by Smith and Smith (1980) arguing that due to the differences of developing countries when compared to industrialised countries the impact

of defence spending may differ. The authors point out that "the Mediterranean countries were more similar to the developing countries in the period which we study than the other OECD countries and the positive contributions of military spending to growth might, therefore, have a greater impact there" (ibid, p.371).

Other writers, such as Faini, Annez and Taylor (1984), have also challenged what they call "conventional wisdom" and showed that "across countries a greater defence burden is associated with slower growth". Using regression analysis and data for 69 countries they found that "an increase of 10 percentage points in the defence burden (share of defence in GDP) leads to a reduction of annual growth by 0.13%" (ibid, p.487). Once again increases in defence expenditure seem to partly crowd out investment and lead to lower growth rates. The study concludes by arguing that "at the moment there is no evidence to support the hypothesis that high defence spending is associated with high growth rates" and with the possible "exception of the developed countries an increased military effort has an economically important real cost in forgone investment and lower growth rates" (ibid, p.497).

Studies by Deger(1981) and Deger and Smith(1980) have also provided evidence against the main findings of Benoit and others who support the view of positive effects of military spending on growth. Deger and Smith(1980) developed a model aiming to examine the interaction of defence spending, savings and growth in LDCs. Their sample consisted of 50 such countries and the estimations were for the period 1965-73. They found that in the context of

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their model "military expenditure had a small positive effect on growth through modernisation effects and a larger negative effect on savings". They, therefore, concluded that "since the latter outweighed the former the net effect on the growth rate was negative" (ibid, p.18).

Deger (1981) using a sample of 50 countries found that defence spending had a significant negative effect on investment. She argues, therefore, that military expenditure in Third World countries has "substantial resource costs and a large growth depressing effect" and "when all independent channels are considered together it is seen that an increase in the military burden decreases the rate of growth" (ibid, p.15).

From the sample of studies mentioned so far it appears that opinion on the subject of the impact of defence spending on growth is not uniform. Benoit's study seems to have triggered off a number of more analytical studies and research in the subject, most of which contradict his original main findings. The debate, however, is far from over and it is certain that it is necessary for more detailed examination and research on the subject to be conducted. Perhaps, the study of specific cases, rather than samples of countries, may be more illuminating and provide more concrete evidence of the net effect of military spending on growth. However, assessing the so called net effect is in itself contradictory since it is not a simple matter of "profit or loss making accounting". The problem is further complicated by the fact that in a complex modern economy there are numerous interrelationships between the various economic variables and such is the multitude of channels through which

defence spending may have an effect on growth that it is rather difficult to accurately and with precision evaluate the net impact of military expenditure on the economy. One can only hope to identify some of those channels and point to the existing underlying trends and apparent effects and from them draw some conclusions. However, even then the results have to be treated with caution since they are subject to data limitations and accuracy. This is particularly true in the case of Greece in light of the fact that expenditure that could be classified as military is channeled through civilian authorities. Furthermore not all information concerning military spending is publicly available.

Within the limitations underlined above and the constraints that this imposes we turn now to examine in more detail what the impact of defence spending has been in the case of Greece.


## 8.3 Primary Estimations

It has already been pointed out that Greece has one of the highest defence burdens in NATO. To take only one example, in the period 1975-84 Greece had an average defence burden (ME as percentage of GDP) of 6.6% the highest in NATO for that period with the USA second with an average of 5.9%, the UK defence burden was 4.9%. The NATO average for the same period was 4.7%. Greece also had, for the period 1980-85, the highest ratio of armed forces to economically active population: 5.88% compared to a NATO average of 2.8% for the same period.

As already mentioned, there is no generally accepted

method of approaching the subject of the impact of military spending on the rate of economic growth. Perhaps a "crude" method of looking at the relationship between the defence burden and economic growth is to compare the level of military spending (as percentage of GDP) to the growth rate of GDP. To take account of population growth the growth rate of GDP per capita (GDPC) may also be included in such a comparison. Such a method was used by Kennedy (1975) for three regional groupings of 38 Latin American, African and Asian countries. It was found that, generally, countries with lower than average defence spending had a higher rate of growth. Kennedy, however, dismissed the apparent relationship and said that it may have been due to different population growth rates. A similar method was also used by Ayres (1981) in a study of the Turkish case, in which it was found that in the years with the highest defence spending Turkey experienced the lowest rates of growth and in years with the lowest levels of military expenditure the country experienced higher rates of growth. Such an approach is attempted here for Greece on the basis of the data in table 8.1.

Table 8.1

Growth rate of GDP and GDP per capita, military
expenditure as % of GDP in Greece   1950-86.

| Year | GDP | GDPC | ME |
|------|-----|------|-----|
| 1950 | 6.25 | 5.98 | 6.0 |
| 1951 | 8.28 | 7.30 | 5.6 |
| 1952 | 0.29 | -0.72 | 5.3 |
| 1953 | 13.06 | 11.98 | 5.2 |
| 1954 | 3.10 | 2.12 | 5.5 |
| 1955 | 6.81 | 5.90 | 5.2 |
| 1956 | 8.70 | 7.88 | 6.0 |
| 1957 | 6.02 | 5.21 | 5.1 |
| 1958 | 3.99 | 3.04 | 4.8 |
| 1959 | 4.00 | 2.96 | 4.9 |
| 1960 | 3.11 | 2.27 | 4.9 |
| 1961 | 11.28 | 10.43 | 4.3 |
| 1962 | 0.58 | -0.02 | 4.1 |
| 1963 | 10.07 | 9.70 | 3.9 |
| 1964 | 7.54 | 7.18 | 3.7 |
| 1965 | 9.25 | 8.78 | 3.6 |
| 1966 | 5.35 | 4.61 | 3.7 |
| 1967 | 4.65 | 3.46 | 4.5 |
| 1968 | 5.68 | 5.40 | 4.8 |
| 1969 | 9.31 | 8.94 | 4.9 |
| 1970 | 8.31 | 8.08 | 4.9 |
| 1971 | 7.97 | 7.54 | 4.9 |
| 1972 | 9.13 | 8.48 | 4.7 |
| 1973 | 8.32 | 7.86 | 4.2 |
| 1974 | -1.81 | -2.18 | 4.2 |
| 1975 | 5.11 | 4.17 | 6.8 |
| 1976 | 6.05 | 4.72 | 6.9 |
| 1977 | 2.95 | 1.41 | 7.0 |
| 1978 | 6.41 | 5.11 | 6.7 |
| 1979 | 3.61 | 2.36 | 6.3 |
| 1980 | 2.06 | 1.07 | 5.7 |
| 1981 | -0.24 | -1.14 | 7.0 |
| 1982 | -0.08 | -0.70 | 6.9 |
| 1983 | 0.38 | -0.20 | 6.3 |
| 1984 | 2.94 | 2.44 | 7.2 |
| 1985 | 3.22 | 2.83 | 7.1 |
| 1986 | 1.40 | 0.99 | 6.9 |

Sources: SIPRI Yearbooks; Bank of Greece: The Greek Economy,
    statistical series, volume III (1984); The Greek Economy
    in Figures (1987)

In the period examined in table 8.1, the average growth rate of GDP was 5.22%, of GDPC 4.47% and the average rate of military spending 5.4%. For the five years with the highest GDP growth rate (1953,61,63,65,69), a five year average of 10.59%, the average level of defence spending was 4.38%. In comparison, in the five years with the lowest growth rate (1952,74,81,82,83),a five year average of -0.29%, the average military expenditure was higher at 5.94%. A similar result is obtained if instead the highest and lowest five year averages for the growth rate of GDPC are calculated. In the case of the period with the highest GDPC growth rate the average level of military spending was 4.38% whereas in the case of the period with the lowest rate the corresponding defence spending was 5.5%.

It seems that there is an apparent correlation between higher levels of defence spending and lower rates of growth in the case of Greece. As we have seen, similar results were obtained by other writers such as Kennedy (1975) and Ayres (1981) using this method. This relatively simple method though does not necessarily prove causality between higher levels of defence expenditure and lower rates of growth. The above method is probably unreliable when it comes to proving such a relationship between two variables. A more formal approach may be required in order to shed more light in the relationship between military spending and growth.

One such further approach to the question of the impact of defence spending would be to examine the effect that military expenditure may have on the various components of aggregate demand and other economic indicators and thus try to establish

a more accurate picture of the effect of ME. This is attempted for Greece using regression analysis. It is assumed that defence spending is the first priority out of GDP and all the other components of aggregate demand are dependent on it. The assumption is that changes in defence expenditure may cause or permit changes in the other variables. For example this means that an increase in military spending must come at the expense of another component of aggregate demand. This implies that, given the scarce resources available to the country, defence expenditure has an opportunity cost. On the other hand, this should not be taken as denying the fact that military spending may have positive spin-offs on the economy. The economic variables that we take are: private, public and total consumption; private, public and total investment; exports, imports and balance of trade; external, internal and total central government debt. All of them are expressed as percentages of GDP. All the dependent variables are regressed on the defence burden but in the regression we have included a dummy variable with value of one for 1974,75,76,77 in order to pick up the effects of the Turkish invasion of Cyprus in 1974. In the equations that were estimated a constant and a trend were also included. The results are shown in table 8.2.

## Table 8.2

### The effects of military expenditure on various components of aggregate demand and other economic variables

|  | $R^2$ | Coefficient | t-stat |
|---|---|---|---|
| Private Consumption (1950-86) | 0.867 | 2.706 | 7.065 |
| Public Consumption | 0.596 | 1.133 | 6.952 |
| Total Consumption | 0.813 | 3.840 | 7.449 |
| Private Investment (1950-86) | 0.424 | -1.677 | -4.656 |
| Public Investment | 0.281 | -0.654 | -3.426 |
| Total Investment | 0.461 | -2.328 | -5.160 |
| Exports (1951-86) | 0.729 | 2.108 | 4.663 |
| Imports | 0.719 | 1.961 | 3.933 |
| Balance of Trade (1961-86) | 0.625 | 0.913 | 3.908 |
| Central Government Debt (1952-84) | | | |
| Total | 0.923 | 1.207 | 1.881 |
| External | 0.518 | 0.809 | 1.881 |
| Internal | 0.966 | 0.397 | 1.146 |

Generally the results are not much different from what would be expected. With the exception of one variable all the coefficients are positive and significant. Only in the case of private, public and total investment are the coefficients negative. This may be taken to indicate that there is a trade off between military expenditure and investment which can be said to have a negative impact on growth. In view of the result obtained for central government debt and in particular internal borrowing by the central government we can further say that there is a competition for funds from domestic sources between the two alternative uses, namely military spending and investment. It seems that financing defence spending through internal borrowing crowds out investment. This apparent trade-off between defence

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expenditure and investment has been noted as we will see by a number of writers. Imports also seem to be positively influenced by military expenditure which is not surprising since the majority of arms and other relevant components are imported. Surprisingly, however, exports seem to be slightly more positively influenced than imports by defence spending. The balance of trade is also positively influenced by defence spending, given the fact that Greece is continuously faced with a trade deficit, this may be taken as a further indication of a negative impact of defence spending. Private consumption also seems to be positively affected by military spending and surprisingly more so than public consumption.

The results that are reported above are not surprising but it is difficult to draw any firm conclusions about the impact of defence expenditure on growth. They tell us very little about the possible links between growth and military spending. They provide us with some indications of a negative effect on growth through the crowding out of investment and increasing balance of trade deficits but once again it cannot be said that a definite causality has been established.

In order to be able to assess more accurately the impact of defence spending a more dynamic model may be required so that to pick up with a higher degree of accuracy the effects of military spending on the growth rate of the Greek economy and to identify the channels through which growth may be affected.

## 8.4 A Theoretical Discussion
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It has already been mentioned that a number of writers have sought to produce a general theory describing the interaction between military spending and economic growth and development. Most of them have turned to econometric analysis for assistance.

In approaching the question we will first try to identify the main links and channels through which growth is influenced by defence spending. A distinction could be made here between short and long run effects of military spending. Smith and Smith (1983), for example, point out that in the short run an increase in military spending, like other forms of public and private consumption, creates demand and thus may raise output and employment. On the other hand, however, it may also influence such things as investment, savings, the balance of payments which after some delay will eventually feed back into the system. It may very well be that as a result of these "second round effects" the initial rise in output and employment levels may be more than offset. It is therefore, necessary, to examine these longer term effects since it is they that tend to influence economic growth more. At this point it may also be interesting to point out that the approach used by most writers on the subject can be classified as being broadly Keynesian since it seems that, within the framework of what could be termed as conventional economic theory, a Keynesian approach seems to be "rather more coherent with respect to military spending than its alternatives" (ibid, p.84). It is interesting to note that Monetarist theories which are generally hostile to high government spending tend to exempt

military spending from their criticisms on the basis of ideological grounds.

Within a Keynesian framework of analysis it can be said that raising defence spending will raise aggregate demand in the economy. On the assumption that the increase in military expenditure will be spent domestically then taking the standard aggregate demand function and breaking up government expenditure in civilian and military spending so that G = CIVG + ME we have:

$$AD = C + CIVG + ME + I + (X - M)$$

where AD  : aggregate demand
      C    : consumption
      CIVG : civilian or non-military government expenditure
      ME   : military expenditure
      I    : investment
      X    : exports
      M    : imports

Like any other item of public expenditure an increase in ME can be expected to increase aggregate demand and through this output and employment may increase, particularly if the economy is operating at less than full capacity. Faini, Annez and Taylor (1984) have summarised the aggregate demand argument as follows: "A military twist on the basic Keynesian model is the most cogent argument that increased arms spending has a positive effect on growth. In an economy with excess production capacity, increased aggregate demand from the military or any other source will drive up output, capacity utilisation, and (under plausible assumptions) profit rates. Investment may increase in response to higher profits, to put the economy on a faster long term growth path" (ibid, p.488). Mosley (1985) calls the view that

unused capacity and growth may be stimulated by military expenditure "Military Keynesianism". He points out that within such a framework "military expenditures are not seen as simply competing with civilian economic production but as positively augmenting it". For him "Military Keynesianism ... entails the use of military expenditures to promote economic stabilisation and growth within a broadly Keynesian framework" (ibid, p.5). If we define aggregate demand as: AD = C + I + CIVG + ME + (X-M) then, any increase in ME, ceteris paribus, will lead to an increase in the level of national income. However, if the economy is at or near full employment level then, it may very well be that inflationary pressures are created. If there are supply constraints and aggregate supply cannot respond in order to meet the extra demand then the system would adjust, as Smith and Smith (1983) point out, either by a) ME not increasing in real terms, b) inflation may increase, c) other spending may be displaced, d) the balance of payments deteriorating.

As Faini, Annez and Taylor (1984) also point out, such arguments may well apply in the case of less developed Third World economies. Such economies usually tend to face shortages of vital production inputs such as capital stock, skilled labour and foreign exchange in order to purchase needed intermediate imports. Furthermore, in the case of such countries, it is quite possible that a substantially large portion of defence expenditure may be used to procure military equipment and services from abroad and this may result in a deterioration of the balance of payments and display the import of needed intermediate products.

However, returning to the original point of the effect of increased defence spending on aggregate demand, let us assume for the moment that the rise in military expenditure is spent in the national economy then it can be said that this could potentially stimulate aggregate demand and with a corresponding response by supply, output will rise. Using the Keynesian multiplier concept we can further say that the net increase in aggregate output will be greater than the original increase in government spending. The final size of the increase in output depending on the size/value of the multiplier. Defining national income/output (Y) as the sum of private consumption, investment, civilian government expenditure, defence expenditure and net exports we get:

$$Y = C + I + CIVG + ME + (X-M)$$

If for reasons of simplicity assume for the moment that there is balanced trade so that exports are exactly equal to imports, X=M, then we have:

$$Y = C + I + CIVG + ME$$

Private consumption and investment constitute the two components of private demand in the economy (C + I) and can be assumed to be a linear function of income (Y) and thus we have:

$$(C + I) = bY + B$$

We can also assume that civilian government expenditure (CIVG) is a linear proportion of Y and therefore we have:

$$CIVG = gY + G$$

Military expenditure (ME) is taken to be autonomous.

We therefore have the following relationship:

$$Y = (b+g)Y + B + G + ME$$

If B + G = A, which represents the autonomous components of
consumption, investment and civilian government expenditure we
have: Y = (b+g)Y + A + ME, which if we solve through we get:

$$Y = \frac{1}{(1-b-g)} (A + ME) \quad \text{and if} \quad x = \frac{1}{1-b-g}$$

$$\text{then we have} \quad Y = \left(\frac{ME}{x}\right) + \left(\frac{A}{x}\right)$$

Where x is the usual Keynesian multiplier.

Let us considers the case where there is a capacity constraint
in the economy so that Y = Y. This means that at least in the
short run the output of the economy cannot increase beyond Y.
Given this constraint, then the corresponding level of autonomous
demand for military uses that the economy can sustain at full
capacity level is: ME = xY - A. If the current level of defence
expenditure in real terms is below ME then a rise in military
spending will give rise to the multiplier effect and national
income will increase. If, on the other hand, it is attempted to
increase military spending above ME then output will be at its
potentially maximum level which means that, in the short run at
least, one of the other components of aggregate demand will be
displaced without creating the desired multiplier effect on
output or inflation may start increasing if non-military
autonomous expenditure remains at its old levels. The crowding
out may take place within the government budget which means that
defence expenditure reduces other forms of net government
spending. On the other hand the budget deficit may increase in
line with the rise in military expenditure and what may be

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crowded out is private sector demand such as investment or exports. It is also possible that, as a result of the rising prices, there will be an increase in nominal defence expenditure without a rise of military spending in real terms.

Deger (1986) provides a diagrammatical representation of the above which is shown in diagram 8.1 overleaf. If defence spending is at level ME1 which is less than ME then an increase in defence expenditure by the government will result in a rise in output as already discussed. If there is excess or underutilised capacity, unemployed labour and other less than fully employed resources in the economy due to low aggregate demand then, the increase in military spending by the government, will have an expansionary effect. With the multiplier effect in operation output in the economy will rise along the A1A2 segment in diagram 8.1.

Diagram 8.1
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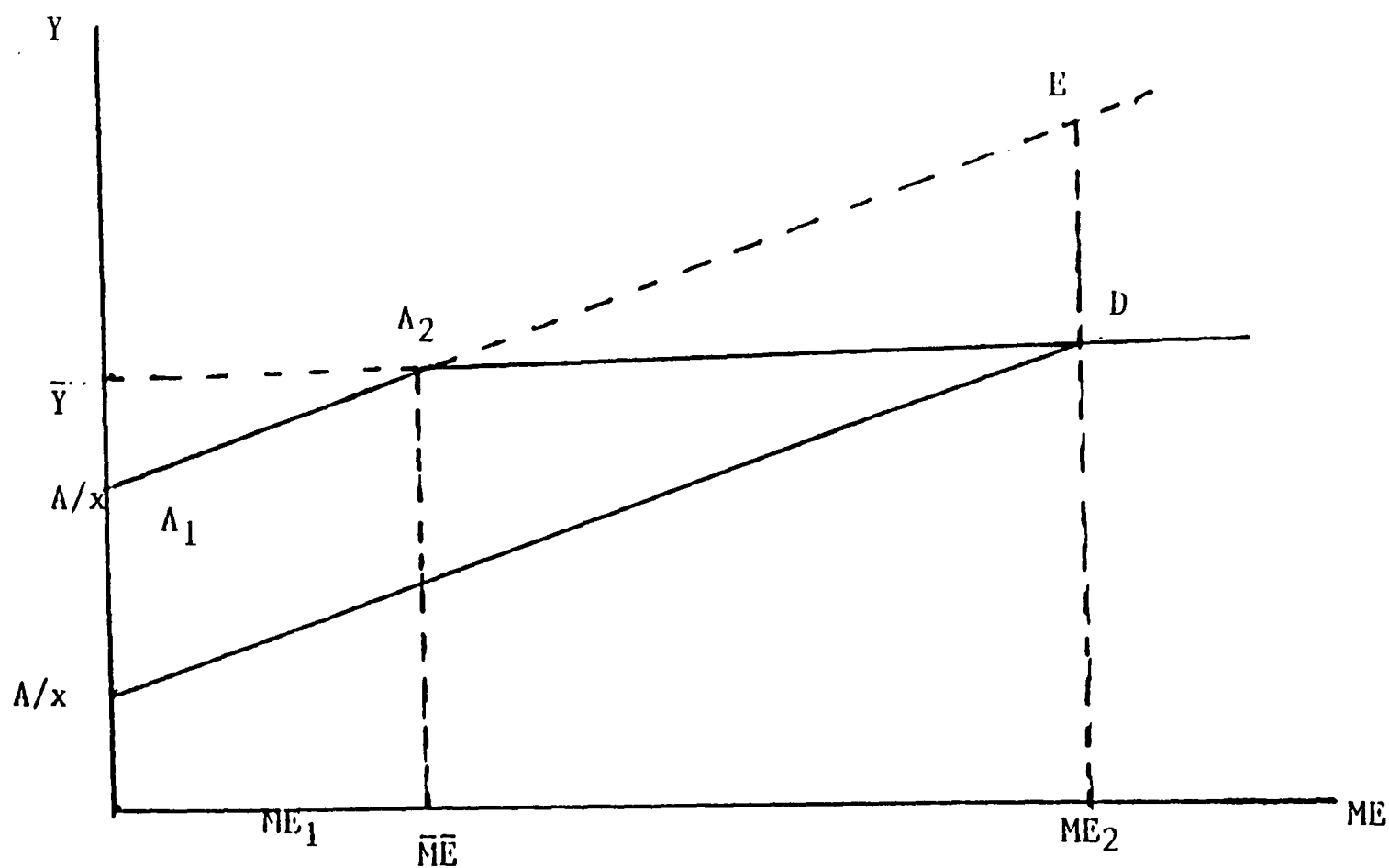
If, on the other hand, the government attempts to increase real military spending above ME, say to level ME2 then other components may be displaced or inflation will increase or a combination of both since point ME2 is above the potentially maximum level of output Y in the diagram.

This may be particularly true in the case of less developed countries. As already pointed out elsewhere, many less developed or developing countries face supply constrains due to the lack of vital capital stock rather than lack of sufficient levels of aggregate demand. Deger (1986) for example points out that, in the short run at least, it is inelasticity of aggregate supply that may be the main reason for low levels of output in such countries. It, therefore, follows that an increase in government spending may lead to inflationary pressures and perhaps even more crowding out rather than stimulate aggregate demand and growth.

What also needs to be examined is how the extra military expenditure is going to be financed. Potentially there are two alternatives available to the government: a) increased taxation and b) through a budget deficit or a combination of the two.

If the government opts for the former then the increases in output and employment will probably be smaller and will vary depending on whether direct or indirect taxes are increased. Let us see why. If for example direct taxes are raised then this implies that consumers' disposable incomes will fall. This may result in a fall in consumption expenditure which will offset all or part of the initial increase in aggregate demand caused by increased military spending. This, of course, will have an effect

on output and employment levels. However, it is possible that in order to maintain their consumption levels households may reduce the level of their savings. A reduction in savings can have a adverse effect on growth since it means that less funds are now available for internally financing investment. This can be shown using the following simple relationship:

$$C = ( Y - dT ) - S \quad \text{from which we get} \quad C = Yd - S$$

Where C : consumption
      Y : households' income
      dT: direct taxes
      S : households' savings
      Yd: disposable income

If direct taxation (dT) is increased by the government in order to finance the rise in defence expenditure then for consumption (C) to remain constant savings (S) will have to be reduced with the possible adverse effects on investment. If, however, savings (S) remain constant then consumption (C) will fall leading to a possible decrease in aggregate demand (AD) since:

$$AD = C + CIVG + ME + I + (X-M)$$

If the government opts for the latter option of a budget deficit the effects will vary according to whether this is matched by increased borrowing or by an increase in the money supply. Increased government borrowing can displace investment either through directly competing with it for funds or it can lead to higher interest rates and thus reduce private investment. The result of a reduction in investment is that there will be fewer additions to the capital stock of the country thus reducing the rate of productivity growth and through this economic growth will be slowed down. Our preliminary regression results, reported in table 8.2, seem to support the view that increased military

spending may divert resources from investment.

An increase in the money supply may result in a higher inflation rate which may also have adverse effects in the economy. Of course, this to a certain extent will depend on the elasticity of supply of the industries that will be called upon to provide the military inputs.

As already mentioned, many writers have drawn attention to the apparent negative impact of military expenditure on investment and through investment on growth (Smith and Smith 1980; Deger 1981; Faini, Annez, Taylor 1984; Cappelen, Gleditch, Bjerkholt 1985). Smith (1977) in particular argues that "for most of the post war period defence and investment have been close substitutes and expenditure on one will be at the expense of the other" (p.73). In another paper, Smith (1980) has suggested that in the case of developed countries there may be a one to one trade off between defence spending and investment shares in GDP. Let us see why such a trade-off may exist.

If savings (S) are defined as $S = Y - C - T$

where Y: income
C: consumption
T: taxes

Which can also be expressed as $Y = C + S + T$

Then from $Y = C + I + CIVG + ME + (X-M)$ if we solve through we get: $S = I + ME + (CIVG-T) + (X-M)$

which can also be written as: $(M-X) + (T-CIVG) + S = I + ME$

where (T-CIVG) : is the civilian budget surplus and could also be used as a proxy for public sector saving
(M-X) : shows excess of imports over exports which gives us the foreign capital inflows (foreign saving) required to finance trade deficit
S : domestic private sector saving

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The equation $I + ME = S + (T-CIVG) + (M-X)$ indicates that in an economy investment and military expenditure are financed by three forms of savings. Investment and defence spending seem to compete for finance from the same sources. An increase, therefore, in ME, ceteris paribus, must be at the expense of investment.

The importance of savings and investment in the growth process has been emphasised in most writings on the subject. A classical approach to the subject of economic growth and development would tend to point to the importance of savings which generate investment and through investment growth. On the other hand, in a more Keynesian approach, the emphasis would tend to be placed on the demand for investment which if it is high enough will generate more savings. It can, therefore, be said that the former stresses the supply side of resource creation whereas the latter the demand side. Although the chain of causation is important the basic point remains the same, namely that savings and/or investment play a crucial role in stimulating growth.

## 8.5 A More Formal Evaluation

In a first attempt to evaluate the effects of military spending on growth we define growth as being a function of military expenditure as percentage of the gross domestic product, the rate of growth of the secondary sector, savings and the growth rate of population.

Military spending is used here in order to pick up any possible aggregate demand stimulation and resource mobilisation effects. It is difficult to say a priori with what sign it will

enter our equation.

The importance of savings has already been discussed and as pointed out they are taken to be the prime engine of growth and may also be taken as a proxy for investment.

The population growth rate is included in order to pick up the effects of changing number of dependents.

The secondary sector has been included in the estimation due to the importance attached to it by many writers. This importance attached to the secondary sector lies in the close association that appears to exist between the growth rate of the secondary sector (industry) and the growth of the economy as a whole. As Thirlwall (1983) points out "this observed relationship is summed up in the maxim "manufacturing as the engine of growth" (p.55). For example Kaldor (1966) postulated a linear relationship between the growth rate of GDP and the growth rate of manufacturing output. In fact, using data for OECD countries for the period 1953-54 to 1963-64, he estimated the direct effect of manufacturing on the growth rate of GDP to be 0.6; Cornwall (1977) also obtained an almost identical result with a different sample period. Even if not much importance is attached to the exact magnitude of this effect there two good reasons as to why one would expect a strong relationship between the growth of the manufacturing sector and the growth performance of the whole economy. Firstly, manufacturing seems to be the sector where major cost saving technical advances take place and thus the productivity growth would be expected to be greatest. The second reason is that the faster manufacturing grows, the faster the transfer of labour from other less efficient sectors of the

economy where there may be surplus labour. Furthermore, another reason stressed by Cornwall (1977) is that the manufacturing sector produces certain goods that promote growth in other non-manufacturing sectors of the economy as well.

The relationship, therefore, between growth, military expenditure, savings and the secondary sector may be expressed as follows in a growth equation:

$$GDPg= f(ME, SAV, IND, POP)$$

Where  GDPg:  the growth rate of the gross domestic product in real terms
ME  :  military expenditure as percentage of GDP
SAV :  savings as percentage of GDP
IND :  the growth rate of the secondary sector in real terms
POP :  the growth rate of population

A similar relationship may be expressed if instead of savings we use investment to the importance of which in the process of growth we have already drawn attention to.

$$GDPg= f(ME, PRINV, IND, POP)$$

Where  PRINV: private investment as percentage of GDP

Using ordinary least squares the two equations were estimated for Greece for the period 1953-1984; the latter being the latest year for which full data was available on all the variables used in our estimations. The following results were obtained:

(1) GDPg = +1.313   -0.580 ME   +0.215 SAV   +0.427 IND   +0.439 POP
         (0.344)   (1.272)     (1.266)      (5.743)      (1.447)

$R^2$ = 0.639   s.e = 2.327   DW = 2.86   F-stat = 11.982


(2) GDPg = 5.436   -0.585 ME   -0.017 PRINV   +0.439 IND   +0.099 POP
         (1.395)   (1.233)     (0.093)        (5.686)      (0.066)

$R^2$ = 0.618   s.e = 2.395   DW = 2.88   F-stat = 10.936

The results are not particularly satisfactory. In both equations the ME variable appears to have a negative impact on growth, but the statistical importance of the variable is not particularly high. All the other variables enter the equations with the expected signs with the exception of investment (PRINV) in equation (2) where the sign of its coefficient is unexpectedly negative. In both equations the only statistically important variable appears to be the secondary sector (IND). However, in both equations there is evidence of strong serial correlation as expressed by the value of the Durbin-Watson statistic. Thus, it was decided to use a first order autocorrelation scheme to correct the equations. The following results were obtained:

$$(3) \; GDPg = +1.334 \quad -0.461 \; ME \quad +0.170 \; SAV \quad +0.471 \; IND \quad +0.063 \; POP$$
$$\quad\quad\quad\quad (0.585) \quad\quad (1.427) \quad\quad (1.684) \quad\quad\quad (8.411) \quad\quad\quad (0.064)$$

$$AR(1): \; -0.553 \; (3.114)$$

$$R^2 = 0.731 \quad\quad s.e = 2.045 \quad\quad DW = 2.06 \quad\quad F\text{-stat} = 14.196$$


$$(4) \; GDPg = 2.425 \quad -0.388 \; ME \quad +0.119 \; PRINV \quad +0.466 \; IND \quad -0.176 \; POP$$
$$\quad\quad\quad\quad (1.149) \quad\quad (1.171) \quad\quad (1.249) \quad\quad\quad (7.898) \quad\quad\quad (0.178)$$

$$AR(1): \; -0.570 \; (3.176)$$

$$R^2 = 0.707 \quad\quad s.e = 2.138 \quad\quad DW = 2.00 \quad\quad F\text{-stat} = 12.553$$

The results improve appreciably, and both equations now appear to be fairly well defined. Their explanatory power improves. As in equations (1) and (2), military expenditure enters the equations (3) and (4) with a negative sign, indicating a negative impact on the growth rate of GDP which accords with some of the findings of other works on the subject reported earlier. However, once again, the statistical importance of this variable is not

particularly great, especially in equation (4). It is apparent from the equations that the growth rate of the secondary sector has a very important impact on the growth rate of GDP which is as it was expected. Both savings and investment now enter the equation with a positive sign although their impact on growth does not appear to be as great as it would have been expected. It may be that the secondary sector absorbs some of the impact especially in the case of private investment which has a lower t-statistic. This may be explained by the fact that a substantial part of investment during the period under examination was directed in the secondary sector of the economy. However, the statistical importance of investment improved when another equation, (5), was estimated where it was lagged one year. This was not the case for savings, (6), though, the statistical importance of which was reduced slightly. Equations where military spending was lagged did not perform well even when a first order autocorrelation scheme was used (results not reported).

(5) GDPg =   +1.110    -0.392 ME    +0.200 PRINV(-1)
             (0.459)    (1.184)      (1.830)

             +0.474 IND    -0.076 POP
             (7.959)       (0.077)
                                       AR(1): -0.513 (2.811)

     $R^2$ = 0.697    s.e = 2.046    DW = 2.06    F-stat = 11.501


(6) GDPg =   +1.466    -0.454 ME    +0.159 SAV(-1)
             (0.586)    (1.374)      (1.492)

             +0.486 IND    -0.100 POP
             (8.055)       (0.100)
                                       AR(1): -0.549 (3.102)

     $R^2$ = 0.684    S.E = 2.087    DW = 2.11    F-stat = 10.870

The results obtained here are in general agreement with the previous ones. The sign of the ME coefficient is once again negative in both cases but statistically not very important. The improved statistical importance of investment when lagged, points to a delayed positive impact on growth, indicating that time elapses before the beneficial effects of investment filter through to the growth rate of the GDP.

Investment is usually regarded as the core process by which all other aspects of growth are made possible. Capital increases by investment, and more investment necessitates more savings or foreign assistance. However, domestic savings are considered by many to be the more reliable source of funds for investment in order to stimulate further growth or in the case of less developed countries to break the vicious circle of poverty and underdevelopment. Thus a savings equation is estimated in order to examine the impact of military spending on savings in the Greek economy. For this purpose savings are made a function of defence spending, private consumption expenditure, private investment, the inflation rate and the growth rate of the gross domestic product per capita. This relationship is expressed below:

$$SAV = f(ME, PRCON, PRINV, INFL, GDPC)$$

Where    SAV  : savings as percentage of GDP
              ME    : military expenditure as percentage of GDP
              PRCON: private consumption as percentage of GDP
              PRINV: private investment as percentage of GDP
              INFL  : the inflation rate
              GDPC  : the growth rate of GDP per capita in real terms

Savings are of course dependent on real GDP per capita since as GDPC increases in real terms one would expect savings to be

positively affected by this. On the other hand, current private consumption competes in a sense with savings and therefore we would expect it to be negatively related to the savings rate. Private investment may be taken to represent demand for savings. Therefore, it could be said that as demand for savings in the form of investment rises the price of savings in the form of interest rates goes up and this would be expected to attract more savings. The rate of inflation may also influence the level of savings and it is included in the estimation. It is however difficult to tell whether it will have a positive or negative effect on savings and evidence on this is contradictory. As Deger (1986) points out inflation might lead to "forced savings" or expectations of continuing inflation may cause a spending boom and conspicuous consumption. Finally defence expenditure is used in order to pick up any possible resource diversion effect. Using ordinary least squares and annual data for the period 1953-84 the above equation was estimated and the following results were obtained:

$$(7) \quad SAV = +6.343 \quad -0.013 \text{ ME} \quad -0.025 \text{ PRCON} \quad +0.729 \text{ PRINV}$$
$$(0.624) \quad (0.057) \quad (0.234) \quad (4.626)$$

$$+0.133 \text{ INFL} \quad +0.270 \text{ GDPC}$$
$$(2.984) \quad (3.788)$$

$$R^2 = 0.851 \quad s.e = 1.064 \quad DW = 1.53 \quad F\text{-stat} = 29.833$$

The results of our estimation are generally as expected. It seems that military expenditure has a negative impact on savings and, therefore, through them on investment and growth. This negative effect, however, appears to be totally insignificant.

Inflation seems in the case of Greece to have a positive effect on savings and all the other variables enter the equation with the expected signs. Savings seem to be strongly influenced by GDPC which is quite as expected. Private consumption does not appear to adversely influence savings to a great extent with a very low statistical importance. From our estimation it seems that the demand for investment funds has a very important positive impact on savings possibly through higher interest rates. Savings as expected are also affected in a positive way by real gross domestic product per capita. Using a first as well as a second order autocorrelation scheme to correct the serial correlation of the equation did not work. The results did not improve when military spending was lagged one year. In fact, they were not particularly satisfactory and this did not change when a first order autocorrelation scheme was used. Lagging investment by one year in order to pick up any delayed impact on domestic savings did not work either (results not reported).

Having estimated the impact of military expenditure on savings it was also decided to attempt to estimate its impact on investment so that to have a more comprehensive view of the effect that defence spending has on the performance of the Greek economy. The importance attached to the role of investment in the growth process can not be overemphasised. As it has already been mentioned, investment is regarded the core process by which all other aspects of growth are made possible. In a sense, it could be said that the rate of growth may entirely depend on the level of investment. The higher the level of investment in a country the higher the growth rate that one would expect. Of course, the

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level of investment in any country depends on the absorptive capacity of the economy which sets a limit to the amount of efficient investment physically possible at least in the short run. Nevertheless, investment occupies a central position in most theories of economic growth.

Given, therefore, the importance of investment in the growth process we tried to estimate the effects of military spending on private investment in the Greek economy. Private investment was defined as being a function of defence expenditure, real GDP per capita, inflation and domestic borrowing by the central government. This can be expressed as follows:

PRINV= f(ME, GDPK, INFL, INDEBT)

Where     PRINV : private investment as percentage of GDP in real
                  terms
          ME    : military expenditure as percentage of GDP
          GDPK  : gross domestic product per capita in real terms
          INFL  : the rate of inflation
          INDEBT: internal debt of the central government as
                  percentage of GDP

The military burden is used in order to pick up any possible competition for funds between the two variables and to see whether our preliminary results of defence spending crowding out investment hold to further testing. Domestic borrowing by the central government is used in order to pick up any direct competition between the public and private investment for funds. The inflation rate picks up any possible effects of rising prices on investment decisions. Gross domestic product per capita is used as an index of growth.

Using ordinary least squares and data for 1953-84 the above equation was estimated and the following results obtained:

(8)　PRINV= 13.854　−1.733 ME　+0.0005 GDPK　−0.306 INFL
　　　　　　(11.549)　(7.818)　　(8.408)　　　(6.836)

　　　　　　　−0.232 INDEBT
　　　　　　　(3.693)

$R^2 = 0.838$　　　s.e = 1.084　　　DW = 1.69　　F-stat = 34.990

The results of equation (4) seem to indicate that military spending (ME) has a strong negative impact on private investment. The (ME) variable enters the equation with a negative sign and its statistically quite significant. This agrees with the earlier findings that there appears to be a trade-off between defence expenditure and investment. Domestic borrowing by the central government also has a negative effect on investment. It could be said, therefore, that military spending and domestic borrowing by the government directly compete with private investment for funds. If defence spending is largely financed through internal borrowing by the government then it can be argued that this reduces the funds available for investment and through this reduction in investment, growth can be slowed down. This apparent displacement of investment by military spending in the case of Greece, seems to be in line with the findings of other works on the subject of the impact of defence expenditure on growth as it has been reported earlier on in our literature survey. As Smith (1977) has suggested military expenditure and investment can be said to be "close substitutes and expenditure on the one will be at the expense of the other" (p.73). Inflation also seems to have a fairly strong negative impact on investment perhaps through reduced profitability or through greater uncertainty. Lagging military spending by one year did not improve the results and it

did not have any satisfactory effects on the performance of the equation.

To estimate the effects of defence expenditure on the growth rate of the secondary sector of the economy it was decided to make the growth rate of the secondary sector a function of military spending, the growth rate of GDP, private investment, public investment, private consumption and non-military public consumption. This relationship is expressed as follows:

$$INDg = f(ME, GDPg, PRINV, PUBINV, PRCON, CIVPCO)$$

Where INDg : the real growth rate of the secondary sector
   ME  : military expenditure as percentage of GDP
   GDPg : the real growth rate of GDP
   PRINV : private investment as percentage of GDP
   PUBINV : public investment as percentage of GDP
   PRCON : private consumption as percentage of GDP
   CIVPCO : non-military public expenditure as percentage of GDP

The growth rate of GDP is used in order to pick up the relationship between growth and the secondary sector. Private and public investment are used in order to see the degree of importance of investment in this sector's growth rate. As seen, particular emphasis is placed in the relationship between this sector of the economy and the overall growth performance of an economy and therefore we would expect investment (both public and private) to have an important positive effect. In a sense, as an economy is growing we would expect the relative contribution of this sector to increase and to attract higher levels of investment as the relative profitability of this sector also increases. Private and civilian public consumption may be taken to indicate rising standards of living due to growth and therefore we would expect demand for the products of this sector

to increase with rising standards and different consumption patterns. We would expect both of them to enter our equation with a strong positive sign. Defence spending may be used to pick up any possible demand generation for the products of this sector. At the same time however it may pick up the possible adverse effects of military expenditure due to the crowding out of investment as we have already see. It is difficult to say in advance what the effect may be. It is possible to show a negative sign in the equation due to crowding out of investment. On the other hand it is possible for military spending to enter our equation with a positive sign, picking up possible positive effects of demand creation for the products of this sector.

Using ordinary least squares and data for the period 1953-84 we estimated the above relationship and the following results were obtained:

(9) INDg = -164.879  +3.564 ME  +1.128 GDPg  +2.20 PRINV
            (4.971)    (3.398)    (6.162)       (4.436)

       +1.657 PUBINV  +1.293 PRCON  +1.835 CIVPCO
       (2.436)        (5.474)        (1.535)

$R^2$ = 0.819   s.e = 2.806   DW = 2.26   F-stat = 18.912

From the results reported above it appears that defence expenditure seems to have a substantial positive effect on the growth of the secondary sector of the Greek economy. Given the importance of the role of this sector in economic growth generally and in the case of Greece, as it has already been seen earlier, we can say that this positive impact also effects growth in a positive way through this sector. However, the statistical

importance of military spending was substantially reduced when a first order autocorrelation scheme was used in order to correct the serial correlation in the equation. The sign of the coefficient, however, remained positive. The results are reported in equation (10). Lagging defence spending by one year did not work and the results were not satisfactory.

(10) $INDg = -52.519 +0.438\ ME +1.077\ GDPg +0.578\ PRINV$
        $\quad\quad\ (2.944)\quad (0.636)\quad\ (4.905)\quad\quad\ (1.939)$

$\quad\quad\quad +0.563\ PUBINV\ +0.694\ PRCON\ -0.988\ CIVPCO$
$\quad\quad\quad\ (0.879)\quad\quad\quad (3.236)\quad\quad\quad (1.412)$

$\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad AR(1): -0.385\ (1.962)$

$R^2 = 0.766\quad s.e = 3.253\quad DW = 2.01\quad F\text{-stat} = 11.285$

Once again, as in the case of equation (9) as well as the growth equations reported earlier, the strong positive relationship between the secondary sector and the overall performance of the economy is picked up. Private consumption also has a strong positive impact on this sector, probably due to household demand for the products of this sector.

It was decided to pursue the matter further and examine the possible channels through which defence spending has this apparent positive impact on this particular sector of the economy, the importance of which we have already drawn attention to. It could be said that this apparent strong positive effect may be due to the generation of demand for the products of this sector. However, this would appear to contradict to a certain extent the results reported in chapter six when the impact of military spending on the potential defence capacity sectors (PDC) of manufacturing was examined. It was decided to examine the

possible effects of military spending on the two main components of the secondary sector where such an impact may be possible: manufacturing and construction. For that purpose the growth of manufacturing output was made a function of military expenditure, private investment, the growth rate of the secondary sector as a whole, the growth rate of GDP and total consumption. Similarly the growth rate of the output of the construction industry output was made a function of military spending, total consumption, private investment, public investment and the growth of GDP. Those relationships are expressed below:

$$MAN = f(ME, PRINV, IND, GDP, TOTCON)$$

and $$CONSTR = f(ME, TOTCON, PRINV, PUBINV, GDP)$$

Where  MAN    : growth rate of manufacturing output
       CONSTR : growth rate of construction output
       ME     : military expenditure as percentage of GDP
       PRINV  : private investment as percentage of GDP
       PUBINV : public investment as percentage of GDP
       TOTCON : total consumption as percentage of GDP
       GDP    : growth rate of GDP in real terms
       IND    : growth rate of the secondary sector in real terms

Using ordinary least squares and data for 1953-1984 the following results were obtained:

(11) MAN = -35.554   -0.532 ME   +0.812 PRINV   +0.434 IND
           (1.251)    (1.066)     (1.672)        (2.738)

              +0.443 GDPg      +0.340 TOTCON
              (1.987)          (1.376)

  $R^2$ = 0.825      s.e = 2.476      DW = 2.19      F-stat =24.576


(12) CONSTR = -332.176   +3.566 ME   +2.790 TOTCON   +4.001 PRINV
              (5.049)     (2.322)     (5.147)         (4.130)

                 +4.099 PUBINV      +0.881 GDPg
                 (2.635)            (2.481)

  $R^2$ = 0.628      s.e = 6.463      DW = 2.20      F-stat = 8.792

The results of our estimations are quite interesting and they seem to identify the branch of the secondary sector where the impact of military expenditure is greatest. It appears that defence spending has a very substantial impact on the construction industry. This is not surprising in view of the fact that, particularly in post-74 years, a vast development programme of military infrastructures has been underway. It includes a massive modernisation programme of ports and airports, existing barracks and army buildings as well as the construction of new military infrastructures and modern accommodation facilities particularly in the Aegean islands in line with the new defence priorities of the country. For example, the expenditure for the construction of six modern camps with an accommodation capacity for 16,000 men, due to be completed by 1991, it has been reported (Lazaris 1989) to be in the region of seven billion drachmas. Furthermore, certain road construction programmes, especially near border areas, may directly be attributed to military requirements. The long term project to improve accommodation and road transport facilities as well as the construction of new defence complexes in view of the new defence doctrine that, as we have seen elsewhere, has been adopted recently may help to explain this apparent positive effect of defence spending on the construction industry. This of course, is nothing new. Such military programmes have always been a source of demand for the domestic construction industry and this apparently is picked up by the variables in equation (12). Lagging military spending by one year to take account of delayed effects on the construction industry did not appear to perform well. However, it was found

that, if a first order autocorrelation scheme was used equations (11) and (12) improved. The results were as follows:

$$\text{(13) MAN} = \underset{(1.397)}{-32.582} \quad \underset{(1.181)}{-0.542 \text{ ME}} \quad \underset{(1.902)}{+0.747 \text{ PRINV}} \quad \underset{(2.549)}{+0.406 \text{ IND}}$$

$$\underset{(2.038)}{+0.504 \text{ GDPg}} \quad \underset{(1.527)}{+0.315 \text{ TOTCON}}$$

$$\text{AR(1): } -0.132 \ (0.606)$$

$$R^2 = 0.828 \quad \text{s.e} = 2.504 \quad \text{DW} = 2.03 \quad \text{F-stat} = 20.105$$

$$\text{(14) CONSTR} = \underset{(4.671)}{-289.063} \quad \underset{(2.342)}{+3.783 \text{ ME}} \quad \underset{(4.754)}{+2.404 \text{ TOTCON}} \quad \underset{(3.500)}{+2.983 \text{ PRINV}}$$

$$\underset{(2.819)}{+4.547 \text{ PUBINV}} \quad \underset{(2.462)}{+0.935 \text{ GDPg}}$$

$$\text{AR(1): } -0.153 \ (0.731)$$

$$R^2 = 0.620 \quad \text{s.e} = 6.664 \quad \text{DW} = 2.01 \quad \text{F-stat} = 6.801$$

The results obtained in equations (13) and (14) are in accordance to the previously discussed results of equations (11) and (12). The use of the first order autocorrelation scheme has apparently corrected the small serial autocorrelation present in those equations as this was expressed by the value of the Durbin-Watson statistic. A strong positive impact of military expenditure on the construction industry is once again indicated by the results. As noted earlier, a lagged version of the equation was also estimated but it did not perform well.

Generally, the results of the estimations with ordinary least squares seem to indicate that, in the case of Greece, military expenditure has a net negative impact on the growth rate of the country's economy. This is supported by our results in both the

growth equations (3) and (4) reported above as well as in the savings and investment equations. The results obtained in our estimations seem to accord with those of other studies (reported in section 8.2) on the subject of the impact of defence expenditure on growth. In particular, it appears that this negative effect is due to the fact that defence spending seems to compete with investment for funds as the results of equation (8) apparently indicate. This competition for funds leads to crowding out of investment and this in turn slows down the growth of the economy. Similar results on the subject of investment displacement by military spending have been attained by other writers as seen in section 8.2.

On the other hand, however, it also appears that defence spending also has a positive impact on certain sectors of the Greek economy and through them, is reasonable to expect, on the overall rate of growth. In particular, as the results of equation (9) indicate, it seems that this positive impact is concentrated in the secondary sector of the economy the importance of which in the growth process has already been discussed. More specifically, in view of the results obtained in equations (12) and (14), this positive effect can be traced in the construction industry. It can be said that defence expenditure generates demand for inputs from this sector for the development of military infrastructures in the form of road construction, new barracks, military fortifications, ports, airfields etc.

From the results so far we can conclude that, on balance, defence expenditure has a negative effect on growth mainly through the crowding out of investment. However, given the

limitations discussed earlier, it is difficult to argue that the results indicate without any doubt that military spending has a negative effect on the growth of the Greek economy despite the fact that our analysis and results of our estimations do in fact point towards this direction. Such conclusion is made more difficult given the limitations of ordinary least squares regression analysis. Thus it was decided to take our examination a step further and estimate the dependant variables within a more dynamic model which treats them as a function of both exogenous and endogenous variables. Ordinary least squares can no longer be used in such a case. Therefore, it was decided to estimate the causal interconnections in our system by two stage least squares. To allow for any autocorrelation of the error term a first order autoregressive scheme is used.

At this level of approach it is common in most macroeconomic models to distinguish between those variables that are taken to be endogenous and those that are taken to be exogenous. Of course this classification usually tends to be a relative one and to a large extent depends on the particular model itself, the subject of the study and the specific purpose of the study. This creates further problems in our case since we are estimating only single equations rather than a complete model. Within such single equations some variables may be treated as exogenous whereas, if a complete model was used, some of those variables may have been treated as endogenous. This raises further questions about the degree of accuracy of such a limited model and the results obtained. Nevertheless, in our estimations the growth rate of the gross domestic product, private investment, savings, the growth

rate of the secondary sector and inflation are treated as the endogenous variables in our model.

As in the case of the ordinary least squares estimations, the growth rate of the gross domestic product (GDPg) is made a function of defence expenditure as percentage of GDP (ME), investment (PRINV), the growth rate of the secondary sector (IND) and the population growth rate (POP). A second growth equation is also estimated were savings (SAV) are used instead of investment. As it has been pointed out, the growth rate of GDP, investment, savings and the growth of the secondary sector are treated as endogenous variables whereas military spending and the growth of population are treated as exogenous. It is not unusual for most macroeconomic models to treat current government expenditures as exogenous in the sense that are not explained by the model. Furthermore, in our case we can assume that defence spending is determined by factors outside our model and it may also be assumed that military expenditure is the first priority out of the central government budget.

Investment (PRINV) is also treated as an endogenous variable and is made a function of military spending (ME) which picks up any crowding out effects through competition for funds; gross domestic product per capita (GDPK) which is used as a measure of the level of development; the inflation rate (INFL) to pick up any effects of uncertainty about levels of profitability; the internal debt of the central government (INDEBT) which also picks up any investment displacement effects; and savings (SAV).

Savings (SAV) are treated as endogenous in our system and they are made a function of military expenditure (ME) which picks up

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the resource diversion effect; the rate of inflation (INFL) to
see how savings are affected by increasing price levels; gross
domestic product per capita (GDPK) which is used as a measure for
growth; and private investment (PRINV) which can be taken as
demand for savings.

The secondary sector (IND) is taken as an endogenous variable
and is made a function of defence expenditure (ME); private and
public investment (PRINV,PUBINV); and gross domestic product per
capita (GDPK) which once again is used as a measure of growth.

The inflation rate (INFL) is taken as an endogenous variable
and is made a function of defence expenditure as percentage of
total government expenditure (MEGEX) which proved to be a better
way of examining the effects of military spending on inflation
rather than military spending as a percentage of GDP; gross
domestic product per capita (GDPK); private consumption
expenditure (PRCON) and civilian public consumption (CIVPCO).

Finally defence expenditure (ME) is made a function of real
gross domestic product (GDPVAL); GDP per capita; the rate of
population growth (POP) and a dummy variable (DUM) with a value
of one for 1975,76 and 77 in order to pick up the effects of the
Turkish invasion of Cyprus. Since military expenditure is taken
as an exogenous variable this equation is estimated by ordinary
least squares.

Given the limitations and the problems to which we have drawn
attention to earlier on, we proceed to examine the influence of
defence spending on the growth rate of the Greek economy for the
period 1953-1984 which allows thirty two (32) observations.
The following results were obtained from our calculations:

(15) GDPg=    0.593    -0.450 ME    +0.264 PRINV    +0.442 IND
            (0.192)    (1.186)      (2.043)         (5.408)

                         +0.232 POP
                         (0.220)

                               AR(1): -0552 (2.944)

$R^2$ = 0.678      s.e = 2.239      DW = 1.90      F-stat = 10.988


(16) GDPg = -0.897    -0.534 ME    +0.299 SAV    +0.481 IND
           (0.229)    (1.440)      (1.932)         (5.392)

                         +0.535 POP
                         (0.506)

                               AR(1): -0.497 (2.688)

$R^2$ = 0.708      s.e = 2.134      DW = 1.99      F-stat = 12.617


(17) PRINV = +11.651    -1.342 ME    +0.0004 GDPK    -0.294 INFL
           (1.810)      (2.184)       (1.613)         (1.963)

               -0.100 INDEBT    +0.114 SAV
                 (0.807)         (0.262)

                               AR(1):+0.117 (0.560)

$R^2$ = 0.832      s.e = 1.148      DW = 1.70      F-stat = 20.642


(18) SAV = +12.835    -0.815 ME    -0.304 INFL    +0.0003 GDPK
         ( 4.095)     (2.413)      (2.317)       (3.209)

                     +0.105 PRINV
                     (0.430)

                               AR(1): +0.437 (2.326)

$R^2$ = 0.610      s.e = 1.724      DW = 1.70      F-stat = 8.147


(19) IND = -20.692    +3.484 ME    +1.167 PRINV    +1.332 PUBINV
         (1.846)      (2.610)      (2.106)        (1.451)

                     -0.0005 GDPK
                     (4.706)

                               AR(1): -0.160 (0.731)

$R^2$ = 0.60      s.e = 4.095      DW = 1.88      F-stat = 7.802

$$(20) \quad INFL = -42.274 \quad +0.391 \; MEGEX \quad +0.0007 \; GDPK \quad +0.126 \; PRCON$$
$$\phantom{(20) \quad INFL = } (1.216) \phantom{+0.391 \; ME} (1.089) \phantom{+0.0007 \; GD} (4.192) \phantom{+0.126 \; PRC} (0.237)$$
$$+1.386 \; CIVPCO$$
$$(2.065)$$
$$AR(1): \; +0.458 \; (2.533)$$

$$R^2 = 0.867 \qquad s.e = 3.428 \qquad DW = 1.70 \qquad F\text{-stat} = 34.081$$


$$(21) \quad ME = +5.564 \quad +6.515 \; GDPVAL \quad +0.675 \; POP \quad +1.457 \; DUM$$
$$\phantom{(21) \quad ME = } (7.954) \phantom{+} (4.716) \phantom{+6.515 \; GDPV} (1.837) \phantom{+0.675 \; P} (3.133)$$
$$-0.00062 \; GDPK$$
$$(4.349)$$

$$R^2 = 0.775 \qquad s.e = 0.566 \qquad DW = 1.00 \qquad F\text{-stat} = 23.253$$

The results of the Two Stage Least Squares estimations are quite interesting and generally accord with the results of the ordinary least squares. The overall performance of the equations is satisfactory and they appear to be well defined. The same equations were also estimated with military expenditure lagged by one year to allow for a delayed effect but the results were not satisfactory.

Both growth equations, (15) and (16), appear to be quite well defined, and they perform quite well. In both versions of the growth equation the coefficient of military expenditure is negative. This is similar to the results obtained with the O.L.S estimations and provides further evidence of a negative impact on growth. However, as in the case of the O.L.S results, the statistical importance of this variable, as expressed by the value of the t-statistic, is not particularly great in either of the two growth equations. All the other variables enter our equation with the signs that one would expect. As expected, the

importance of savings, investment and the growth rate of the secondary sector is quite significant, indicating a strong positive effect on growth.

The investment equation (17) points to the existence of a trade-off between defence spending (ME) and investment. It would appear that they both compete for funds and, in the process, investment is crowded out by military expenditure. Thus, the ME variable enters our equation with a negative sign and it is statistically important. This is consistent with the O.L.S results, and also with the results obtained by other studies as it was reported in section 8.2. Inflation (INFL) also seems to have a negative impact on investment and so does internal government debt (INDEBT). The statistical importance of the latter, however, is not significant. It is interesting to note that savings (SAV) enter our equation with the expected positive sign but they are not statistically important and the impact of the per capita GDP (GDPK) appears to be greater than that of savings.

The results of the savings equation (15) also appear to verify to a certain degree the previous findings with the O.L.S analysis. It is interesting to observe, however, that, in this case, unlike the O.L.S results, the coefficient of defence expenditure (ME) is also negative and quite significant indicating a depressing effect on the domestic savings ratio. In view of the theoretical importance of savings in the growth process this may be another channel through which growth is slowed down by military spending in the case of Greece. Inflation (INFL) appears to adversely influence savings. Per capita GDP

(GDPK) enters the equation with the expected positive sign and is statistically important. Investment (PRINV) has also a positive effect on savings but perhaps surprisingly this impact appears to be insignificant.

From the results of the secondary sector equation (19) it can be seen that the impact of defence spending (ME) is positive and significant as in the case of the O.L.S estimations. Once again, this may be due to demand stimulation in the construction industry. Private investment (PRINV) enters the equation with the expected positive sign and it is statistically important. Public investment also has a positive impact on the secondary sector but it is not particularly significant.

Equation (20) seems to indicate that military spending (ME) has not a very strong impact on the rate of inflation (INFL) and it appears that the impact of civilian public consumption (CIVPCO) on inflation is more important. This may be explained by the fact that a substantial part of defence expenditure is spent on arms procurement from abroad and therefore does not create bottlenecks domestically. This, however, may not apply in the case of civilian public consumption.

Military expenditure, as equation (21) indicates, seems to be influenced by the level of real GDP and the dummy variable picking up the effects of the Turkish invasion of Cyprus. It could be said that military spending, in the case of Greece, is probably affected by external factors although the influence of such factors is not specifically allowed for in this equation. This, however, was discussed in more detail in chapter five.

## 8.6 Conclusion
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Growth is a complex economic process influenced by numerous interconnected and interdependent factors. To attempt to evaluate the impact of one such factor in such a complex process is at best a very difficult exercise. The problems inherent in such an attempt are further increased by the fact that military expenditure is very heterogeneous. Problems with data availability and accuracy only help to make matters worse.

What was attempted here, was to try to identify some of the channels through which military spending can influence growth. The results of the econometric analysis appear to indicate that the impact of defence expenditure in the case of Greece for the period 1953-1984 was negative. On the basis of the results obtained, it can be concluded that defence has been competing for resources with other uses and in particular with investment. This finding agrees with those of other similar studies. In countries like Greece, were resource constraints are particularly acute this is of particular significance for the growth effort, although one may have expected this to have been more pronounced. However, the limitations of available data makes necessary to view the results with a degree of caution. Had a breakdown of military spending in its various components existed it may have been possible to examine its impact on growth in a more systematic way and to reach more accurate and specific results. For example, it would have been of help to know what portion of defence expenditure is spent domestically and what is spent on the purchase of arms from abroad. Similarly, it would be of use

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to know military spending on such items as construction projects, the purchase of goods and services produced domestically and other such components of defence expenditure; or, indeed, the regional distribution of military spending. Furthermore, it should be said that the examination of military expenditure in a complete model of the Greek economy could produce more concrete results. Nevertheless, the results obtained here are in accordance with those of other studies and this in itself places some validity on them. Needless to stress, however, that it is not universally accepted that military expenditure has a negative impact on growth as we have already seen.

CHAPTER 9


CONCLUSIONS


In this study we have seen that in the post-war period Greece
had one of the highest defence burdens in Europe. Greek military
spending increased sixfold from $197 million in 1953 to $1320
million in 1986. As a result of her high levels of defence
expenditure she has regularly occupied the first place among NATO
members as regards to the portion of Gross Domestic Product
allocated to defence. On average during this period, she has
allocated more than 5% of her GDP for defence purposes. In the
last fifteen years this has risen to 6.5% of GDP. Also, about a
quarter of all government expenditure has regularly gone to meet
defence requirements. The country also maintains the largest
armed forces as percentage of total population when compared with
other NATO members. In the period 1980-85 her armed forces were
about 6% of her economically active population while the NATO
average for the same period was 2.8%. For a country with a per
capita income about a third of that of most other NATO members
the defence burden has been particularly heavy and she had to
forfeit many scarce resources to military uses. Yet, despite the
sheer volume of all kinds of resources allocated to defence, the
importance of military expenditure has been almost totally
ignored by studies on Greek post-war economic development. Most

of such studies only briefly refer to the defence burden and its possible impact on the growth performance of the country. To same extent, this lack of concrete and in depth analysis of the subject can be attributed to the "taboos" that, until the mid-seventies at least, have surrounded issues concerning military and defence matters.

This study examined at least some of the issues surrounding Greek military spending in the post-war period and its impact on the growth performance of the country.

In has been shown in this study, that, the level and structure of Greek military spending can be understood in terms of a combination of both internal and external factors. The relative importance of each contributing factor, however, has not remained constant throughout the period in question. Internal security was probably more of a concern in the years following the Civil War than it has been since the Turkish invasion of Cyprus in 1974. Membership of NATO and the dependent relations with the US have also contributed to the levels of military expenditure. But their impact is mostly to be found in the types of weapons systems procured by Greece. This, however, was not the case in the immediate years after the Civil War. At the time, in line with western beliefs, the Hellenic Armed Forces were primarily assigned an internal security role. After the Turkish invasion of Cyprus and the fast deterioration of Greek-Turkish relations in the years that followed, a total reappraisal of Greek defence priorities took place. A new defence doctrine was declared. It stressed defence against Turkey rather than against Greece's northern neighbours. On at least two occasions in the post-74

period the two countries, both members of NATO, have been at the brink of war. On both occasions neither chose to cross the Rubicon. As it has been shown here, the hostile relations and disputes between the two countries have resulted in a fast accelerating arms race. Both countries have undertaken a huge modernisation program for their respective armed forces. The perceived threat of Turkish expansionism in the Aegean appears to be currently the dominant security concern of Greece. Our estimations showed that Greece feels under threat by her larger neighbour. The presence of the 4th Turkish Army (the Aegean Army) on the Asia Minor coast facing many Greek islands, and the constant frictions concerning continental shelf and air space rights mean that the Turkish threat will continue to occupy the first place in the Greek defence agenda, at least for the foreseeable future. The apparent failure to find a mutually acceptable solution to the Cyprus problem further fuels Greek suspicions concerning the long term objectives of Turkey in the area. The appearance for the first time in the list of disputes of the question of the muslim minority in western Thrace is an ominous sign for the future relations of the two countries. It casts a shadow over the optimistic press communiques after summit meetings between the prime ministers of the two countries.

After the crisis of 1974 and the inability of her armed forces to react to the threat to her national interests, Greece realised her defence weaknesses and embarked on an extensive modernisation program of her forces and the building of extensive military infrastructures on her eastern borders. She has also started a policy of decreasing her dependence for weapons on a single

source. Thus, she started diversifying her sources of arms supplies. At the same time, she embarked on the development of a domestic defence industry aiming to meet at least some of the requirements of her armed forces and thus decreasing external dependence. It was also hoped that arms production would have substantial economic benefits. These were expected to include the transfer of technology and substantial spin-offs for the rest of the economy in the form of trickle down effects and the generation of inter-industrial demand through backward and forward linkages with other sectors of the economy. Thus, the defence sector could act as a leading sector dragging the rest of the economy in an upward spiral of growth. This study argued that the Greek defence sector has an uncertain and limited market to justify the level of investment required and that it has little chances of large export sales which will result in scale production and hopefully to lower unit costs. Many of the sector's products are not internationally competitive and most of the industries in the sector rely heavily on government subsidies for their survival. As a result, arms production absorbs scarce resources which are thus denied to other civilian productive activities. Furthermore, it is not at all certain that external dependency will be reduced. It was also argued, that, given the country's lack of an indigenous technological base, many of the technological and capital inputs for this sector need to be imported. Thus, it was pointed out, that this merely replaces one form of dependency with another.

The most important issue with which this study was concerned was the consequences of military expenditure on economic growth

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and development. It was pointed out that the question of the impact of military expenditure on growth is a very complex issue for which there is no general answer. Military expenditure is very heterogeneous, made up by a variety of different components all of which can have potentially different effects on growth. Furthermore, there does not exist a generally accepted theory of economic growth in terms of which military spending can adequately be evaluated. There is also disagreement between writers on the subject on a theoretical level. Potentially, there is a multitude of channels through which growth can be affected and that to a certain extent may explain the conflicting results of past empirical studies. In this study, it was first attempted to establish the various links between the military burden and the growth rate at the theoretical level and then to estimate them in the context of a growth model. The impact of defence expenditure on growth was estimated both directly and indirectly through its effect on savings and investment. The results of these estimations indicated that growth was adversely affected by the military burden. This was mainly through the crowding out of investment. By competing with investment for funds military expenditure appears to have slowed down growth. On the other hand, it was found that there may be areas where defence spending may have a positive effect. In the case of Greece, this appeared to be in the construction branch of the secondary sector. However, due to the negative impact on other variables this positive effect was more than offset. Thus, this study argued that the net impact of defence expenditure on growth was negative. At the same time, it was stressed, that, due to data

limitations, the results obtained can be considered as being only partial. It was not possible to examine in more depth the transmission mechanism through which growth may have been affected. Our results, therefore, are only a part of the whole picture and many of the links between growth and military expenditure remain unexplored. Thus, the validity of our results can not be fully tested. It will probably be possible to examine the impact of military spending in a more systematic and detailed way only if and when more detailed data on the subject becomes available. The availability of such data may help in separating and revealing the various channels through which defence spending affects the economic structure and the performance of the economy. Until such time, however, our judgement has to be based on existing information. Thus, on the basis of the currently available data, this study has shown that, in the case of Greece, there is a trade off between growth and defence.

Military expenditure has so far had a negative impact on growth and will probably continue to be a substantial burden on the Greek economy for the foreseeable future. Despite recent efforts to reduce tensions in the area relations between Greece and Turkey are still mostly based on mutual suspicion of each other. The Balkans were never the quieter of places. Past disputes are difficult to forget and put to rest. Local traditions of hostilities and old quarrels are fueled by current problems. Bulgarian and Turkish relations have deteriorated in recent years concerning the muslim minority in Bulgaria's southern border region. Similar problems loom on the horizon in the case of the muslim minority in western Thrace. The

authorities of Jugoslavia's autonomous republic of Macedonia have recently been speaking about the prospect of a future unified Macedonian state provoking angry responses from Athens. The new international climate of detente has yet to make substantial headway in the area. Attempts at establishing a climate of mutual understanding in which peaceful solutions can be found have generally withered away or have been put on ice. The Davos summit between the Greek and Turkish prime ministers, after the March 1987 crisis, failed to live up to the original high expectations. The so called "spirit of Davos" of non-confrontational solutions to existing disputes between the two countries is bogged down. Despite pronouncements to the contrary, no peaceful solution to the Cyprus problem is yet in sight. The many initiatives of the United Nations have so far been to no avail. Turkey's continental self claims are still present as are disputes over the control of air space over the Aegean.

The Greek Ministry of National Defence has recently announced a five year modernisation program. It will involve a substantial modernisation of most equipment in all three branches of the forces and aims to bring them up nearer to the standards of the armies of advanced countries. Defence expenditure is not expected to be reduced substantially if the planned modernisations and weapons procurement go ahead. The new emphasis placed by NATO on conventional forces is another reason why Greece will probably continue to allocate many resources to defence purposes.

The serious structural problems of the economy and the worsening public debt situation require radical economic measures and massive cut backs in public expenditure. The commitment to

the modernisation program of the armed forces means that public expenditure cuts will fall hard on civilian rather than military spending.

Chapter 2

**1.** The area that today is modern Greece was part of the Byzantine empire and came under Turkish occupation with the westward expansion of the Ottoman empire in the 14th and 15th centuries. It remained under this occupation until the mid-19th century when in 1821 the Greek National Revolution took place.

**2.** The Truman Doctrine was declared by President Truman on March 12th, 1947, following the decision of the British government to withdraw its forces from Greece. The US feared that this could have opened the way for a communist takeover in Greece, and thus provide the USSR with direct access to the Mediterranean region. The Truman Doctrine signaled the start of US hegemony over world affairs.

**3.** Batsis, was a prominent left wing economist and lawyer who was executed by the right wing government in 1952 for alleged subversive activities.

**4.** Rousfeti, a word of Turkish origin, refers to a relation between a politician and a member of the public or an organisation (e.g a firm). The first provides the second with a legal or illegal service in return for loyal political support. From finding a job to obtaining access to state services or, even more, to an economic or business contract, rousfeti was the rule during this period. It is still evident and practiced today.

**5.** Such was the degree of submission to US influences and wishes during the early years of this period that the governments of those years came to be ironically referred to as the governments of the "Yes-men".

**6.** On the 6th and 7th of September, 1955, angry Turkish mobs attacked the residential and commercial districts of the Greek minorities in Constantinople and Izmir. The events were reminiscent of Cristaal Nacht in Hitler's Germany. It was developments in Cyprus that set off the events. About ten Greeks were killed including Christian Orthodox priests. The damage to property including houses and churches was extensive. The Times of London (14th November 1955) estimated the damage to be in the region of $150 million. These events, as well continuous harassment over the years have result in an exodus of the Greek population from Turkey.

**7.** Para-state mechanism refers to different groups organised outside the state, but with direct links and control by the army and the police. They were involved in terrorist activities

either due to orders from above or on their own initiative against left wing supporters and politicians. The assassination of Member of Parliament Dr Lambrakis in May 1963 in a public meeting of the Greek peace movement in front of dozens of overlooking police is the best known of their activities.

8. For many, the 1961 Association Agreement with the EEC was the result of political rather than economic factors. On the Greek side it was an effort by the right wing government to alter its declining popularity and for the EEC it represented an indication of its will not to remain a closed system as most of its critics argued in her early days.

9. On November 17, 1974, the army moved with tanks against the students occupying Athens Polytechnic and brought to a violent end days of protests against the Dictatorship. The exact figure of casualties has not been established.


Chapter 4

1. Clemannceau as quoted in the book "Common security. a Blueprint for survival" by the Independent Commission on Disarmament Security Issues. Published by Simon and Schuster New York, (1982).

2. For Smith the second duty of the sovereign was justice through the provision of a judicial system; and the third duty was the provision of public works and institutions.


Chapter 5

1. see note 6 in chapter two above.

2. Greek suspicions and fears concerning the long term objectives of Turkish policy in the region are further strengthened by statements by Turkish officials. Here is an anthology of such Turkish statements concerning the Greek islands of the eastern Aegean Sea:

"...the Aegean seabed, as well as the islands close to the coast of the continent, are an extension of Asia Minor", made by the Turkish Foreign Minister T.Gunes, to the Turkish newspaper Cumhuriyet, June 3, 1973.

"Turkey and Greece appreciate the value of peaceful and friendly co-existence...The disagreement arose because the islands which lie very close to Turkey belong to Greece and not to Turkey...These islands constitute a part of Anatolia,

and for centuries they have belonged to the state which was sovereign over Anatolia...", made by Leader of the Opposition S.Demirel, to the Turkish newspaper Milliyet, June 9, 1974.

"I will not cede the Aegean to anyone. Half of the Aegean belongs to us...", made by the Turkish Prime Minister S.Irmak, as reported in the Turkish daily Hurriyet, January 18, 1975.

"In the Aegean, we must necessarily follow a dynamic policy. Conditions today are much different from those of 1923. Turkey has grown in strength. When we speak of the need for an energetic policy, we do not mean that the army must act immediately and that we must seize the islands. Economic interests must be secured in the Aegean... Cyprus constitutes the first step to the Aegean", the Turkish Permanent Under -Secretary of Foreign Affairs to the Turkish National Assembly, January 22, 1975.

"...Greece's concentration of forces on the islands of Rhodes and Kos do not have a great importance for us. We can easily keep these islands within the range of our 155mm artillery. In the case of a Turko-Greek war, however undesirable, we will have to use against these islands the landing craft, which were built especially for Cyprus. These craft can easily serve for other purposes, now that their mission in Cyprus has ended", statement by a Turkish government official to the turkish daily Cumhuriyet, April 3, 1975.

3. The presence of the 4th Turkish Army, the so-called Army of the Aegean, in the coast opposite the Greek islands of the Aegean is a source of permanent worry to Greece. Turkey maintains that the 4th Army is primarily a training unit. This claim is not supported however by the fact that, among other units, the 4th Army includes elite units of the Turkish armed forces. It includes the Marine regiment, the Commando brigade and the Parachute brigade. These can hardly be described as training units, they are the best trained units of any army and their mission is primarily offensive, such as air and amphibious assaults. Another source of worry for Greece are the 114 landing crafts of Turkey. Of these 60 are permanently moored in Izmir harbour, 30 in the Sea of Marmara, and 24 in Mersin harbour opposite Cyprus. In Izmir the Turkish forces stationed there are in possession of 300-400 plastic landing boats, capable of carrying 10-12 commandos to remote beaches of the Greek islands undetected. Thus, in the space of just a few hours, Turkey has the ability to land more than three thousand commandos on Greek islands near her coast.

4. Data on the size of the armed forces before 1961 was no available from the same source, in this case ACDA Yearbooks.

**5.** Israel's army is probably the best example of trying to reduce a quantitative disadvantage by using better quality weapons. Israel is surrounded by potential enemies far superior in numbers. The Israeli Defence Forces however have on a number of occasions in the past demonstrated that a better equipped and trained army can take on and beat enemies of much larger size.

**6.** Once again Israel offers a good example of policies aiming to improve the survivability of army personnel when faced with an enemy of superior numbers. The Israeli designed and built "Merkava" MBT is like any other modern tank with a difference. Unlike all other types of tanks, its engine is mounted in the front rather than at the rear. This, in theory, offers extra protection to the crew against frontal heats by enemy tanks, anti-tank weapons and artillery. Experience suggests that, in battle, tanks are more likely to be heat in the front rather than anywhere else. Thus, although the tank may be destroyed after a direct frontal heat, it is possible, in theory at least, for the crew to literately walk away unharmed, board another tank and continue fighting; or substantially reduce the degree of their wounds.

**7.** The right wing in Parliament did not dispute the existence of the Pericles Plan but argued that it was drawn up in the case of a communist uprising. When the Prime-Minister read out parts of it referring to its implementation for the 1961 elections the right wing replied that the use of the word elections was a mistake which was attributed to the officer who was the secretary of the committee that drafted the plan. The mistake was attributed to the "secretarial inexperience " of the particular officer. The name of the officer was major Papadopoulos. In 1967, colonel Papadopoulos led the officers in the army coup and became the head of the military junta (Katris 1974, p.122).

**8.** The "Supervised Zone" was created after the end of the Civil War in 1949 and stretched along the northern part of the country, about 600 Km, along the borders with Greece's socialist neighbours. Inside the zone the army and the security forces had increased powers, in line with the belief that Greece's defence priorities were against her northern neighbours. Nowadays, there is a so called "Supervised Zone" in Thrace, near the borders with Turkey, where a small muslim community lives.

**9.** US National Security report 103, Feb. 6, 1951, NA, Page 2-3, in Roubatis "The US and the Operational Responsibilities of the Greek Armed Forces 1947-77", in the Journal of the Hellenic Diaspora Vol. VI, no 1, Spring 1979, New York, Page 47.

**10.** US National Security Report 42/I, NA, Page 6, quoted in Roubatis "The US and the Operational Responsibilities of the Greek Armed Forces 1947-77", in the Journal of the Hellenic Diaspora Vol. VI, no 1, Spring 1979, New York, Page 46.

11. Data for the period 1963-73 was given ACDA Yearbook (1974) in constant 1972 prices (US dollars) whereas the period 1972-82 taken from ACDA Yearbook (1983) was in constant 1981 prices (US dollars). To avoid any problems of accuracy arising from converting data from 1972 constant prices to 1981 prices or vice versa it was decided to calculate each period separately in the original figures as provided by the source. In this respect, it is interesting to note the variations in results for the years where the figures overlap.

12. Many of the army officers that did not go to the Middle East with the government and the King during the years of occupation took little part in the resistance. A few of them colaborated with the Germans. This has prompted some writers to say that Greek behaved as opportunists in times of oppression and war (Stavrou, 1970). However many officers, especially those who were the subjects of the Metaxas purges before the war took part in the resistance with EAM and became popular heroes. Such a case was general Sarafis leader of the EAM army who was killed in 1954 by an American soldier serving in one of the US bases at the time in a hit-and-run "accident".

13. The meeting took place, according to general Karagiannis one of the participants of the meeting, in the General Centre for Training and Schools Camp in Palestine where the Greek army was being re-grouped by the British.

14. The precise date of the conversion of ENA to IDEA is not known. But the self proclaimed historian of the groups general Karagiannis says that this was the result of a meeting held in Athens on October 25, 1944, in which he participated.

15. In fact, there was another coup planned by some generals and the Palace due to take place a few days later. This group of officers came to be known as the "Big Junta", but the IDEA officers, most of whom were of middle rank under the general leadership of army colonel Papadopoulos (due to their lower rank the group came to be known as the "Little Junta") were aware of the generals' plans and decided to stage their coup a few days earlier from the generals and the King and thus to present them with a fait accompli.


Chapter 7

1. Hegemony implying the general leadership, dominance and control of one nation over the affairs of others

2. Report to the Cabinet by the Hellenic Air Force chief N. Kouris, 31st July 1984 on the subject of the procurement of new fighter planes as published in the daily "Kathimerini" 20th August 1989

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# APPENDIX I

For each of the estimated regression equations in this study the following statistics are reported:

$R^2$ — the value of the R-squared statistic. This measures the degree of the explanatory power of the regression. This lies between zero and one. A value close to unity is an indication that the fitted equation explains most of the data points.

s.e — the standard error of the regression equation. The lower the value of this statistic the better the estimated equation.

DW — the Durbin-Watson statistic. This is the conventional measure of the degree of serial correlation in the residuals (error term). Its value depends on the sample size, the number of the explanatory variables in the regression as well as the nature of the regressors themselves. In general a value close to 2 indicates no serial correlation.

F-stat - this test-statistic gives us a value for the significance of the whole regression. It is calculated as follows:

$$F = \frac{ESS/(k-1)}{RSS/(n-k)} = F_{v1,v2}$$

where
- ESS : expained sum of squares
- RSS : residual sum of squares
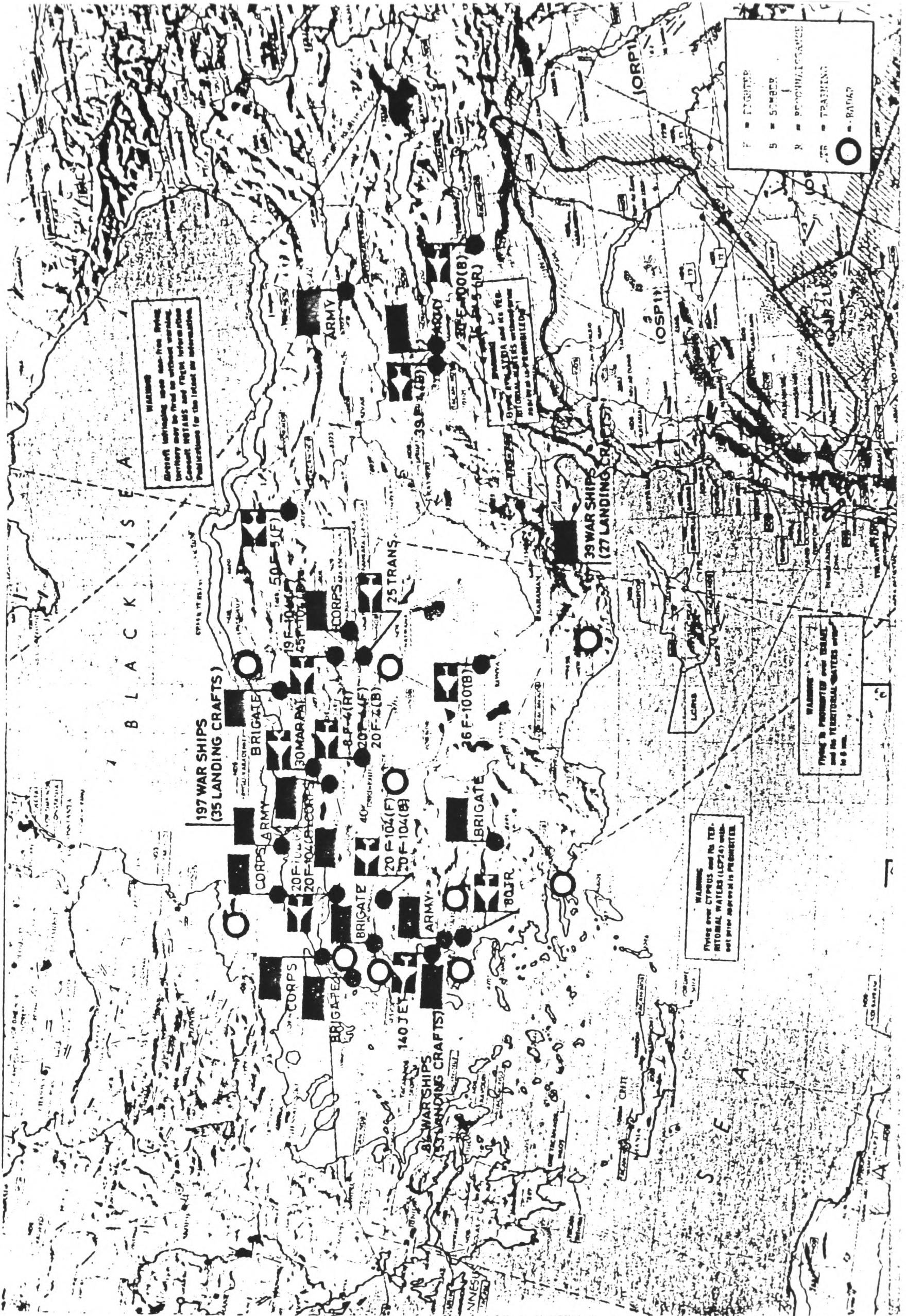- k : number of variables
- n : sample size

If F(calc) > F(tabulated) then we would reject the hypothesis that our regression equation is insignificant. Thus, we accept that it is significant. Usually a value above 5.5 would indicate significant relationship.

Finally, in every regression equation, the numbers in brackets are t-statistics. A value above 1.70 indicates a statistically significant coefficient.

Reference: Johnston, J: <u>Econometric Methods</u>, 3rd edition, 1984

## APPENDIX II

The map overleaf, shows the posture of the Turkish Armed Forces. As it can be seen, most of the Turkish forces are positioned near her western borders, particularly in eastern Thrace and Asia Minor. This, from a Greek point of view, is taken to indicate that the defence priorities/military objectives of Turkey are towards her western neighbours, mainly Greece and the Greek islands. The concentration and sheer volume of Turkish forces in Asia Minor is cited by Greece as proof of Turkish expansionist plans against her sovereignty. However, at the same time should also be pointed out that this may be in line with NATO planning. In the case of a conflict with WTO it would be expected that an attack from it forces will be aimed at capturing the strategic passages of the Dardanelles and Bosporus or the strategic Greek port of Kavala which is only about 40 kilometers away from the Bulgarian borders. Thus the Turkish forces may be positioned the way they are in order, along with Greek and other Allied forces, to prevent this from happening.

# APPENDIX III

The maps show the three lines of defence (map 1) offered by Greek territory from a NATO point in the case of a southward push a WTO forces (map 2). The first is made up by the Chalkidiki peninsular and the islands of Lemnos and Lesvos; the second one comprising the islands of Euboea, Andros, Tinos, Ikaria and Samos; and the third one stretching from the Peloponnese through Kithira, Crete, Karpathos and Rhodes (map 3). In the case of a generalised conflict, for the WTO forces to gain access to the Mediterranean Sea, it will not be sufficient to gain control over east and west Thrace, the Bosporus and the Dardanelles straits only. Their forces will have to run the gauntlet of passing through the Aegean Sea and the hundreds of Greek islands, which armed with modern weapons systems can make the passage of any enemy force very hazardous and unlikely to succeed. In particular, the island of Lemnos is at such a strategic position, that can effectively block the exit of any naval vessel from the Dardanelles, at the same time act as a staging post for re-enforcements arriving to support allied forces fighting on the mainland and, with its airport facilities, can provide air cover to the units on the mainland or act as a base for air-strikes against advancing WTO columns.

YUGOSLAVIA

BULGARIA

Constantinople

ALBANIA

Florina

Thessaloniki

Samothraki

Larissa

Straits

GREECE

Lemnos

Sporades Isl.

Lesbos

Chios

AEGEAN

TURKIE

Patra

Athens

Samos

Ikaria

CYCLADES

Kalamata

Leros

Rhodes

Crete

Heracleon

MAP 1

MAP 2

MAP 3



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