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NRI Report No: 2754

Rural Non-Farm Economy

Types of RNFE activities and their returns: Framework and findings

by

Steve Wiggins (ODI) and Junior R. Davis (NRI)

July 2003

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**Natural
Resources
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Types of RNFE activities and their returns: framework and findings

REPORT II.I

A note by Steve Wiggins (ODI) and Junior R. Davis (NRI)

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1 A typology of the rural non-farm economy

In this study the rural non-farm economy (RNFE) is defined as being all those income-generating activities (including income in-kind) that are not agricultural but located in rural areas (Lanjouw and Lanjouw, 1997). A key term in this definition of the RNFE is 'rural'. The OECD (1996) classifies predominantly rural areas as those where more than 50 per cent of the population live in rural communities, and significantly rural areas as those where between 15 and 50 per cent live in rural communities; but different studies include very different definitions of 'rural'. 'Agriculture' is here taken to mean all primary production of food, flowers and fibres - it thus includes growing crops, rearing livestock, horticulture (flowers, fruit and vegetables), forestry and fisheries. It excludes any food processing (although this may happen on-farm), agricultural services (whether technical or commercial) and also other primary sectors such as mining or quarrying. This definition is not solely activity based (waged work or self-employment), as it also includes non-earned income (social payments, remittances) as well as the rural institutional framework (roads, schools, hospitals etc.), which are an integral part of the rural economy.

There are few referenced sources that deal explicitly with the classification of rural non-farm activities, jobs and incomes, although many studies of the rural non-farm economy (RNFE) report data on one or other of these categories divided into headings that show implicit classifications - some examples appear in Annex D2. The exception is Barrett & Reardon 2000, whose arguments are summarised in Barrett, Reardon & Webb 2001. First, this paper will look at the issues that arise with classifications of the RNFE¹. Second, the paper will summarise the information contained in 55 studies concerned with the rural non-farm economy using a framework developed by the authors', which reflects the proposed typology, and finally compare the returns in the rural non-farm economy to those in agriculture in developing countries.

1.1 Is there a need for common classification?

There are two advantages of trying to get common classifications. One is for mutual understanding. It helps when reporting findings and discussing implications if different observers use similar terms and if those terms have similar definitions. The other is to take advantage of economies of scale in data collection. There are clear advantages if the terms and categories we use correspond to those used by official agencies for the regular collection and publication of economic data on a large scale.

But classifications designed to order observations from widely different contexts would inevitably produce schemes that are either unwieldy or even misleading in particular cases. What is appropriate will depend as much on what research and policy questions are being asked. So, for example, if we are interested in the degree to which farmers also undertake activities other than farming, their part-time engagement in fishing in the local rivers needs to be a separate category of analysis. But if, on the other hand, the focus is on developing enterprises in manufacturing and services, then farming and fishing may be combined into a single set of primary activities.

¹ The note should be read in conjunction with report 2 by Davis and Bezemer (2003) covering conceptual and definitional issues.

The diversity of (usually implicit) classifications found in the literature on the RNFE responds in large part to the different objectives and contexts of studies (see Report IV by S. Wiggins).

1.2 Classification of what?

The RNFE may be characterised by at least three categories: the activities undertaken; employment and the use of labour time; and incomes generated. These clearly overlap, particularly so for incomes, since the majority of rural income arises from payments to factors used in activities and from employment. Choice of category depends in part on the subject of interest: those interested in sectors and enterprise development tend to choose activities; those interested in welfare and poverty tend to look at jobs and incomes. Let us look briefly at employment classifications and then those for activities.

1.2.1 Income classifications

Income classifications have the advantage that they include sources that do not derive from activity and employment, such as transfers and rents, and if one is only interested in strictly local and rural elements of the RNFE, remittances as well.

1.2.2 Classifications by employment

Frequently divisions are made along the following lines:

- Sector and activity of employment (as for activity below);
- Self-employment versus working for salaries or wages. A problem that arises here concerns those tasks, which although nominally self-employed, respond so closely to the instructions of the customer that the job comes close to being employed - for example tailoring or taxi-driving. (Barrett & Reardon 2001 refer to these cases as ‘agency contracts’);
- Degree and timing of employment: full-time versus part-time, year-round versus seasonal, primary versus secondary employment²; and,
- Location: on-farm versus off-farm; local versus distant.

1.2.3 Classification of activity

These include:

Sector, with divisions corresponding to the nature of the outputs, processes or inputs used. The most common is to distinguish between primary, secondary and service sectors. Within each of these further sub-divisions can be made. This kind of classification is typically used when collecting official statistics on economic activity and in constructing national accounts. Annex D1 reports the Central Product Classification (CPC) designed by the UN - with notes on where typical developing country RNF activities would fit. In summary, the CPC has the following main divisions:

² These differences make it hard to report on employment. Studies that report only on the main employment can miss out on all manner of second and third jobs, as well as on seasonal variations. But collecting and reporting data on all the different things that a person may do can become extremely complicated.

Primary

- Agriculture, forestry, fishing
- Mining and quarrying
- Energy
- Water

Secondary: Manufacturing

- Food, drink, tobacco, textiles, leather
- Wood, fuels, chemicals, rubber, glass, furniture
- Metals, machinery, equipment

Tertiary: Services

- Construction
- Distributive trade, accommodation, transport and utilities
- Wholesale and retail distribution
- Food and accommodation
- Transport
 - Utility distribution
- Financial and related services
 - Finance
 - Renting and leasing
- Business and Professional services
 - Repairs
 - Telecommunications and data
- Community, social and personal services
 - Public administration
- Education
- Health
- Entertainment and sports
- Personal services
- Domestic services

The CPC surprises by the lack of differentiation at double-digit level of the manufacturing, and by the way in which services are categorised (transport divorced from telecommunications for example, repairs from retailing, etc.). The UK's standard industrial classification may be clearer (see Annex D3).

Demand or the market served. These are useful for those who have an essentially Keynesian view of the economy in which aggregate demand is the strongest determinant of activity. Three examples of this are worth noting:

Table 1 Demand and the determinants of RNF activity

<i>By market for output</i>	<i>By end uses of output</i>	<i>By type of rural non-farm activity...</i>	<i>...related to source of demand</i>
Provision of consumer goods & services for local markets	Consumer goods Utilitarian Artistic, Fine crafts	Manufacture of consumer goods for local rural market: Utilitarian, artisan Artistic, Fine crafts Industrial	Rural lower-income groups, Remote Salaried rural households, Ex-urban dwellers All rural households other than the poor
Manufacturing of goods for export	Intermediate and capital goods	Manufacture of consumer goods for domestic & export markets: Utilitarian, artisan Artistic, Fine crafts Industrial	Urban lower-income groups, if any Salaried urban households, Middle class All urban households other than the poor
		Trading & transport of manufactured goods from urban factories for the local rural market	All rural households other than the poor
Public services (e.g. teaching)		Provision of services for local rural market Private services Public services (e.g. education, health, information, roads, etc.)	All rural households other than the poor 'Community': but in reality, the budgets allocated to public agencies
Processing & transport of farm outputs	Agricultural processing	Processing, trading & transport of farm outputs	Immediate demand from: farmers, traders, processors Ultimate demand from urban consumers
Production, provision, transport of farm inputs		Production, trading & transport of farm inputs	Farmers
<i>Binswanger 1983</i>	<i>Saith 1992</i>	<i>Wiggins & Proctor 1999</i>	

Ownership: whether the activity is owner-operated, or relies on hired managers; or by gender of owner; and, Technology, capital, size and frequency: 'modern' versus 'traditional', 'high' versus 'low' technology; 'capitalised' versus 'traditional/subsistence/low capital'; micro, small, medium and large scale - usually defined by numbers employed, with 0-9 as micro, 10-49 as small, 50-99 as medium; full-time versus part-time or seasonal. A similar but imprecise distinction is that between 'formal' and 'informal'.

These distinctions can be useful when ease of start-up and access are the issues, or when looking at factor returns, above all, labour productivity. A major problem with these distinctions is that they tend to reduce continuous differences in, for example, capital invested, to ordinal and often bivariate measures. Moreover, the basis of the division may be either arbitrary or only appropriate to the context - for example, 'high capital' may mean anything more than US\$50 invested in rural Bangladesh, whereas a comparable threshold for Mexico might be US\$250. We will return to some of these issues below in section 3.

2 The RNFE: A framework for considering issues

Different classifications can be mixed to produce composites. These may be useful to analyse particular data sets and cases, but may be difficult or inappropriate to use in other cases. An ideal classification of the RNFE might capture some or all of the following distinctions:

- Activities closely linked to farming and the food chain, and those not part of that chain - since this captures the farm: non-farm distinction;
- Those producing goods and services for the local market, and those producing for distant market (that is, part of the 'economic base') - since the latter have the chance to create jobs and incomes independently of the farm economy; and,
- Those that are sufficiently large, productive, capitalised to generate incomes above those obtainable in farming, and those that offer only marginal returns - since this reflects the ultimate objective of alleviating poverty.

The first two criteria appear in the Wiggins & Proctor (1999) schema above in Table 1. The last is the kind of criterion that applies to different activities and jobs according to context. Below we summarise the information contained in 55 studies concerned with the RNFE, rural industrialisation, and rural diversification taken from across the developing world (see Annex D4). The information has been organised using the framework shown in Table 2. It has three main elements. The first considers factors that allow RNF activities to function: demand, supply and necessary transactions. This roughly corresponds to the input-output/results relation of the logical framework. The second considers the various linkages that may arise from successful RNF activities to other activities and factors. In logical framework terms, these are effects and arise as results reach purposes. The third part looks at impacts of RNF activity on poverty, inequality, and the natural environment. This might be seen as the goal level of the logical framework.

Table 2 The RNFE, a framework for considering issues

<i>A. Making rural non-farm activities function</i>			
<i>Dimensions</i>	<i>Detail</i>	<i>Normative criteria: desirable features</i>	<i>Sustainability: ability to survive and thrive through time</i>
Demand and the need for markets	Identifying opportunities in existing markets Reaching new markets Promotion and stimulating demand	Produce for markets that are growing	Awareness of market changes and possibilities
Supply: access to resources, inputs, and technology	Obtaining purchased inputs Access to land and other natural capital Credit Skills Information on markets and know-how	Make use of factors that are available at low opportunity cost	Awareness of changes in factor prices Awareness of new techniques Experimentation in techniques for greater economy of resources, higher quality of outputs and more added value in the product or service
Transactions: linking supply to demand, building chains and sub-sector networks (‘Economic governance’)	Organisation of producers Building institutions to lower T-costs and reduce risks - including the use of contractual forms that encourage investment, innovation, and risk-taking; and that share the benefits of specialisation and exchange fairly Building collective competence - shared access to market information, know-how, common services Public investments in physical infrastructure and social services	Public sector governance that effectively taxes and spend to create public goods and services that are valued Private innovation to link enterprises and build capacity Public activity to create civil associations to promote common interests, and to monitor the governance of private and government activity.	The creation of decentralised economic and social capacity that allows and promotes flexibility and subsidiarity, diversity and learning
<i>B. The effects of successful rural non-farm activity</i>			
<i>Dimensions</i>	<i>Detail</i>	<i>Normative criteria: desirable features</i>	<i>Threats</i>
Linkages	Production: creating demand upstream and downstream	Activities create (many) jobs and enterprises in the supply chain	RNF activities are enclaves with few local linkages - that may be facilitated by good transport and communications.
	Consumption: stimulating other sectors and services (multiplier effects)	That a proportion of increased incomes is spent locally, stimulating local manufacturing and, above all, local services	That consumers spend on ‘imports’, likely if returns go mainly to rich élites. They may even shop in distant regional centres, rather than local market towns

	Consumption: (private) investments in health and education	Increased incomes also invested in better nutrition of families, child and adult education, primary and preventative health	Services exist and are of reasonable quality.
	Taxation: resources for public investments	Broad-based taxes with minimal distortions and disincentives to produce, taxes on assets Governance: efficient, effective, equitable spending of tax revenues - with balance between investment for production and social spending for equity.	Narrow local tax base, with heavy taxes on production and trade - e.g. tax all goods moving through a road barrier, levy high fees for those with market stalls. Funds embezzled, spent on showpieces, awarded to cronies.
	Social capital generated through frequent interactions	Interactions within supply ('value') chains build confidence and trust between actors, enabling them to take greater risks in interacting.	Supply chains have few and infrequent interactions. Schisms based on ethnic, religious, political, regional, and family divisions destroy trust.

C. Impacts of rural non-farm activity

<i>Dimensions/Detail</i>	<i>Normative criteria: desirable features</i>	<i>Threats to be avoided</i>
Environment and natural capital	Maintains and enhances natural capital stock Critical environmental thresholds not passed	RNFE undermines the resource base, probably through pollution.
Poverty	Reduces poverty. Preferably has greatest impact on the poorest of the poor (improves the Sen index)	RNF activities controlled by elite groups, generate few jobs, pay low wages, profits expatriated
Social inequality, including gender differences	Reduces economic differences in gender, class, ethnicity, etc. by creating jobs and incomes for the disadvantaged Allows the disadvantaged more voice and confidence, raises esteem	Best opportunities in the RNFE go to those with capital and education. Opportunities for monopoly power and for rents to be generated. Few jobs or multipliers created in local economy.
Spatial inequality	Creates jobs and incomes in areas that are economically disadvantaged Builds economies around people: reduces the need to migrate	Best RNF opportunities arise in areas favoured by location and resources.

Accordingly, the cases were coded under nine headings: six to capture the elements of the framework, a descriptive one to summarise the main features of the RNFE as studied, and a final one to record any policy issues highlighted.

Nevertheless, what of the specific activities that make up the RNFE? In section 1 we discussed the issues surrounding a typology of the RNFE. Here is a proposed schema that tries to sort the different activities according to sector and by main market for goods and services (see Table 3).

Table 3 Proposed schema by RNF activity

<i>Rural non-farm activity</i>	<i>Typical activities</i>	<i>Comments</i>
Non-farm primary and processing	Mining of minerals Quarrying and production of building materials - stones, sand, gravel, bricks, clay tiles, lime, cement Charcoal production Salt extraction Fuel wood gathering and trading Water collection	Often small-scale, but quarrying may be industrial in scale and capital investment
Manufacture and repair of consumer goods for local rural market	Furniture-making Domestic utensils Clothes Shoes Blankets Mats Baskets Pottery Repairs - tools, clothes, shoes, electrical, vehicles Ice blocks	Almost always artisan industry carried out in small workshops at micro level
Manufacture of consumer goods for domestic & export markets: Utilitarian, artisan Artistic, Fine crafts	Pan scourers and other domestic cleaning items Textiles: blankets, clothes Leatherwork Furniture Mats, baskets Ceramics Wood carvings Decorations Tourist items	Artisan, micro scale
Industrial	Textiles and clothing Glass Metals Plastics Electronics	Uncommon Examples including sub-contracting from urban businesses, location subsidies from government
Trading & transport of manufactured goods, mainly from urban factories and warehouses for the local rural market	Transport and haulage Wholesale trading and storage Retailing	Much of this is small-scale, owner-operated, low capital. Often comprises 20% or more of all village economic activity.
Provision of services for local rural market Private services	Barbers, beauty salons Healing Cooked food sale, café, tea-stall, tea-shop, bars, restaurants, etc. Lodgings and accommodation Taxi, bus, other vehicle and transport Cleaning, cooking and child-minding Construction and building repairs Photography Musicians Religious instructors, teachers, priests Pawnbroker, money-lending, deposit-takers Typing, photocopying, fax, phone services	Micro-scale usually Another major component of the RNFE
Public services (e.g. education, health, information, roads, etc.)	Primary and secondary schools Health posts and centres Road maintenance Communications (posts, phones, radio) Police Extension services, usually agricultural and veterinary	Relatively well-paid and dependable employment. Many posts occupied by outsiders, often not resident in village.

Processing, trading & transport of farm outputs	Milling grains Sugar refining, jaggery Slaughtering and butchery - and meat salting, drying, preparation (ham, bacon, sausage) Dairy processing to cream, cheese, yoghurt Coffee, tea processing Fruit and vegetable packing and canning Brewing, fermentation and distilling Soft drink making Rolling cigars and cigarettes Honey cleaning Oil crushing and extraction Fish drying, salting Timber sawing, drying Cotton ginning ...AND Transport, storage and haulage of all these items	Mostly carried out prior to shipping produce to urban markets, but some processing for local consumption - especially grain milling, butchery, oil extraction, brewing and soft drinks.
Production, trading & transport of farm inputs	Simple tool making and repair Animal feed making Wholesale and retail of fertiliser, agro-chemicals, veterinary medicines Tractor and ox ploughing and other mechanical hire services	May be little of this when farmers collect from market towns and larger urban centres.

The importance of different elements of the RNFE varies. Some of the most precise (but not necessarily most accurate) estimates come from social accounting matrices (SAM) for villages. Table 4 reports some of these:

Table 4 The composition of the RNFE in village SAM

<i>Source</i>	<i>Case</i>	<i>RNFE modelled as</i> <i>[figures are % total village commodities accounts]</i>
Golan in Taylor & Adelman 1996	Village SAM, Senegal	In two villages: <ul style="list-style-type: none"> • Services - well digging, construction, teaching, tea-making: 1.4%, 3.2% • Commerce - petty trade in oranges, fish, condiments, and miscellaneous items: 25%, 3.6%
Subramanian in Taylor & Adelman 1996	Village SAM, Maharashtra, India	RNFE divided into: <ul style="list-style-type: none"> • Agricultural services: machinery hire, grazing, carpentry 1.5% • Village manufacturing: alcohol, flour milling, tailors, barbers, rood tiles, clay pots, basketry 2.2% • Retail trade 17% • Government services: health centre 1.7%
Taylor in Taylor & Adelman 1996	Village SAM (1988) for Napízaro, Michoacán, Mexico	RNFE as: <ul style="list-style-type: none"> • Non-agricultural 3.4% • Commerce 41%
Lewis & Thorbecke & Lewis & Thorbecke 1992	Kutus and surrounding region, Kirinyaga District, Kenya, 1987	RNFE as: <ul style="list-style-type: none"> • Farm-based non-farm 1.9% • Coffee processing 15.3% • Manufacturing 2.1% • Retail 39.0% • Transport 8.6% • Services 2.1% • Housing services 2.6% • Government services 3.1% • Financial services 1.4%
Ralston in Taylor & Adelman 1996	Village SAM, Sukabumi D., West Java, Indonesia, 1988/89	RNFE: <ul style="list-style-type: none"> • Construction 4.7% • Retail 19.6% • Small-scale food processing 4.7% • Large-scale food processing 6.4% • Light manufacturing 0.6% • Transport 7.5% • Wood products 5.6% • Education 2.4% • Health 0.1%
Rodríguez, Taylor & Yuñez-Naude 1998	Village SAM, La Concordia, San Pedro de las Colonias, Coahuila, Mexico, 1994 data	RNFE: <ul style="list-style-type: none"> • Other non-agricultural products 18% • Commerce 25%

The one thing that stands out from these data is the importance of commerce and trading, followed by processing of agricultural produce. Village level manufacturing in all cases comprises a small fraction of village activity. However, it should also be noted that manufacturing might be more important in rural towns. A further distinction that applies across most of these activities concerns scale, levels of capital investment, and labour productivity.

Many activities in the RNFE and most jobs arise in small-scale enterprises with low levels of capital investment in tools, machinery and premises and which rely on labour power deploying simple or craft skills. Thus most reports show the poor as engaged in wage labouring for others

in the community - farming and construction are frequently mentioned, and in self-employment³ in petty enterprises - including:

- Manufacture of baskets, mats, carpets, clothes (tailoring), pottery, food and drink processing (including milling, brewing and distilling), tools (and blacksmithery), charcoal, bricks, etc.; and
- Service provision in small-scale trading of cooked foods, farm produce, livestock, wood fuels; running small shops (including slaughter and butchery); repairing farm equipment, vehicles, some domestic items; transporting goods locally; pumping or fetching water; ploughing; hairdressing, healing.

What unites these activities is that almost all are rewarded at rates similar to, or below, average returns in (own-account) farming. Given the great variations in returns to farming, this may seem a gross generalisation. However, there is support for this argument: there are few accounts of people taking up these opportunities when they have the chance to till the fields or raise livestock. In households with land, people farm in preference to these activities when they can, and only undertake the non-farm activities in the off-season, if at all. We will further explore these issues in Section 3 of the paper where we present some data on returns to enterprises.

³ Categorising activities as ‘waged’ or ‘self-employment’ is inexact, since many of the ‘self-employment’ activities involve little or equipment or capital, deploy simple skills that can be readily learned on the job, and are tantamount to being wage labour. (On the other hand, it could be argued that what distinguishes self from wage employment is that in the former case no salary is earned. The type of work (skilled, un-skilled) and technology or capital used does not matter).

3 Comparing returns in the RNFE to those in agriculture

There is remarkably little quantitative evidence on the relative returns to farming and to non-farm activities. Although many studies report the shares of estimated household income arising from non-farm and other sources, they rarely report the share of labour time devoted to the different activities, so returns to factors in different activities can only be guessed at. This is because collecting data sufficient to compare returns to labour (or many other factors) is difficult, time-consuming and liable to mis-reporting since such information is often sensitive.

A further problem is that when returns are reported, it is usually not with sufficient detail to allow meaningful comparisons. For example, to report that the average non-farm wage in a rural economy is 'x', when this averages across activities with very different levels of investment and requirements for formal skills, and hence having very different returns to labour, is not much use when trying to compare returns between activities. For example, Escobal (2001, Table 3, p. 502) reports average returns in rural Peru in 1997 for self-employment and waged employment in both agriculture and non-agricultural activities, further disaggregated across three regions. These were computed on the basis of the 1997 living standards measurement survey (LSMS). It apparently shows that average earnings in the country as a whole were US\$0.60 a day and that for both self- and waged-employees, the non-agricultural earnings were higher than those in farming. However, Table 3 in Escobal (2001) also shows that waged returns were higher than self-employment in every region and category, and that the highest average returns were to non-agricultural wages in the highlands. These results are very surprising. Self-employment returns usually exceed those of wages, if only because in most forms of self-employment returns to capital and land (including premises) cannot easily be disentangled from returns to labour, and so labour ends up with a relatively high reward. If these results are accurate, the most likely explanation is that the categories aggregate cases that are so distinct, that the average becomes meaningless. Thus, this raises the question as to whether it makes any sense, for example, to average the wage of the assistant cook-cum-bottle-washer in an informal eatery with the salary of the head of the local primary secondary school?

Similarly, Ruben & van den Berg (2001, Table 1, 533) report national survey data for Honduras which shows that, for three regions and for small towns, wages in self-employment are the highest of all, the next best are non-farm wages and the lowest are farm wages. But for present purposes, what use is an overall average for self-employment or for 'non-farm wages'? They do show the overall level of returns useful for those interested in incomes and poverty - but they cover such a wide range of activities that they cannot be used to compare returns across activities. Nonetheless, despite these reservations we report evidence from three household surveys:

Table 5. Returns to activities, Leyte, Philippines, 1989

Income Source	Returns/Day, US\$/day
Crops	1.96
Upland crops	0.52
Rice	1.02
Coconut	2.79
Animals	0.88
Poultry and other	1.00
Hogs	1.02
Water buffalo	1.14
Cattle	1.53
Off-farm	1.32
Rice harvesting	0.75
Hired labor	1.28
Palm wine	1.42
Non-farm	1.57
Fishing	0.82
Crafts	1.16
Storekeeping	1.22
Snack production	1.67
Logging	1.74
Carpentry	2.01
Hauling	2.33
Trading	2.34
Government work	2.85

Leones & Feldman 1998

Table 6. Returns to activities in four villages, southern Ghana, 2000

	US\$/day
Carpentry	2.48
Charcoal making	2.61
Vegetable growing	1.58
Food crops	3.90
Daily farm wage, typical	0.71
Daily farm wage, max.	1.42

Source: Wiggins, Marfo & Anchirinah 2001

Table 7. Returns to labour, four Mexican villages, 1996–1998

	Returns, median, US\$ an hour	
	Median	Inter-quartile range
Artisan	0.25	0.20
Informal employee	0.26	0.16
<i>Agricultural labourer</i>	<i>0.41</i>	<i>0.16</i>
Servant	0.46	0.25
Construction worker	0.48	0.21
Carpenter	0.48	0.11
Driver	0.56	0.49
Informal worker	0.70	0.69
Trader	0.91	0.36
Formal employee	0.96	0.85
Soldier, Police	1.06	0.48
Teacher	1.85	0.71
Professional	2.35	1.13
Total	0.41	0.31
Women	0.36	0.35
Men	0.44	0.25

Source: Wiggins et al. 1999

Table 8. Returns to farming, Mexican villages, 1996-1998

<i>Crop, place</i>	<i>Returns to Family Labour, US\$/day</i>	<i>Returns to Family Labour, US\$/hour</i>
Maize, EPG	- 0.7	- 0.11
Maize Intercrop, AF	5.0	0.83
Coffee, PV	7.9	1.32
Spinach, SMJ	12.9	2.15

Source: Wiggins et al. 1999

NB: Assumes a 6-hour day in the fields

What do the above data show?

1. The returns are highly variable between activities. This confirms the previous point, namely that averaging across activities hides so much that it can mislead.
2. Returns to self-employment tend to exceed those to hired work. This applies as much to farming as it does to non-farming activities. The important exception being the Mexican data, where returns in formal employment, including professional work (teachers etc) are amongst the highest recorded.
3. There is a wide gap in returns between activities that require little or no capital to enter, and skills that can be easily acquired on the job, and those activities that demand capital, land or formal education.
4. How does farming compare to non-agricultural work, in these data sets? It is clear that agricultural labouring pays poorly - in all cases there are few activities that give a lower return. Fishing and craftwork are the only exceptions in terms of paying less. However, own-account farming can be as remunerative as most non-agricultural activities, especially when cash crops are concerned. Those with coconut plantations in Leyte, or spinach farmers in Santa María Jajalpa, central Mexico, make almost as much as those on salaries (e.g. government work). In between these cases, there are mixed results. In central Mexico, many crops generate returns to household labour higher than most non-farm activities, except for those with substantial businesses or salaried employment. In Ghana, the data suggests that growing food crops can be the most rewarding of all work. For Leyte, the returns to upland crops, rice and most livestock are lower than most off-farm and non-farm activities.

These activities are also fall-back (survival) activities, to which farmers resort when crops fail. In some societies, many of these (milling, trading, shop-keeping usually excepted) are seen as activities that mark people as socially inferior - even to the extent of defining a caste.⁴

There is a remarkable lack of mention in these cases of manufactured goods (or services) for urban markets, other than the processing of farm output or the trading and transport of livestock. The market for this work is almost entirely in the village or, at most, at a local rural market for sale to villagers from neighbouring communities. Issues of transactions scarcely arise, and when they do, there are usually well-established institutions devised to deal with the issues (for example, forms of labour hire).

This leads to the other general point about these activities. They barely involve a supply chain. With few exceptions, the goods and services produced are comprised of local raw materials and are sold locally. The chain often consists of no more than two or three actors - input supplier, producer, consumer - who live in the same locality, know each other well, and transact directly, face-to-face.

⁴ Caste is not exclusively an Indian or South Asian concept: for example the Ghanaian Sissala (they are a group from the Upper West who specialise in making charcoal. Their hamlets are temporary as they move to places with new supplies of wood and appear very poor). Slaughterers, smiths, charcoal-burners are all examples of occupations that are either looked down on, are taboo to most people, or even reserved for some low-ranked group.

In marked contrast, there are a few businesses that operate at a larger scale, have capital invested in tools, machines and premises, and may use labour with formal skills. Larger-scale businesses and salaried employment are usually only accessible to the better-off households. Larger businesses include:

- Trading with capital - stores, cafes, restaurants, bars of substantial size;⁵
- Transport services, usually involving a motor vehicle, and repair workshops; and,
- Manufacturing, involving some capital and usually employing a few full-time workers beyond the immediate household. Examples include: carpentry with power tools, medium to large scale specialised processing of farm produce (coffee pulping and drying, grain milling, mechanised oil crushing, etc.).

Another activity that requires capital is that of money-lending and deposit-taking. There is little direct reporting of this, although the existence of local, informal financial services is implicit in many studies when sources of capital and debt are described. The large majority of capital that has not been accumulated within the household or borrowed from friends and family comes from local moneylenders.

Salaried employment reported is overwhelmingly that in public service - school teaching, health services, administration and policing. General points that arise with these larger-scale activities include:

- Many produce the same goods as the activities on the earlier list; only they operate at larger scale, with more capital and equipment that allow higher productivity and some economies of scale. In some cases, the activities may cross capital thresholds that confer a natural monopoly on the business within the village;⁶ and,
- The market for the bulk of the outputs produced here is once again local, the main exception being those activities that form part of the agricultural and food supply chain. There is a remarkable lack of information and data on strictly non-agricultural activity that is for sale in markets beyond the local rural market centres.

The exception here concerns public employment. This produces a quite distinct effect in that there is next to no linkage to the demand side of the local economy. Not all public sector employment contributes to the village economy. Locals get access to only a fraction of these jobs, since many government staff serving rural areas are temporary in-migrants, rather than long-term residents. Moreover, some public employees may not even live in the rural areas, but commute in every day from town or city.

The ability of the village economies reported to export goods and services to the wider and urban economy lies mainly in primary produce - crops, livestock, fish, and forest products. However, they also often export labour services. Migration is not strictly part of the RNFE, but

⁵ Distinguished from petty versions by having dedicated premises and substantial inventories in both range and quantity of good stored.

⁶ However, it could be argued that village monopolists who exploit their position are likely to face competition from businesses based in rural market centres - e.g., taxi and bus operators who could find competitors arriving from nearby towns. Similarly, the village store that inflates prices unduly will invite customers to travel to other centres to shop. However, local monopolists may be able to exploit their power when they offer multiple contracts, a typical case being the village shopkeeper who offers sales on credit, an additional service that the larger store in town may be unwilling to match.

accounts of widespread migration appear in roughly half of the studies reviewed; and remittances are for some villages, and for some households within these villages, an inescapably important part of the local economy.

3.1 Interactions of non-farm activity and migration

The cases examined confirm much of what is known about migration from rural areas in the developing world (see McDowell & de Haan 1997, Wiggins & Proctor 1999, de Haan & Rogaly 2002). Where the incidence of migration has been recorded, the cases show that migration is quite common, with 10% to 50% of households typically having an adult migrant. It tends to involve young men more than other older persons and females. Migration levels are often higher from areas of low potential for farming, but much also depends on opportunity to move and knowledge of the possibilities. Social capital is often an important asset that makes migration possible. Above all, migration tends to be less a definitive rupture as an individual departs the village forever, so much as part of rural household livelihood strategies, in which many migrants will return.⁷

Remittances may be under-reported, but it is common to read reports that, for households with migrants, they make up between one tenth and one third of household income. At those levels, remittances may be a vital support to incomes and, when they come from regular dependable employment, they may reduce risks. But at these levels, they do not obviously transform rural livelihoods. In some cases, however, and especially when migration to industrialised countries occurs, remittances can generate substantial lump sums. These may then be invested in enterprises, including in land and livestock; or in major consumption items - TV, stereo, house construction and improvement, as well as contributing to local public investments.

What is known about the links between migration and the RNFE? First, does migration hinder the RNFE by removing potential labour, or pre-empting funds to cover the costs of migration? There are no reports of this in the cases reviewed. Second, does migration stimulate the RNFE? It may, because remittances allow investment in non-farm businesses and underwrite the risk of going into business (Davis, 2002)⁸. However, there are not that many recorded cases of investment in non-farm enterprises in these cases. When there is mention of investment, it is usually into housing and farming.

But life histories and case studies do show that returning migrants may bring back capital, equipment, skills and entrepreneurial experience that leads to them setting up new business. In China, those returning from the coastal export processing zones have been encouraged to establish rural industries (Murphy 1999). In Ghana migrants expelled from Nigeria in the early 1980s brought back vehicles, chain saws and generators that allowed them to create new businesses (Dei 1991) In Qwaqwa, South Africa, Slater (2002) recounts life histories that shows how those returning or expelled from the cities brought back taxes or funds to set up small

⁷ Dei 1991 tells of how second-time-around emigrants from one village in southern Ghana increased the frequency of their remittances to the home village after they had suffered expulsion from Nigeria and been forced to return home. Once home, they had depended on their families and neighbours to find work and land to tide them over the disruption. This made them acutely aware of the importance of their social ties in seeing them through a crisis. Those who subsequently departed again for urban work admitted that they sent back increasing amounts and more often than they had before the Nigerian shock.

⁸ Davis (2002), and Davis and Gaburici (2002) found that in Bulgaria and Romania around 40% of surveyed local rural entrepreneurs secured initial start-up capital from remittance income or temporary migration to the European Union states for work.

stores. For villages in Michoacán, Mexico, Taylor & Wyatt (1996) argue that when capital is scarce, the shadow value of remittances may be high - and demonstrate that migration allows households to overcome capital market limitations.

Remittances may stimulate the RNFE indirectly, as for example, when spending remittances provides a demand for local commerce, local services, or construction work. Capturing the full impact of remittances on the rural economy is possible through modelling. Taylor (2002) reports on the work of De Brauw, Taylor & Rozelle (2000) in China. This shows that although labour loss from migration does hit farming and rural businesses, the remittances have strong multipliers in the rural economy - of 2.78 for farming, and 4.50 for self-employment income flows. Similarly for villages in Michoacán, Mexico, models show that migration does reduce labour and encourages activities that are less intensive in labour, in this case, grazing livestock. However, remittances stimulate local incomes, encourage investments, including in livestock, and in schooling. This confirms earlier analyses for the same villages (Adelman et al. 1988).

As so often, the effect of migration out and remittances into a rural economy vary, depending on the context (including structures). Migration, quite apart from its value as a livelihood option, is likely to encourage the RNFE both through it being a potential source of investment capital as well as through consumption linkages.

Nevertheless, it is important to keep migration and remittances in perspective. Much migration is, like so much of the RNFE, essentially petty. The rurally under-employed move to the city or some other rural area where there is demand for labour, to work as unskilled labourers. They earn minimum wages and incur extra costs of travel and accommodation. Their remittances are meagre.

The big exception to this arises with international migration, when even being paid at below what is legal or socially acceptable in the host country still gives a wage several times that obtainable in the area of origin. For example, Mexican migrants in the USA in unskilled jobs can earn ten times the rate they can in Mexico. The other qualification is that migration can be highly uneven between regions, between villages and within communities.

4 Conclusions

We began by reviewing the issues underlying the development of a typology for the RNFE. We have discussed the key elements of a common clarification of the RNFE. Different classifications can be mixed to produce composites, which we have used in developing a framework for considering RNFE activities; this roughly corresponds to an input/output formulation for a logical framework. Commerce, trading and agri-processing are the most frequent non-farm activities; but what unites these (largely unskilled, informal economy) activities is that almost all are rewarded at rates similar to, or below average returns to (own account) farming. This raises questions as to the validity/ applicability of the reservation wage theory in driving “demand-pull” economic diversification. We then went on to compare returns in the RNFE to agriculture. Despite highlighting empirical problems with estimating returns, we found that that returns to self-employment tend to exceed waged employment. However returns are highly variable and there is often a gap between the estimated returns to non-farm activities that require little or no capital, skills or education and those that do. Finally we discussed the interaction of the RNFE with migration, particularly remittance income, which appears to be important in stimulating RNFE growth.

5 References

- Adelman, Irma, J Edward Taylor, & Stephen Vogel, 1988, 'Life in a Mexican village: a SAM perspective', *Journal of Development Studies*, 25 (1), 5–24.
- Barrett, C. B., T. Reardon & P. Webb, 2001, 'Nonfarm income diversification and household livelihood strategies in rural Africa: concepts, dynamics, and policy implications', *Food Policy*, 315–331.
- Barrett, Christopher B. & Thomas Reardon, 2000, 'Asset, activity and income diversification among African agriculturalists: some practical issues', Discussion Paper, Department of Agricultural, Resource & Managerial Economics, Cornell University, Ithaca NY 14853–7801.
- Berdegueé, Julio, Thomas Reardon & Germán Escobar, 2000, 'Empleo e ingreso no agrícolas en América Latina y el Caribe', Paper to 'Development of the rural economy and poverty reduction in Latin America and the Caribbean', New Orleans, Louisiana, March 2000 in conjunction with the Annual Meeting of the Board of Governors of the Inter-American Development Bank and the Inter-American Investment Corporation.
- Binswanger, H. P. (1983) 'Agricultural growth and rural non-farm activities'. *Finance and Development*. June, 38-40.
- Davis, J (2002) Constraints and Potential to the Development of Rural Non-Farm Activities in Armenia. Joint Endeavour European Commission and UN-FAO/SEUR GCP/ INT/ 758/ EC-ARM (unpublished mimeo).
- Davis, J (2002) Diversification of income and employment opportunities: RNFE feasibility study in selected areas in Bulgaria and Romania, DFID and UN-FAO/SEUR (unpublished mimeo).
- Davis, J. and Gaburici, A (2001) Non-Farm Employment in Small-Scale Enterprises in Romania: Policy & Development Issues in *NRI Social and Economic Series, Report No. 2637*.
- de Haan, Arjan & Ben Rogaly, 2002, 'Introduction: migrant workers and their role in rural change', *Journal of Development Studies*, 38 (5), 1–14
- Dei, George J S, 1991, 'The re-integration and rehabilitation of migrant workers into a local domestic economy: lessons for "endogenous" development', *Human Organization*, 50 (4), 327–36
- Escobal, Javier, 2001, 'The determinants of nonfarm income diversification in rural Peru', *World Development*, 29 (3), 497–508.
- Lanjouw, J and P. Lanjouw (1995) Rural Nonfarm Employment: A Survey. World Bank Policy Research Paper no. 1463.
- Leones, J.P. and S. Feldman (1998) 'Nonfarm activity and rural household income: Evidence from Philippine microdata'. *Economic Development and Cultural Change*, 46(4), 789-806.
- McDowell, Chistopher & Arjan de Haan, 1997, 'Migration and sustainable livelihoods', Working Paper 65, Institute of Development Studies, University of Sussex, UK
- Murphy, Rachel (1999) 'Return migrant entrepreneurs and economic diversification in two counties in South Jiang xi, China'. *Journal of International Development*, 11(4), 661-672
- Ruben, Ruerd & Marrit van den Berg, 2001, 'Nonfarm employment and poverty alleviation of rural farm households in Honduras', *World Development*, 29 (3), 549–560
- Saith, A. (1992) *The rural non-farm economy: Processes and policies*. Geneva: International Labour Office, World Employment Programme.
- Slater, Rachel, 2002, 'Differentiation and diversification: changing livelihoods in Qwaqwa, South Africa, 1970–2000', *Journal of Southern Africa Studies*, 28 (3), 599–614.

- Taylor, J Edward & Irma Adelman, 1996, Village economies. The design, estimation, and use of villagewide economic models., Cambridge University Press, Cambridge
- Taylor, J Edward & T J Wyatt, 1996, 'The shadow value of migrant remittances, income and inequality in a household-farm economy', *Journal of Development Studies*, 32 (6), 899-912
- Taylor, J. Edward, 2002, 'The microeconomics of globalisation: evidence from China and Mexico', Paper for discussion at the Global Forum on Agriculture: Agricultural trade reform, adjustment and poverty, May 2002, OECD
- Wiggins, Steve & Sharon Proctor, 1999, Literature Review: Migration and the Rural Non-Farm Sector, Mimeo.
- Wiggins, Steve, Kofi Marfo & Vincent Anchirinah, 2001, Environmental policies and livelihoods in the forest margins of southern Ghana, Report to NRSP, RNR, University of Reading, Mimeo, December 2001

6 Appendices and annexes

6.1 Annex D1: The UN Central Product Classification (CPC) & the RNFE in LDCs

CPC VERSION 1.1: BROAD STRUCTURE	RNFE examples
0 Agriculture, forestry and fishery products	
01 Products of agriculture, horticulture and market gardening	Farm economy
02 Live animals and animal products	Farm economy
03 Forestry and logging products	Farm economy
04 Fish and other fishing products	Farm economy
1 Ores and minerals; electricity, gas and water	
11 Coal and lignite; peat	1104 Peat cutting
12 Crude petroleum and natural gas	XXX
13 Uranium and thorium ores	XXX
14 Metal ores	1424 (Panning for) gold Mining
15 Stone, sand and clay	151 Quarrying, 1531 Sand-winning
16 Other minerals	1620 Salt extraction 163 Mining precious and semi -precious stones
17 Electricity, town gas, steam and hot water	XXX
18 Water	Water collection and delivery
2 Food products, beverages and tobacco; textiles, apparel and leather products	
21 Meat, fish, fruit, vegetables, oils and fats	211 Slaughtering and butchering meat 212 Fish processing, including salting and drying 213 Prepared and preserved vegetables 214 Fruit and veg. Juices 215 Prepared and preserved fruit and nuts 216 Crushing and extracting oils 217 Cotton linters 218 Oil cake
22 Dairy products	Making cheese, butter, yoghurt
23 Grain mill products, starches and starch products; other food products	231 Grinding and milling grains 232 Starches, including tapioca 233 Animal feeds 234 Baking 235 Sugar, including molasses 236 Cocoa 237 Pasta 239 Other food: coffee, tea, mate, sauces, vinegars
24 Beverages	241 Distilling 242 Wines 243 Brewing malt beer 244 Soft drinks
25 Tobacco products	2501 Rolling cigars and cigarettes
26 Yarn and thread; woven and tufted textile fabrics	261 Natural fibres for spinning 263 Spinning natural fibres 265-268 Weaving
27 Textile articles other than apparel	Carpets, bags, quilts, blankets
28 Knitted or crocheted fabrics; wearing apparel	Knitwear
29 Leather and leather products; footwear	Crafts in leather — bags, clothes 293-296 Shoemaking

3 Other transportable goods, except metal products, machinery and equipment	
31 Products of wood, cork, straw and plaiting materials	311-316: Wood prepared for use 319: Basket weaving, domestic utensils; tools; mats — from wood, wicker, cork, Carpentry, furniture making etc.
32 Pulp, paper and paper products; printed matter and related articles	(Rare)
33 Coke oven products; refined petroleum products; nuclear fuel	XXX
34 Basic chemicals	3432 Tanning chemicals and dyes extracted from animal or vegetable matter 3451 Wood charcoal
35 Other chemical products; man-made fibres	353 Soap 354 Essential oils, glues
36 Rubber and plastics products	362 Crafts in latex
37 Glass and glass products and other non-metallic products n.e.c.	371 Crafts in glass 372 Pottery 375-376 Bricks, blocks, slabs of cement, concrete, stone 379 Millstones
38 Furniture; other transportable goods n.e.c.	381 Furniture 382 Jewellery 383 Musical instruments 384-385 Sports, games, toys 389 great variety of misc. goods, including umbrellas, wigs, brushes, brooms, whips and crops, etc.
39 Wastes or scraps	391 Bran, bagasse, brewer's wastes
4 Metal products, machinery and equipment	
41 Basic metals	Some iron smelting to ingots and bars
42 Fabricated metal products, except machinery and equipment	Blacksmithery 429 Tools (Hand) for home and farm, chains, needles, hooks, pot scourers, etc.
43 General purpose machinery	
44 Special purpose machinery	441 Agricultural machinery, including ploughs 445 Tools for food processing: extractors, etc.
45 Office, accounting and computing machinery	XXX
46 Electrical machinery and apparatus	XXX
47 Radio, television and communication equipment and apparatus	XXX
48 Medical appliances, precision and optical instruments, watches and clocks	(Rare)
49 Transport equipment	492 Carts, trailers, coach work 493 Boats
5 Construction services	
54 Construction services	Building labour, including trades such as carpenters, joiners, glaziers, etc.
6 Distributive trade services; lodging; food and beverage serving services; transport services; and utilities distribution services	
61 Wholesale trade services	Trading
62 Retail trade services	Stores, market stalls, kiosks, door-to-door selling
63 Lodging; food and beverage serving services	Cafes, restaurants, hotels, kiosks
64 Land transport services	Taxis, Carts, Lorries
65 Water transport services	Ferries and boat transport
66 Air transport services	XXX
67 Supporting and auxiliary transport services	672 Storage and warehousing
68 Postal and courier services	(Rare)
69 Electricity distribution services; gas and water distribution services through mains.	(Rare)

7 Financial and related services; real estate services; and rental and leasing services	
71 Financial intermediation, insurance and auxiliary services	Money-lending, pawn-broking, deposit takers
72 Real estate services	(Rare)
73 Leasing or rental services without operator	Renting of vehicles, premises, domestic appliances (e.g. TV)
8 Business and production services	
81 Research and development services	XXX
82 Legal and accounting services	Lawyers, accountants
83 Other professional, technical and business services	838 Photographer
84 Telecommunications services; information retrieval and supply services	Phone operation, fax machines
85 Support services	?
86 Services incidental to agriculture, hunting, forestry, fishing, mining, and utilities	Agricultural extension
87 Maintenance, repair, and installation (except construction) services	Vehicle workshops, blacksmiths, Electrical repairs, Cobblers, Clothes repair
88 Manufacturing services on physical inputs owned by others	XXX
89 Other Manufacturing Services	Printing, photo-copying
9 Community, social and personal services	
91 Public administration and other services to the community as a whole; compulsory social security services	Police;
92 Education services	Primary and secondary schools; religious schools
93 Health and social services	Dispensaries, health posts, cottage hospitals; informal healers 932 Veterinary services
94 Sewage and refuse disposal, sanitation and other environmental protection services	(Rare)
95 Services of membership organizations	Cooperatives, religious services, youth associations, advocacy groups
96 Recreational, cultural and sporting services	Cinemas, travelling shows, musical groups
97 Other services	971 Washing, cleaning, dyeing 972 Barbers, beauty salons 973 Funeral services
98 Domestic services	Cleaning, washing
99 Services provided by extraterritorial organizations and bodies	XXX

6.2 Annex D2: Some lists of activities used in the literature

From Daniels 1999: survey of Kenya MSEs

Beer brewing
 Other food, beverages, tobacco
 Wearing apparel
 Shoes, textiles, leather
 Wood and cane products
 Other manufacturing
 Wholesaling
 Retail: agricultural produce
 Retail: charcoal and fuel
 Retail: hardware
 Retail: ready-made clothes
 Retail: second-hand clothes
 General grocery or kiosk
 Retail: all other
 Processed food sales
 Bars, hotels, and restaurants
 Repairs: shoes
 Repairs: all others
 Barbers, beauty salons
 All other services
 Evans & Ngau 1991, Kutus, Kenya
 Employment broken down into:
 Agriculture
 Manufacturing
 Commerce
 Transport & Communications
 Services

On-farm non-farm activities:
 Bricks
 Construction
 Baskets
 Posho mill
 Charcoal
 Beer brewing
 Bee-keeping
 Welding
 Water pumping
 Leones & Feldman 1998, Leyte, Philippines;
 Income Sources:
 Crops
 Rice
 Coconut
 Upland crops
 Animals
 Water buffalo
 Hogs
 Cattle
 Poultry and other
 Off-farm
 Rice harvesting

Hired labor
 Palm wine
 Rent
 Nonfarm
 Carpentry
 Storekeeping
 Fishing
 Logging
 Government work
 Snack production
 Trading
 Hauling
 Crafts
 Miscellaneous
 Remittances
 Foreign
 Domestic
Simmons & Supri 1997, Punjab: list of activities observed
 Soft drinks manufacturing and sales
 Welding workshop (household)
 Welding workshop
 Karyana (dry goods) store
 General store
 Halwi (sweets)
 Baker
 Blacksmith
 Ropemaking
 Hardware store
 Watch sales and repair
 Vegetable store
 Vegetable seller (mobile)
 Sweet seller (mobile)
 Radio/elcctrical repair
 Electrical store
 Electrical motor repair and sales
 House electrics installation and repair I
 Video/cassette sales
 Taxi owner
 Taxi driver
 Transporters
 Cycle repair
 Engine mechanics
 Scooter repair
 Tractor spare parts (sales)
 Tractor repair
 Automotive battery servicing
 Tailoring
 Barbers
 Tent house
 Photo framer
 Cobbler (mfg. sales and repair)
 Cobbler (repair)
 Goldsmith

Pharmacist
 Teastall
 Cloth merchant
 Cook
 Dry cleaning,
 Private tuition
 Property management
 Cable TV
 Photography
 Raggi (singer)
 General construction labour
 Masons
 Paint contractor
 Painters
 Sawmills
 Carpentry
 Brickworks
 Cleaner
 *'Includes 'casual' wage labour
Tellegen 1998, Malawi
 Divided enterprises by amount of investment
 needed, and by whether producing goods or
 services
 Dev 2002, India
 Overall classification by sector:
 Agriculture & allied
 Mining & quarrying
 Electricity, gas, water
 Construction
 Transport, storage, communications
 Trade, hotels, restaurants
 Services
Lanjouw & Feder 2001, General

Non-farm economy = Mining & Construction,
 Manufacture, Commerce & Transport, Services
Haggblade, Hazell & Reardon, 2002

Resource extraction
Manufacturing
 maize beer brewing
 weaving
 charcoal production
 wood products
 sawmilling
 grain milling
 other food processing
 other manufacturing
Construction
Trade, transport and
communications
 trade
 transport
 hotels and restaurants
 post and
 telecommunications
Private services
 housing
 finance
 repairs
 entertainment
 health
 education
 other services
 seasonal labor
Government services

6.3 Annex D3: The UK Standard Industrial Classification of Economic Activities - UK SIC (92)

Primary

- A Agriculture, hunting and forestry
- B Fishing
- C Mining and quarrying
- CA Mining and quarrying of energy producing materials
- CB Mining and quarrying except energy producing materials
- D Manufacturing
- DA Manufacture of food products, beverages and tobacco
- DB Manufacture of textiles and textile products
- DC Manufacture of leather and leather products
- DD Manufacture of wood and wood products
- DE Manufacture of pulp, paper and paper products; publishing and printing
- DF Manufacture of coke, refined petroleum products and nuclear fuel
- DG Manufacture of chemicals, chemical products and man-made fibres
- DH Manufacture of rubber and plastic products
- DI Manufacture of other non-metallic mineral products
- DJ Manufacture of basic metals and fabricated metal products
- DK Manufacture of machinery and equipment not elsewhere classified
- DL Manufacture of electrical and optical equipment
- DM Manufacture of transport equipment
- DN Manufacturing not elsewhere classified

Services

- E Electricity, gas and water supply
- F Construction
- G Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods
- H Hotels and restaurants
- I Transport, storage and communication
- J Financial intermediation
- K Real estate, renting and business activities
- L Public administration and defence; compulsory social security
- M Education
- N Health and social work
- O Other community, social and personal service activities
- P Private households with employed persons
- Q Extra-territorial organisations and bodies

6.4 Annex D4. A guide to the cases reviewed

<i>Region or country</i>	<i>National data</i>	<i>Survey at District or village levels</i>
Africa		
Eastern & Southern Africa	<i>Mead 1994 on Botswana, Kenya, Malawi, Swaziland, Zimbabwe</i>	
Botswana		<i>Panin et al. 1993 on Kgatleng D.</i>
Ethiopia		Carswell 2002 on Wolayta
Ghana	<i>Canagarajah et al. 2001</i>	Okali & Sumberg 1999 on tomatoes in Pamdu, etc. Jones et al. 1999.
Kenya	<i>Daniels 1999, Livingstone 1991</i>	Gichuki et al 2001, Nelson 2000 on Makueni. <i>Evans & Ngau 1991, Lewis & Thorbecke 1992 on Kutus. Hunt 1995 on Mbeere</i>
Malawi	Sen & Chinkunda 2002	<i>Tellegen 1998 on Machinji & Salima. Orr & Orr 2002 on southern Malawi. Ellis et al 2002 on Dedz. & Zomba D.</i>
Niger		Drylands Research 2001 on Maradi
Senegal		Faye et al 2001, Faye & Fall 2001 on Diourbel
South Africa		Soussan et al 2002 on Bushbuckridge D, KwaZulu-Natal Scoones 2002 on Wild Coast, Eastern Cape. <i>Slater 2002 on Qwaqwa, Free State. Bins & Nel 2002 on E. Cape & KwaZulu-Natal</i>
Swaziland	<i>Leliveld 1997</i>	<i>Simelane 1995 on Southern Swai</i>
Tanzania		Ellis & Mdoe 2002, Lyimo-Macha & Mdoe 2002, Ashley et al. 2002 on Morogoro D. Homewood et al. 2002 on Ngorongoro
Uganda	Balihuta & Sen 2001 <i>Canagarajah et al. 2001 Deninger & Okidi 2001</i>	Frank & Bahiigwa 2001, McDonagh & Bahiigwa 2001, Dolan 2002 on Mbale, Kamuli & Mubende D. Smith et al. 2001; Zwick, in Rakai and Kumi.
Zimbabwe		<i>Berkvens 1997 on Mutoko. Piesse et al 1999 on Chiweshe & Gokwe</i>
Asia		
Bangladesh	<i>Mandal 2002, Toufique 2001</i>	Greeley 1999, Toufique & Greeley 1999 on Chandina & Madhupur
China		<i>Cook 1999 on Shandong. Murphy 1999 on S. Jiangsi Wang 1997 on the Shenyang-Dalian corridor</i>
India,	Dev 2002, Salagrama 2000	Basix 2002 on Andhra Pradesh. <i>Unni 1996 on Gujarat Simmons & Supri 1997 on Punjab, Dasgupta et. al., (2002) on madhya pradesh; Wandschneider et.al.; Bolangir, 2003, 2002; Marter, Madhya Pradesh (2001, 2002); Kleih (2003).</i>
Indonesia		<i>Leinbach & Smith 1994 on south Sumatra. Tambunan 1995 on Ciomas, W. Java</i>
Nepal		Adhikari 2002 on Pokhara region. Blaikie et al. 1998, 2002 on West-Central Nepal
Pakistan	<i>Adams 1994</i>	
Philippines		<i>Leones & Feldman 1998 on Eastern Visayas, Leyte</i>
Sri Lanka		<i>Balasuriya et al. 1998</i>
Latin America & Caribbean		
Brazil		<i>Roberts 1995 on Carajás, Pará</i>
Mexico		Wiggins et al. 1999 on central Mexico
Region wide		RIMISP, 2000, 2001. RUTA, 2002. Wandschneider, 2002.
Transition Economies		
Armenia	Davis et.al. 2001, 2002; 2003	Davis et.al., 2001, 2002. Bezemer & Davis, 2002. Armenia.
Georgia	Davis et.al. 2001, 2002; 2003	Davis et.al. 2001, 2002. Kakheti, Guria.
Romania	Davis et.al. 2001, 2002; 2003	Davis & Gaburici, 2001. Janowski & Bleahu, 2001 in Brasov and Dolj.
Russia		ADAS Intl., 2001. Case studies
Ukraine		ADAS Intl., 2001. Case studies
Uzbekistan		Kandiyoti 1999
Region wide		Wandschnieder & Davis, 2002; Davis & Pearce 2001; Davis and Bezemer, 2003.

Cases in italics refer to studies **not** funded by DFID.



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