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Transforming Rural Economies

CHAPTER 3

ECONOMIC DIVERSIFICATION, NON-FARM ACTIVITIES AND RURAL TRANSFORMATION

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CHAPTER 3

Economic Diversification, Non-Farm Activities and Rural Transformation

A. Introduction

As discussed in Chapter 1, the rural population of least developed countries (LDCs) accounts for 69 per cent of the total; rural workforces are projected to increase substantially over the next 15 years; and poverty is both more widespread and deeper in rural than in urban areas. The need to increase agricultural productivity limits the potential to absorb more workers productively in the agricultural sector, or even to retain the existing workforce in the sector. The main options available are thus migration to urban areas or engagement in non-farm activities in rural areas (Lanjouw and Lanjouw, 2001). Involvement in non-farm activities can offer a pathway out of poverty — but only if there are sufficiently productive and remunerative opportunities available, and if poor households are able to take advantage of them (Egyei, Harrison and Adzovor, 2013).

Involvement in non-farm activities can offer a pathway out of poverty — but only if there are sufficiently productive and remunerative opportunities.

While farming is generally the principal economic activity of rural households, and the dominant view of rural development has focused on promoting agriculture among smallholders (Ellis and Biggs, 2001; Haggblade, 2007), most rural households engage in a range of economic activities. Agriculture remains important, but it is by no means the sole, or in some cases even the principal, activity of poor households in rural regions (FAO, 1998; Haggblade, Hazell and Reardon, 2007), and non-farm incomes play a key role in rural economic transformation.

This has led to an increasing appreciation of the importance of non-farm activities and their interlinkages with the agricultural sector since the early 1990s.[1] Since two thirds of smallholder farmers lack the resources to "farm their way out of poverty", poverty eradication will require the creation of remunerative employment in activities outside farming, including agribusiness, industry and services (Yumkella et al., 2011).

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In countries with a predominantly rural population, increased agricultural incomes and more equitable distribution in rural areas can boost effective demand for higher-value and more processed agricultural produce, and for industrial goods and services. Equally, viable rural development requires diversification of rural economies into such activities. Increasing incomes and diversifying production both require extension and improvement of infrastructure, including power supply, transport, communication, housing, water supply, marketing and storage facilities, with scale and technology oriented towards the needs of rural populations (FAO, 1998). The combination of higher incomes, increased and diversified employment opportunities, and improved infrastructure can help to limit push-driven rural-urban migration and slow the growth of urban poverty and slums.

Rural structural transformation means increasing agricultural productivity, non-farm activities and production of higher-value agricultural products.

The key to rural structural transformation is to move beyond infrastructure provision to link the demand and supply sides of this equation: to enable rural producers to respond effectively to the market changes associated with demand changes as development progresses and incomes rise. This means focusing not only on increasing agricultural productivity, but also on non-farm activities and increasing production of higher-value agricultural products.

Despite the greater attention paid to the rural non-farm economy (RNFE) over the past 20 years, data on rural non-farm (RNF) activities are not systematically available, as data on production, employment and incomes are not routinely disaggregated between rural and urban areas. The available information thus comes largely from individual case studies by academic researchers, based on primary data. As discussed later in this chapter, the coverage of such studies is

very limited; and even where data are available, especially at the national level and across large regions, there are serious limitations in their interpretation.

This chapter begins with an assessment of the different motivations for households to engage in non-farm activities, the non-farm income sources available to them, and the routes out of poverty that such incomes can provide. This is followed by a discussion of the multiple dimensions of economic diversification, highlighting the contradiction between need and opportunity (the fact that those households and areas with the greatest need for diversification have the least opportunity to diversify) and the serious problems in interpreting such data on rural economic diversification as are available.

The great majority of people in rural areas in LDCs are engaged in agriculture, as small farmers and/ or labourers.

A summary of existing evidence on the extent of non-farm activities in rural areas of LDCs is followed by new estimates for selected LDCs (based on an analysis conducted for this Report) and a brief assessment of the current state of rural structural transformation in LDCs as a whole. After assessing the role of RNF activities in promoting agricultural upgrading and of demand and hard and soft infrastructure as drivers of rural economic transformation, the chapter concludes with an assessment of key sectoral priorities in peri-urban, intermediate and remote/isolated rural areas.

For most households, non-farm economic activities provide a significant source of supplementary income, often from multiple sources: Household income diversification is the norm.

B. Patterns of rural economic diversification

1. Household motivations for engagement in non-farm activities

The great majority of people in rural areas in LDCs are engaged in agriculture, as small farmers and/or labourers; and for most households, agriculture is the main source of income (or consumption, for those engaged in subsistence production). For most, however, non-farm economic activities provide a significant source of supplementary income, often from multiple sources: Household income diversification is the norm, and complete specialization the exception (Dimova and Sen, 2010). This multiplicity of income sources (often referred to as pluriactivity) is encapsulated in the livelihoods approach, which views households as using a range of assets in a variety of agricultural and non-agricultural activities, as part of an overall livelihood strategy (Ellis, 2000 and 2005; Winters et al., 2009).

Some households engage in what might be termed "entrepreneurship by choice", drawn into activities they consider profitable by the pull of remunerative opportunities

There are three main motivations for engagement in non-farm activities, although the lines between them are blurred. Some households engage in what might be termed ***"entrepreneurship by choice"***, drawn into activities they consider profitable by the ***pull*** of remunerative opportunities to generate incomes beyond their immediate consumption needs. These are primarily households with good asset endowments, particularly land, education and infrastructure, which allow them to enter markets with relatively high barriers and higher income levels (Winters et al., 2009). Such households generally pursue accumulation strategies aimed at maximizing benefits from changing contexts (Tacoli, 2003), often based on exploiting complementarities between activities (e.g. crop and livestock production, or crop production and processing) or on exploiting opportunities arising from access to technologies, skills or endowments.

Other households are driven into "entrepreneurship by necessity" by the push of inadequate farm incomes.

Other households are, rather, driven into ***"entrepreneurship by necessity"*** by the ***push*** of inadequate farm incomes, either as a temporary expedient (e.g. due to crop failure or illness of a family member) or on a long-term basis, due to the insufficiency of their own production to meet their consumption needs. Non-farm income is thus particularly important where farming income is insufficient, for example due to poor agroecological conditions, low prices, crop and animal

diseases or limited land availability (Ellis, 2005; World Bank, 2007; Dabalen, Paternostro and Pierre, 2004).

Such "entrepreneurs by necessity" are generally households with little or no land, livestock or other material resources, and limited education. Consequently, they can only engage in activities with low entry barriers, which have commensurately low returns. Others facing constraints on productivity or market participation — for example, female-headed households and people affected by disability or chronic illness — may be in a similar position. In areas with unfavourable agricultural conditions that are more distant from urban markets, much of the income diversification that occurs is of this nature, and may reasonably be characterized as desperation-led (Barrett, Reardon and Webb, 2001). Such circumstances lead to oversupply in low-barrier occupations, depressing incomes still further.

Agriculture is one of the riskiest sectors of economic activity, prone to major shocks to both output and prices.

This duality between "push" and "pull" factors is reflected in two contrasting views. Agricultural optimists (e.g. World Bank, 2007; Losch, Fréguin-Gresh and White, 2012; Balihuta and Sen, 2001; Haggblade, 2007) tend to see livelihood diversification as emerging from agricultural success, and agriculture as a driver of non-farm opportunities. Agriculture sceptics (e.g. Ellis, 2005), conversely, see this positive view as underestimating the challenges to agriculture of liberalized markets (and declining farm sizes in some areas). They thus interpret diversification rather as a response to the failure of agriculture to generate sufficient secure livelihoods for the rural population.

Risks are greatest in poorer and more remote areas and for poorer households within rural areas.

The third major motivation for household income diversification is ***risk management*** (Holden, Shiferaw and Pender, 2004; Ruben and Pender, 2004). Agriculture is one of the riskiest sectors of economic activity, prone to major shocks to both output and prices, and financial risk-reduction instruments such as insurance are severely lacking in rural areas (and would be unaffordable to those who need them most). Such risks are greatest in poorer and more remote areas, where limited access to markets increases price volatility; and for poorer households within rural areas, who have less savings or saleable assets, and whose incomes may also be at the level of bare survival even before shocks.

A key aspect of coping strategies is seeking income from multiple sources subject to different risks.

Consequently, such shocks can result in further impoverishment and asset depletion of poor households through distress sales of livestock, and even land, from which they may recover only after a considerable period (or not at all, in the case of forced land sales). They can also have impacts on nutrition, health and education that have permanent and even (in the case of girls and women) intergenerational effects. Such risks can thus create downward spirals of perpetual impoverishment (World Bank, 2007), leading households to self-insure against risk through a variety of coping behaviours (Barrett, Reardon and Webb, 2001). A key aspect of such coping strategies is seeking income from multiple sources subject to different risks (although these risks may be highly correlated), even where the returns to the available (low entry-barrier) activities are very low.

2. Non-farm income sources

Because entry barriers are low, farm wage labour is generally supplied by poorer households or by those affected by crop failures.

The potential for ***wage employment in agriculture***[2] is generally limited in areas where smallholder agriculture predominates, due to the use of family labour, and such opportunities as exist are primarily for seasonal or casual labour. This applies particularly to subsistence and semi-subsistence-based systems, but also in cash-cropping areas. Farm wages also tend to be lower than in non-farm sectors, partly reflecting more limited skill requirements, although this is not always the case (Lanjouw, Quizon and Sparrow, 2001). Because entry barriers are low, farm wage labour is generally supplied by poorer households (Haggblade, 2007) or by those affected by crop failures.

As a result, agricultural wage employment is generally a much less important source of income than non-farm activities, particularly in Africa (FAO, 1998). In LDCs, total household income from non-agricultural activities typically exceeds agricultural wage income by a factor of 3–4 (Annex table 3.2). Wage employment generally accounts for only 5–20 per cent of total agricultural income in African LDCs, but 25–40 per cent in Bangladesh and Nepal.

Local non-farm earnings are typically around 2–5 times migration income overall, and can be 10–20 times higher in areas of high agricultural potential.

Contrary to conventional wisdom, ***migration incomes*** are also generally (with some exceptions, notably Lesotho) much less than income from local non-farm activities. They are also generally less widely distributed, often being concentrated in relatively few better-off households, and are highly variable over time (de Haan, 1999; de Haan and Rogaly, 2002). Studies in LDCs suggest that local non-farm earnings are typically around 2–5 times migration income overall, and can be as much as 10–20 times in areas of high agricultural potential (table 3.1).

In the absence of a significant market for agricultural wage labour, the main source of alternative incomes is in the ***rural non-farm economy***. This comprises a very wide range of extremely varied activities defined only in terms of not being agricultural (Lanjouw, 2007), including, for example, agroprocessing, manufacturing, mining, commerce, transportation, utilities, tourism and a wide range of other services (Castillo and Sodergren, 2015; Wiggins, 2014).[3]

In the absence of a significant market for agricultural wage labour, the main source of alternative incomes is in the rural non-farm economy.

Despite widespread self-employment, wage income can be as important to total RNF income as self-employment, and more important in some Asian LDCs. In most African LDCs (Malawi is an exception), self-employment income is more important than wage income, but the reverse is the case in Bangladesh and Nepal (Davis, DiGiuseppe and Zezza, 2014, table 3, p. 9), possibly reflecting the higher level of RNFE development, as discussed later. It should, however, be noted that these averages are likely in practice to include non-farm incomes in some towns in rural regions, as well as rural areas themselves: The relative importance of wage income is generally greater in and closer to towns, and in other areas with higher incomes and denser infrastructure, while self-employment (mostly part-time, reflecting household income diversification) predominates elsewhere (Reardon et al., 2007).

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3. Household specializations and routes out of poverty

As noted above, income diversification is the rule rather than the exception among rural households; and the degree and pattern of income diversification varies widely, both between areas and among households. Nonetheless, the majority of households generally have a single primary type of income, with one or more supplementary sources. Five main household types can thus be identified (World Bank, 2007; Losch, Fréguin-Gresh and White, 2012):

The majority of households generally have a single primary type of income, with one or more supplementary sources.

- Subsistence-oriented smallholders, who depend mainly on agricultural production for their own consumption;
- Market-oriented smallholders, who derive most of their income from sales of agriculture produce;
- Labour-oriented households, who derive income mostly from paid work on others' farms and/or from employment or self-employment in non-farm activities, often because of landlessness or insufficient plots;
- Migration-oriented households, who depend primarily on transfers from family members who have migrated (generally to urban areas, but in some cases internationally or to other rural areas); and
- Diversified households, who combine incomes from farming, non-farm activities and/or migrant remittances, with no single dominant source.

The data needed to estimate the breakdown of households between these types is limited. To illustrate, however, in Malawi the most common type in 2004 was diversified households, representing 39 per cent of rural households, while 24 per cent were labour-oriented, 20 per cent market-oriented smallholders, 14 per cent subsistence-oriented smallholders, and only 3 per cent migration-oriented.[4] This is similar to the pattern in Nepal in 1996.[5]

The potential routes out of poverty for rural households lie in market-oriented smallholder farming, non-farm activities, rural-urban or cross-border emigration, or some combination of these three.

Given the intrinsic limitations of subsistence agriculture as well as limited opportunities and low wages for agricultural labour, the potential routes out of poverty for rural households thus lie in market-oriented smallholder farming, non-farm activities, rural-urban or cross-border emigration, or some combination of these three (World Bank, 2007).

4. The spatial dimension

Both the composition and the dynamics of the RNFE sector differ considerably between settings, as varied initial endowments and human responses propel the sector along a wide range of potential growth paths (Hazell, Haggblade and Reardon, 2007, pp. 95ff). A key dimension of this is proximity to urban areas, which provide an important engine of growth for surrounding areas, greatly increasing opportunities for income diversification (Barrett, Reardon and Webb, 2001; Reardon et al., 2007). As well as the time, cost and ease of travel to urban centres, the strength of this effect depends on the size of their markets, the vigour of their growth and the extent and nature of their interactions with the surrounding rural areas.

Urban markets provide an important engine of growth for surrounding areas, greatly increasing opportunities for income diversification.

Rural and urban labour markets are linked, to varying degrees, by the potential for rural-urban migration, which tends to be most prevalent among rural households near urban centres (and in peri-urban areas by the potential for daily or weekly commuting). Non-farm employment opportunities in rural areas likewise depend on proximity to urban centres, as do agricultural incomes (Ruben and Pender, 2004; Fafchamps and Shilpi, 2003; Tacoli, 2003; Ruben and Pender, 2004). Rural producers in areas further away from urban markets have less potential to sell to them, not least because they have to compete with producers nearer at hand with lower transportation costs and faster delivery times, and generally better access to inputs and hard and soft infrastructure. Here, therefore, development of the RNFE is focused primarily on local markets, and potentially on export markets for agroprocessing; its scale, structure, and evolution are primarily shaped by agriculture (and to a lesser extent by tourism and mining, where they exist).

Both agricultural and non-farm income opportunities tend to decline as distances from urban centres increase.

Thus, both agricultural and non-farm income opportunities tend to decline as distances from urban centres increase. This is reflected in patterns of RNFE development, which occurs further and faster, and generates higher returns, closer to cities, especially in areas with good agricultural performance. Even good agricultural areas further from the cities are much more constrained in RNFE development, especially in more remunerative activities (Deichmann, Shilpi and Vakis, 2009; Lanjouw, Quizon and Sparrow, 2001). Patterns of agricultural production likewise reflect urban proximity, higher-value crops for local markets being produced mainly near urban centres, and commercial production of other crops predominating in intermediate rural areas, while more remote areas engage mainly in subsistence agriculture (Fafchamps and Shilpi, 2003).

These differences in economic opportunities create a similar pattern in wage levels, with concentric circles around cities, across which wages decline as transport costs increase (Jacoby, 2000; Deichmann, Shilpi and Vakis, 2009). Beyond peri-urban areas, labour markets are typically characterized by an excess supply of labour (except during peak seasons), due to a combination

of limited opportunities for wage employment and factors pushing poorer households into seeking supplementary incomes and income diversification. Wages are thus very low, and increasing demand for labour may in itself do little to raise them until local rural development progresses far enough to absorb surplus labour productively.

5. The several dimensions of diversification, and implications for data interpretation

The degree and nature of income diversification, and its motivation, vary widely among households; and there are systematic differences between rural areas.

The trends described above give rise to a complex multilevel pattern of diversification. Not only are rural economies diversified, with incomes drawn from agriculture and non-farm sources, but so, too, are most households; and part of this household income diversification comes from combining incomes from different household members, each of whom may be more or less specialized. The degree and nature of income diversification, and its motivation, varies widely among households; and there are systematic differences between rural areas, reflecting their proximity to urban markets, their agricultural potential and their potential for activities such as mining and tourism.

There is also an important temporal dimension: Income diversification over the course of the year is often partly a result of engaging in different occupations in different seasons. In smallholder-based economies particularly, reliance on family labour gives rise to extremely strong seasonal patterns in the demand for wage labour in agriculture, and non-farm activity typically surges in seasons of lower agricultural labour demand, creating a strongly countercyclical pattern (Haggblade, Hazell and Dorosh, 2007).

In smallholder-based economies, reliance on family labour gives rise to extremely strong seasonal patterns in the demand for wage labour in agriculture.

Equally, there is an important distinction between diversification of employment (or income sources) and diversification of income. Since the returns on many secondary activities are low, the diversity of occupations does not always translate into income diversification.

These intersecting patterns of specialization and diversification mean that considerable caution is needed in interpreting data on the composition of income and employment.

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- A given breakdown of rural employment and income across the rural economy as a whole reflects a combination of very different patterns in peri-urban, intermediate, remote and isolated areas, and between areas of high and low agricultural potential. It thus cannot be interpreted as reflecting the situation in any one of these contexts.
- Sectoral employment data based on primary occupation (e.g. for the proportion of the labour force engaged in agriculture) may not accurately reflect actual labour allocation, as income diversification means that the time devoted to secondary income sources is implicitly attributed to agriculture. Thus, if households devote more time to non-farm activities, but agriculture remains their primary income source, this may represent an unrecorded shift of labour from agriculture to non-farm activities, concealing an increase in agricultural productivity relative to actual labour inputs.
- Even within areas, the breakdown of income may differ markedly from the breakdown of employment, due to differing rates of return in different occupations; and this may be further complicated in national data due to marked differences in relative incomes between different contexts.
- Even where a sectoral breakdown is available, it is impossible to assess from income or employment data alone how non-farm activities are

divided between high-productivity "entrepreneurship by choice" and low-productivity "entrepreneurship by necessity", as both may operate in any non-agricultural activity. Thus, the same level (and sectoral composition) of non-farm activity may signify rural economic transformation or desperation. Equally, an increase in the non-farm share in rural income and employment may be a sign of dynamism or decline; and a constant share, even over a prolonged period, may conceal a shift from "survivalist" activities to growth-oriented enterprise.

... as data for local economies do not indicate the extent of household (or individual) income diversification...

- Patterns of diversification in overall employment may also reflect very different combinations of specialization and diversification at the individual and household level and between households, which cannot readily be quantified. For example, if 25 per cent of employment is found to be in non-farm activities, this could equally be a result of 25 per cent of the members of each household working full-time in non-farm activities, all the members of 25 per cent of households working full-time in non-farm activities, or the entire working population spending 25 per cent of their working time in non-farm activities.

- Data also do not reflect the allocation of labour at any given point in time: full-year data represent an average across seasons in which income and employment patterns are likely to be very different, while data for less than a year (e.g. based on a fixed recall period shorter than 12 months) will reflect the season in which they were collected. Neither are data for a single year necessarily indicative of a long-term trend, due to wide variations between years resulting from variations in agricultural conditions and prices. Not only is agricultural income higher during good years than bad years, but non-farm income itself is likely to increase in bad agricultural years, as households seek to offset the resulting income shortfall.

... and national-level data conceal wide differences between different localities.

Employment and income data for a local economy can provide an overall picture of the relative importance of different activities over the course of a particular year. However, the above-mentioned complications mean that they do not indicate the extent of household (or individual) income diversification, the proportion of households primarily dependent on a particular activity, seasonal patterns, long-term trends, or the balance between positively and negatively motivated diversification. Equally, national-level data conceal wide differences between different localities.

6. Rural economic diversification: the contradiction between need and opportunity

A fundamental challenge to rural structural transformation is the contradiction between the need for income diversification and the opportunity to diversify, at both the household and the community level.

A fundamental challenge to rural structural transformation, especially in the context of poverty eradication, is the contradiction between the need for income diversification and the opportunity to diversify, at both the household and the community level. At the community level, this has been termed the "meso paradox" (Reardon, Berdegué and Escobar, 2001). Poorer rural areas away from cities have the greatest need and, in principle, the strongest incentive to develop RNFE activities in order to offset the low productivity and high risk of their agriculture sectors. However, they also face the greatest constraints on developing such activities, lacking a local growth motor of RNF demand and the infrastructure, education, capital and input access needed to develop them. This is an important reason for the unsustainability of many RNFE projects in such areas after external project support ends.

Thus the most advantaged areas (peri-urban areas and some areas of high agricultural potential) may be able to engage in a dynamic process of RNFE

development led by "entrepreneurs by choice"; but the most disadvantaged areas experience a much less favourable RNFE development process, focused on low-income and low-productivity activities, driven by forced income diversification by "entrepreneurs by necessity". Here, the result is a non-farm sector characterized by push-driven oversupply in activities such as casual labour, where entry barriers are low. The developmental benefits are limited by low productivity, and incomes are driven still lower by oversupply, so that households, too, derive little benefit.

It is the poorest households that have the greatest need and strongest incentives to diversify into RNF activities, but they also have the most limited capacity and opportunities to do so.

Between these two extremes, with neither the compulsion of inadequate incomes nor the opportunities of potential markets and favourable production conditions, and with greater competition from urban suppliers and imports, economic diversification into non-farm incomes may be much more limited. This is illustrated by the case of Burkina Faso in the 1984 drought (Reardon, Matlon and Delgado, 1988). The southern zone had very high income diversification into RNF activities based on linkages with productive (maize and cotton) agriculture benefiting from favourable local agroclimatic conditions. The dry, risky northern zone had an equal degree of lower-productivity RNF activity, developed over many generations to cope with chronic vulnerability to highly variable rainfall. While food aid was targeted on the northern area, reflecting the relative degree of drought, the highest degree of hunger occurred in the intermediate zone, which had the incentive but not the capacity to diversify.

There is also a counterpart to this phenomenon at the household level. It is the poorest households that have the greatest need and strongest incentives to diversify into RNF activities, but they also have the most limited capacity and opportunities to do so, due to lack of resources, education and access to infrastructure, and inability to bear risks because of perilously low consumption levels. Such opportunities as they have are in occupations characterized by low productivity, low incomes (but also low entry barriers) and chronic oversupply, limiting the benefits to them and to the wider economy. Women are also often overrepresented in low-paid, household-based, labour-intensive activities because of the severe restrictions on their mobility. Better-off households, by contrast, are able to take advantage of their greater resources, better education and greater access to infrastructure to exploit more remunerative RNFE opportunities in activities with higher entry barriers. Thus non-farm self-employment offers much greater benefits to the non-poor than to poorer households (Abdulai and Crole-Rees, 2001; Lanjouw, Quizon and Sparrow, 2001; Dabalen, Paternostro and Pierre, 2004).

Non-farm self-employment offers much greater benefits to the non-poor than to poorer households.

Overcoming these contradictions between need and opportunity is critical, not only to successful rural economic transformation, but also to poverty eradication in rural areas of LDCs, and thus globally. This is therefore a key objective of the policies outlined in Chapter 5.

Overcoming these contradictions between need and opportunity is critical to successful rural economic transformation.

C. Rural economic diversification in LDCs: a snapshot

1. Existing data on the importance of non-farm activities in LDCs

As indicated in the introduction to this chapter, data on non-farm activity in LDCs (and also other developing countries (ODCs)) are very limited. Table 3.1 provides a summary of the available evidence from academic studies, covering the period since the mid-1980s (including the new data presented below). Over

Table 3.1. Rural non-farm income: case study evidence for LDCs

Country		Year	Non-farm percentage of total income	Local	External: transfers and remittances	Source
Africa and Haiti						
Burkina Faso	unfavourable	1983/84	32	22	10	Reardon and Taylor (1996)
	intermediate		34	26	9	
	favourable		41	38	3	
		2002	28	18	5	Wouterse and Taylor (2008)
Ethiopia		1989/90	36	-	-	Webb and von Braun (1994)
		1999	20	-	-	Deininger et al. (2003)
		2004	13	13	0	Matsumoto et al. (2006)
		2005	12*	-	-	UNCTAD, LDCR 2015*
		2012	9	6	3	Davis et al. (2014)
Haiti		1996	68	-	-	Wiens and Sobrado (1998)
Madagascar		1993	20	14	6	Davis et al. (2014)
Malawi		1990/91	34	26	9	Peters, 1992
		2004	22	16	6	Davis et al. (2014)
			23	-	-	UNCTAD, LDCR 2015*
		2011	20	14	6	Davis et al. (2014)
Mali	southern	1994–1996	6	5	1	Abdulai and Crole-Rees (2001)
Mozambique		1991	15	14	1	Tschirley and Weber (1994)
Niger	unfavourable	1989/90	52	33	19	Hopkins and Reardon (1993)
	favourable		43	38	5	
		2010/11	40	30	10	Davis et al. (2014)
Rwanda		1991	15	-	-	Barrett et al. (2005)
		1999/01	20	20	-7	Dabalen et al. (2004)
		2000/01	36	-	-	UNCTAD, LDCR 2015*
Senegal	unfavourable	1988/89	60	54	6	Kelly et al. (1993)
	intermediate		24	20	4	
	favourable		41	39	2	
Sudan		1988	38	31	7	Teklu et al. (1991)
United Rep. of Tanzania		1991	11	10	1	Ellis (1999)
		2000	46	46	-	Ellis and Freeman (2004)
		2006	11*	-	-	UNCTAD, LDCR 2015*
		2009	30	20	10	Davis et al. (2014)
Uganda		1996	34	25	9	Canagarajah, et al. (2001)
		1999/00	54	-	-	Balihuta and Sen (2001)
		2003	30	27	3	Matsumoto et al. (2006)
		2005/6	35	26	9	Davis et al. (2014)
		2009/10	34	28	6	Davis et al. (2014)
Zambia		2012	22*	-	-	UNCTAD, LDCR 2015*
Asia						
Bangladesh		1988	42	38	5	Nargis and Hossain (2006)
		2000	54	-	-	Hossain (2004)
			65	56	9	World Bank (2004)
			57	44	13	Nargis and Hossain (2006)
			49	36	13	Davis et al. (2014)
			48	-	-	UNCTAD, LDCR 2015*
		2004	56	42	14	Nargis and Hossain (2006)
		2005	44	35	9	Davis et al. (2014)
Bhutan		2012	20*	-	-	UNCTAD, LDCR 2015*
Myanmar		2012	25	-	-	UNCTAD, LDCR 2015*
Nepal		1996	39	28	11	Winters et al. (2006)
			36	26	10	Davis et al. (2014)
		2003	47	30	17	Davis et al. (2014)
			51	-	-	UNCTAD, LDCR 2015*

Source: UNCTAD secretariat elaboration.
Note: * UNCTAD secretariat data collection for *The Least Developed Countries Report 2015*.

the whole of this 30-year period, data are available for only 12 African LDCs (and one subnational region) and four Asian LDCs (two of these from the new estimates produced for this Report, as detailed below), with none at all for island LDCs. Around half of these data are from the 1980s and 1990s; and there are only nine LDCs for which there is more than one data point, and four with more than two data points.

Data on non-farm activity in LDCs are very limited.

The sparseness of these data limits the conclusions that can be drawn, particularly in light of the problems in interpreting data highlighted in section B.5 above. Few general patterns emerge. The scale of the non-farm economy ranges from 9 per cent in Ethiopia in 2012 to 68 per cent in Haiti in 1996. Among those countries with more than one data point, the share of non-farm activity has increased in Nepal and Rwanda, but declined in Ethiopia and possibly in Burkina Faso and Niger (although the last two are based on only two observations). It appears to have increased and then declined in Bangladesh and possibly United Republic of Tanzania (although this could arise from an exceptional result in 2000), and to have remained broadly constant in Uganda (apart from one apparently aberrant observation in 1999/2000). In those countries where the trend seems to have changed over time, the increases appear to have occurred mostly in the 1990s, while the reductions appear to have occurred mostly after 2000 or over longer periods extending to around 2010, possibly reflecting increases in food prices in 2005–2010.

Data since the mid-1980s are available for only 12 African LDCs and four Asian LDCs.

The case of Bangladesh in 2000 — the one case where there are several estimates for the same country in the same year — further highlights the need for caution in interpreting data on RNF activities, as estimates range from 48 to 65 per cent. While the lowest of these estimates would indicate a rapid increase in the share of RNF income from 2000 until the next observation in 2004, the highest would indicate a rapid decline over the same period.

2. New data on non-farm activities in nine LDCs

This section presents an assessment of the extent of non-agricultural economic activities in rural areas for a sample of five African and four Asian LDCs (Ethiopia, Malawi, Rwanda, United Republic of Tanzania, Zambia, Bangladesh, Bhutan, Myanmar and Nepal) for which raw data are available from various sources. Together, these countries represent 49 per cent of LDCs' total rural population, based on national household surveys.[6] The analysis builds on previous overviews (FAO, 1998; Reardon et al., 2007) by presenting additional survey data collected mainly in the 2000s. This is followed by an assessment of rural incomes in Bangladesh, Malawi and Nepal, based on the Rural Income Generating Activities (RIGA) database, which allows differentiation by gender, age and educational attainment as well as by sector.

Estimates of the scale of non-farm activities range from 9 per cent of the rural economy in Ethiopia in 2012 to 68 per cent in Haiti in 1996.

In interpreting these data it is important to take account of the intersecting patterns of individual, household and local economy diversification outlined in section B.5 above. In particular, it should be noted that the data are based on nationally representative samples of rural populations. Consequently, the figures presented represent averages across the whole rural population based on national definitions of rurality (box 1.2). Beyond the need for caution required in intercountry comparisons of urban and rural statistics due to differences in national definitions (Castillo and Sodergren, 2015), average figures are likely to mask wide variations, particularly between peri-urban areas and small towns included in national definitions of rural areas on the one hand, and areas further from urban markets on the other. The former are likely to be characterized by higher-than-average levels of non-farm activity but greater individual and household specialization; in the latter, household income diversification is likely to be greater, and the RNFE to be more dominated by low-productivity activities.

Off-farm income and employment are greater in Nepal and Bangladesh than in Bhutan, Myanmar and the African LDCs in the sample.

As in the previous studies reported in table 3.1, the extent of non-farm economic activities varies widely among the sample LDCs, in terms both of income shares and of employment shares (table 3.2), with much greater off-farm income and employment in Nepal and Bangladesh than in Bhutan, Myanmar and the African LDCs in the sample. The results for Bhutan and Myanmar suggest a need to reinterpret (with respect to LDCs) the widespread perception that RNFE activity is greater among African than Asian countries. While the two most diversified economies (Bangladesh and Nepal) are indeed in Asia, and the two least diversified in Africa (Ethiopia and United Republic of Tanzania), the remainder fall in a relatively narrow band (20–30 per cent), with no clear geographical distinction.

In Bangladesh, rural households used the surpluses generated by technology-induced agricultural growth to develop RNF activities.

In Bangladesh, the RNFE accounts for 47 per cent of rural employment and 48 per cent of household income; and, as shown in table 3.1 above, the degree of diversification has been higher than in most other LDCs since at least the late 1980s. This reflects the role of the green revolution in generating a highly visible agriculturally driven surge in RNF activity, fuelled by soaring paddy (rice) production and by infrastructure and productive investment (750,000 shallow tube wells, more than a million treadle pumps and 50,000 paddy mills), with 80,000 small traders and 160,000 rural mechanics beginning operations (Haggblade, Hazell and Dorosh, 2007). Productive agricultural zones pulled labour into increasingly high-return non-farm activities, particularly in commerce and services (Hazell, Haggblade and Reardon, 2007), and rural households used the surpluses generated by technology-induced agricultural growth to develop RNF activities (Hossain, 2004).

The similarly high level of rural diversification in Nepal may in part reflect the existence of a substantial rural tourism sector in some areas as well as the complementarity of farming and non-farming activities for much of the year. With rain-fed agriculture and heavy monsoon rains from June to September, farmers can work in the agricultural low season as porters, carrying mountaineers' equipment, salt and cloth bundles for hill merchants; on new road construction; and as salaried workers, mainly in rural towns (Kayastha, Rauniyar and Parker, 1999).

Table 3.2. Income and labour in rural activities in selected LDCs
(Per cent)

Country	Year	Income		Labour	
		Farm	Non-Farm	Farm	Non-Farm
Africa					
Ethiopia (1)	2005			89	11
Malawi (2)	2004	77	23	76	24
Rwanda (3)	2000-01	59	41	72	28
United Republic of Tanzania (4)	2006			89	11
Zambia (5)	2012			78	22
Asia					
Bangladesh (2)	2000	52	48	53	47
Bhutan (6)	2012			80	20
Myanmar (7)	2012	75	25		
Nepal (2)	2003	49	51	51	49

Sources: (1) National Labour Force Survey, Central Statistical Agency; (2) The Rural Income Generating Activities (RIGA), FAO; (3) The third Integrated Household Living Conditions Survey -EICV3; (4) Integrated Labour Force Survey; (5) Labour Force Survey, Central Statistical Office and Ministry of Labour and Social Security; (6) Labour Force Survey Report; (7) Livelihoods and Food Security Trust (LIFT) Fund, Baseline Survey Results.

The composition of non-farm activities within countries is also varied (table 3.3), the largest sectors being manufacturing in Bangladesh (15 per cent), construction in Nepal (18 per cent) and services in Malawi (7 per cent), although services and manufacturing are of importance in all three cases. While Bangladesh and Nepal each have three non-farm sectors contributing at least 10 per cent of household income, reflecting their higher level of diversification, there are none in Malawi.

Bangladesh and Nepal each have three non-farm sectors contributing at least 10 per cent of household income, reflecting their higher level of diversification.

Two population groups are of particular interest: women, because of their decisive role in household survival strategies; and young people, who may have newer skills and knowledge, particularly given increasing educational opportunities, and who have a particular propensity for rural-urban migration.

There is a marked difference in gender participation in the three countries considered here (table 3.4). In Malawi and Nepal, participation in agriculture is relatively equally divided between men and women, while other sectors are strongly male-dominated, especially in Nepal. Female participation is relatively high in services (20 per cent in Nepal and 28 per cent in Malawi), but higher still in construction in Malawi (36 per cent). In Bangladesh, by contrast, both agriculture and non-agricultural sectors are strongly male-dominated, with lower female participation rates only in electricity and utilities and in transport, storage and communication. Gender issues in rural economic transformation are discussed at greater length in Chapter 4.

There are marked differences in gender participation in agricultural and non-farm activities.

Young people play a major role in the RNFE, possibly reflecting a greater willingness to take up opportunities in new activities that may be perceived as riskier. In Bangladesh, young people represent a higher proportion of employment in non-farm activities (except services) than in agriculture. In Malawi and Nepal, by contrast, the proportion of young people employed is similar to that of people aged 24 and over in most sectors, but lower in manufacturing, construction and services in Malawi, and in utilities and commerce in Nepal.

Young people play a major role in the RNFE, possibly reflecting a greater willingness to take up opportunities in new activities that may be perceived as riskier.

Education is also an important determinant of RNFE participation and income levels, due to differing skill requirements across occupations. In all three countries, average levels of educational attainment are lower in agriculture

Table 3.3. Income and labour by farm and non-farm activities in selected LDCs
(Per cent)

	Bangladesh (2000)		Malawi (2004)		Nepal (2003)	
	Income	Share of Weekly Hours	Income	Share of Weekly Hours	Income	Share of Weekly Hours
Agriculture and fishing	52	53	77	76	49	51
Mining	0	0	0	0	1	1
Manufacturing	15	15	7	7	12	11
Electricity and utilities	0	0	0	0	1	1
Construction	5	5	4	4	18	17
Commerce	1	1	2	2	2	2
Transport, storage and communication	10	9	1	1	3	3
Finance, insurance and real estate	4	4	0	0	0	0
Services	11	11	9	10	14	14
Unknown	1	1	0	0	1	1
Total	**100**	**100**	**100**	**100**	**100**	**100**

Sources: FAO Rural Income Generating Activities (RIGA) database (2000, 2003, 2004).

Table 3.4. Workers contributing to income by activities, gender and age in selected LDCs

Total workers contributing with income to the household by gender and age	Bangladesh (2000)				Malawi (2004)				Nepal (2003)			
	Male	Female	15-24 years	>24 years	Male	Female	15-24 years	>24 years	Male	Female	15-24 years	>24 years
Agriculture and fishing	92	8	19	81	57	43	33	67	49	51	25	75
Mining	50	50	50	50	100	0	33	67	93	7	27	73
Manufacturing	81	19	31	69	88	12	20	80	88	12	26	74
Electricity and utilities	100	0	32	68	97	3	35	65	95	5	16	84
Construction	91	9	23	77	64	36	18	82	91	9	24	76
Commerce	87	13	34	66	81	19	33	67	95	5	29	71
Transport, storage and communication	98	2	25	75	87	13	33	67	98	2	19	81
Finance, insurance and real estate	90	10	25	75	89	11	0	100	100	0	0	100
Services	77	23	14	86	72	28	14	86	80	20	23	77
Unknown	71	29	16	84	68	32	21	79	94	6	6	94

Sources:As table 3.3.
Note: Some entries, particularly those with zero entries in table 3.3, are for very small samples. These are mining and electricity and utilities in Bangladesh and Malawi, and finance, insurance and real estate in Malawi and Nepal.

Education is an important determinant of RNFE participation and income levels.

than in any off-farm sector[7] (table 3.5). However, comparison of the three sample countries suggests that education itself is not a strong driver of RNFE development: Malawi, substantially the least diversified, reports the highest level of education — in agriculture, in the RNFE and across the rural population as a whole. Among sectors, services have the most consistently high overall level of education across the three countries (7–8 years). Mining is similarly high in Bangladesh and Malawi, but not in Nepal; electricity and utilities are high in Malawi and Nepal but not in Bangladesh; and transport, storage and communications are high in Malawi but not in the other countries.

While the conclusions that can be drawn from such a small subgroup are inevitably limited, the above findings help to underline the diversity of LDCs in rural diversification and RNFE development in terms of incomes, employment, sectoral composition and participation by gender and age. It should again

Table 3.5. Level of education of workers contributing to income by activities in selected LDCs

Mean level of education of workers contributing with income to the household	Bangladesh (2000)	Malawi (2004)	Nepal (2003)
Agriculture and fishing	1.2	3.8	1.4
Mining	8.5	7.5	3.0
Manufacturing	3.1	5.3	3.5
Electricity and utilities	4.7	7.0	6.8
Construction	1.8	4.6	2.4
Commerce	2.5	6.6	6.1
Transport, storage and communication	2.1	7.9	4.6
Finance, insurance and real estate	5.0	5.6	0.0
Services	7.8	7.9	6.7
Unknown	3.3	5.5	2.9

Sources:As table 3.3.
Notes: Some entries, particularly those with zero entries in table 3.3, are for very small samples. These are mining and electricity and utilities in Bangladesh and Malawi, and finance, insurance and real estate in Malawi and Nepal. The entry for finance, insurance and real estate represents a single individual

be highlighted that these findings are based on national data, aggregating all regions and all types of rural areas (including small towns). A fuller picture would require a much more detailed consideration of rural local economies in different contexts. However, such an analysis is beyond the scope of the present Report.

3. Structural transformation of rural economies in LDCs

Successful structural transformation of rural economies involves diversification into higher-value agricultural production and non-farm activities.

Successful structural transformation of national economies entails a progressive shift of productive resources from traditional to modern activities, from low-value and low-productivity to higher-value and higher-productivity activities, and from agriculture to services and manufacturing. In rural economies, this process involves diversification into higher-value agricultural production and non-farm activities, which act as a stepping stone between agriculture and urban economic activities (Hazell, Haggblade and Reardon, 2007). The wide variations in the extent and nature of RNF activities, both between and within LDC subgroups, reflect different stages in this process of rural structural transformation. Such transformation may be seen as occurring in three stages (FAO, 1998). The great majority of LDCs in all categories are still in the first stage, in which agriculture is the main source of rural employment, most RNF activity is centred on the rural areas themselves, and dependence on rural-urban links is limited.

The great majority of LDCs in all categories are still in the first stage of rural structural transformation.

In this stage, most RNF activities are directly linked to agriculture, which in turn depends primarily on such activities for supplies of farm inputs and services and for processing and distribution of products. RNF activities are mainly informal, and typically include the manufacture or mixing of fertilizer; production, rental and repair of agricultural and transport equipment; crop processing; transportation; commerce; and construction and maintenance of market facilities. Thus, although strongly focused on agriculture, RNF activities may be fairly evenly divided between commerce, manufacturing and other services sectors. Data from population censuses in eight African countries, including four LDCs, indicate that, on average, 23 per cent of RNF employment is in manufacturing-related activities; 22 per cent in commerce and transportation; 35 per cent in personal, financial and community services; and 30 per cent in construction, utilities, mining and other activities (Haggblade, Hazell and Reardon, 2007, table 1.2, pp. 6–7).[8]

In the second stage of transformation, non-farm activities are more varied.

In the second stage of transformation, non-farm activities are more varied, encompassing activities such as tourism, mining and services as well as those linked with agriculture, and rural-urban links are more important. In some cases, there may also be some nascent subcontracting of rural companies by urban or foreign businesses (e.g. in clothing), "commuting" from peri-urban areas to rural towns and intermediate cities, and/or rapid development of agro-industry in commercial agricultural areas (Yumkella et al., 2011). Levels of capital intensity are mixed, both between and within RNF subsectors, with small-scale labour-intensive production in rural areas alongside relatively capital-intensive enterprises producing similar products in intermediate cities.

The third stage of RNF sector transformation is characterized by an intensification of the characteristics that differentiate the second stage from the first.

While most LDCs remain in this first stage of rural transformation, using the World Bank's (2007) categorization of agriculture-based and transforming countries as a proxy[9] suggests that four LDCs — Angola, Bangladesh, Senegal and Uganda — are in the second stage. (It should be noted, however, that the correlation between the two is far from perfect.)

The third stage of RNF sector transformation, typical of Latin American countries and more advanced Asian economies, is characterized by an intensification of the characteristics that differentiate the second stage from the

first (FAO, 1998; Otsuka, 2007). However, LDCs are unlikely to reach this stage prior to graduation.

D. Key drivers of rural structural transformation

1. Rural non-farm activities as a driver of agricultural upgrading

The RNF sector plays a key role in the dynamism of the agricultural sector, providing services and products upstream and downstream.

In addition to providing employment and income opportunities, the RNF sector plays a key role in the dynamism of the agricultural sector, providing services and products upstream and downstream, including inputs and opportunities for increasing value added. It can also provide, and increase access to, market outlets; and it is a major source of funding for agricultural investment. RNFE development thus plays an important role in farm productivity, competitiveness and commercialization, as well as poverty reduction and food security (FAO, 1998; Reardon et al., 2013).

RNFE incomes have a significant effect on farm investments (Reardon, Crawford and Kelly, 1994). Where credit is unavailable or unaffordable, high-return RNF activities are an essential source of financing for investments and input purchases.[10] The risk-reduction effects of household income diversification, even into lower-return activities, may also help to encourage agricultural investment and adoption of new technologies and production of cash crops by reducing risk aversion.

In African LDCs in particular, RNF income is usually the main source of cash for agricultural investment.

In African LDCs in particular, RNF income is usually the main source of cash for agricultural investment (Reardon and Mercado-Peters, 1993; Reardon and Kelly, 1988; Reardon, Crawford and Kelly, 1994; Savadogo, Reardon and Pietola, 1995). It is also used as a substitute for collateral, for example in the Sahel, allowing households with non-farm incomes preferential access to credit (Hoffman and Heidhues, 1993). In rural Bangladesh, rural non-farm incomes have encouraged traders to untie credit from future crop supplies, increasing farmers' flexibility in marketing, as well as being a major source of cash for investment (Reardon et al., 2013). Conversely, constraints on earning RNF income translate directly into constraints on household investment in agricultural upgrading.

The linkage between high-income RNFE opportunities and agricultural investment and income can give rise to increasing overall inequality.

RNF activities are thus important to agricultural upgrading at the community-wide level. However, the linkage between high-income RNFE opportunities and agricultural investment and income can give rise to increasing overall inequality, as such opportunities are closely linked to a household's prior wealth and education. This can also interact with land tenure and distribution to create a vicious circle of unequal distribution of land and non-farm earnings (Barrett, Reardon and Webb, 2001). In Rwanda, for example:

> "Access to regular off-farm income opportunities tends to accentuate rather than mitigate inequalities in land endowments through the operation of an active (and illegal) land market (which implies that customary restrictions on land sales have largely disappeared) where many land parcels are sold under distress conditions and purchased by people with regular RNFE incomes."
>
> André and Platteau (1998, p. 28)

Similar effects have been observed in Kenya (Francis and Hoddinott, 1993).

There may also be some competition between agriculture and RNFE opportunities for the available investment resources, so that RNFE could in principle reduce agricultural investment as well as increasing it (Ellis and Freeman, 2004; Reardon, Berdegué and Escobar, 2001; Ruben and van den Berg, 2001). Such effects have been observed, for example, in the north of Burkina Faso in the 1980s (Christensen, 1989), and in a more recent study in Ghana (a lower-middle-income country) (Egyei, Harrison and Adzovor, 2013).

There may be some competition between agriculture and RNFE opportunities for the available investment resources.

While competition for labour during peak agricultural seasons could also lead to similar trade-offs, most RNF production typically occurs in the slack season, when agricultural labour demands and opportunities are limited. There may, however, be labour competition between RNFE activities and labour-intensive investments in agricultural sustainability generally conducted in the slack season, such as building and maintaining bunds and terraces.

Most RNF production typically occurs in the slack season, when agricultural labour demands and opportunities are limited.

Beyond the effects of non-farm incomes on investable capital in agriculture, some RNFE activities can also affect choices of crops and technologies by increasing access to input supplies and adapting them to the needs of local farmers. This includes, for example, fertilizer manufacture and mixing; manufacture, rental, and repair of animal traction and transport equipment; and trade in inputs. Other activities, such as construction and maintenance of market facilities, transportation services and crop processing, can also have a positive effect by providing additional commercial outlets for produce. Particularly beyond peri-urban areas, such activities are a major part of the non-farm economy.

In some areas, contract farming for supermarkets (in peri-urban areas), processors or export agents might help some smallholders to overcome capital and liquidity constraints as well as the lack of access and capacity to adopt technological innovations (Losch, Fréguin-Gresh and White, 2012). However, large retailers become gatekeepers to markets, hindering or fostering market access, which depends on producers competing to satisfy their demands. Buyers and chain leaders are becoming increasingly demanding, but do not necessarily provide the support or transfer the knowledge and capabilities necessary to meet their demands (UNCTAD, 2007).

Some RNFE activities can also affect choices of crops and technologies by increasing access to input supplies and adapting them to the needs of local farmers.

Just as RNF development can be a driver of agricultural upgrading, so under- or inappropriate development of the sector can weaken agricultural development. Aside from resource and liquidity constraints on investment, agricultural upgrading may be limited by local unavailability of inputs, equipment design inappropriate to local conditions, lack of transport services, etc., which reduces productivity and sustainability, discouraging or preventing the introduction of new crops and limiting market access (Matlon and Adesina, 1997; Kelly et al., 1993; Boughton et al., 1995).

Under or inappropriate development of the non-farm sector can weaken agricultural development.

2. Demand

While governments and donors give a great deal of attention to the supply-side needs of RNFE development, the equally important demand side is often neglected — particularly local demand within rural areas themselves — causing major problems for both policies and projects. Major sources of demand for higher-value agricultural produce and non-farm goods and services are exports (primarily for agricultural produce and agroprocessing, and in some areas mining and tourism); urban markets (mainly for peri-urban areas); and — particularly neglected — local rural markets.

Areas with good transport connections to export markets have substantial potential to increase production of higher-value crops for export. Consumer preferences in developed countries for speciality products and year-round

supplies of fresh produce have generated rapid growth in markets for horticultural products. Markets for oilseeds and meat are also growing rapidly, and new markets are emerging for feed grains and biofuels.

Areas with good transport connections to export markets have substantial potential to increase production of higher-value crops for export.

However, most high-value food products are perishable; and, together with tight public and private quality and safety standards in export markets, this can be an almost insurmountable obstacle to exports from LDCs (Saner and Guilherme, 2006). Public standards for food safety, handling, processing and retail sales throughout the food chain are governed by ISO 22000:2005,[11] helping to simplify import and export formalities for countries meeting the ISO standards. However, the capacity to meet and police these standards is limited in most LDCs. Even in Kenya, with greater capacity than most LDCs, more than 75 per cent of food-processing companies still struggle to implement quality management systems effectively (Kibe and Wanjau, 2014). Moreover, the actual impact of such systems on competitiveness remains controversial, a number of empirical studies finding no significant effect (Saner and Guilherme, 2006).

The increasing importance of product standards for food exports, and limited capacity to apply them in many exporting countries, is contributing to an increasing vertical integration of food systems (World Bank, 2007; AfDB, OECD and UNDP, 2014), but also limiting opportunities in areas with less favourable external transport connections and for small producers outside vertically integrated systems.

Harmonization of product standards within regional trading blocs could help to facilitate intraregional trade.

Regional markets may also offer some potential for increasing agricultural exports. In African LDCs particularly, the low level of intraregional trade compared with other regions suggests the possibility of unexploited opportunities for regional exports, although this may partly reflect preferential access to non-regional markets[12] as well as often inefficient and under-resourced customs systems and limited intraregional transport connections. Harmonization of product standards within regional trading blocs could help to facilitate intraregional trade; and, if designed to converge towards ISO 22000 standards, could also facilitate access to non-regional markets over the long term.

Domestic demand plays a critical role, particularly in areas with less favourable transport connections to export markets. Urbanization and income growth in both rural and urban areas offer major opportunities for diversification of agricultural production towards higher-value products such as livestock products, vegetable oils, fruits and vegetables. It has long been recognized that the proportion of income spent on non-food products increases as incomes rise (a principle known as Engel's Law). Equally, Bennett's Law (Bennett, 1954) highlights the fact that food demand also shifts from staple to non-staple foods as incomes rise, while demand for processed foods also increases (Dolislager, Tschirley and Reardon, 2015; Reardon et al., 2015). There are strong synergies between these effects, as non-staple products such as dairy produce and fruit are more perishable than grains, and consequently require more post-harvest processing and services.

A given increase in incomes leads to a greater percentage increase in demand for higher-value agricultural produce and processed foods.

Thus, a given increase in incomes leads to a greater percentage increase in demand for higher-value agricultural produce, food processing and non-food goods, providing potentially substantial market opportunities for both higher-value agriculture and RNFE activities. Farmers in areas of good agricultural potential and with access to markets are well placed to secure new markets for such products; and their ability to do so can be further enhanced through cooperative enterprises, especially where basic services are limited (ILO, 2011; CSEND, ILO and ICA, 2015). This highlights the importance of ensuring that local producers are able to respond effectively to these demand changes.

As discussed in section B, urban markets are a major source of demand for peri-urban areas, but offer fewer opportunities to more distant rural areas. Other potentially important sources of local demand (and investable surpluses) include export-oriented agriculture and agro-industry, where conditions are favourable; entrepôts on trading routes, particularly on borders (e.g. Muse, on Myanmar's border with China) and at junctions between major domestic routes; and transport corridors such as the Beira Corridor in Mozambique (Reardon, Berdegué and Escobar, 2001; Paul and Steinbrecher, 2013). "Implanted" natural resource-based projects or businesses such as mines, oilfields, forestry projects and eco-/cultural tourism can also provide an important engine of demand; but, aside from environmental concerns, such activities are often limited to enclaves with very limited effects on the wider economy. Nonetheless, they may provide some relatively remunerative services sector jobs, generating some consumption linkages.

Cooperative enterprises can improve access to higher-value agricultural produce markets.

Migrant remittances can also create employment indirectly, through investment in farming and rural non-farm activity as well as through consumption spending (Taylor, 1999; Wouterse and Taylor, 2008). Depending on the nature of migration, however, remittances may be concentrated often among a limited number of better-off families (Lipton, 1980; Reardon and Taylor, 1996), in which case there is a risk of compounding existing inequalities and concentration of RNF opportunities. The impact of remittances also depends heavily on the destination of migration, as intercontinental migration is often longer-term and generates larger remittances than migration to urban areas or neighbouring countries. Thus, while intraregional remittances may be more equitably distributed, they may have less overall effect on agriculture or RNF employment (Wouterse and Taylor, 2008).

Migrant remittances can create employment indirectly, through investment in farming and rural non-farm activity.

Regardless of the primary engine of demand growth, rural markets themselves can be a major and growing market for both RNFE goods and services and higher-value agricultural produce as rural incomes grow. As in urban areas, increasing rural incomes generate disproportionate increases in demand for non-staple and processed foods and non-farm goods and services, including household goods, such as furniture and clothing; services, including local financial and commercial services, transport, entertainment and hospitality, personal care, etc.; and food processing. In relatively closed economies, much of this demand is, almost by definition, for local (agricultural and non-farm) products, including higher-value and processed foods, clothing, household goods, transportation, etc.

Rural markets themselves can be a major and growing market for both RNFE goods and services and higher-value agricultural produce as rural incomes grow.

Two recent multi-country studies provide an indication of the scale of demand for higher-value and processed foods as well as non-farm goods and services in rural (and urban) markets in several African and Asian LDCs. In Ethiopia, Malawi, Mozambique, Uganda and United Republic of Tanzania, rural consumers spent on average 34 per cent of their incomes on non-food products (including urban-produced and imported goods), and bought 44 per cent of the food they consumed in 2010. In Bangladesh and Nepal in the same year, rural households bought 73 per cent of their food from the market. In both the African and the Asian LDCs covered by these studies, non-grains accounted for 61 per cent of rural households' total food expenditure. Processed foods accounted for 29 per cent in the former, and 53 per cent in the latter (Dolislager, Tschirley and Reardon, 2015; Reardon et al., 2015). These proportions can be expected to increase further as incomes rise.

Since additional local purchases in turn increase the incomes of sellers, this generates potentially important multiplier effects. In African LDCs, estimates of such multiplier effects range from 1.3–1.4 in Burkina Faso, Sierra Leone and Zambia to 1.7–2.0 in Gambia, Madagascar, Niger and Senegal. The breakdown

of additional demand between agriculture and the non-farm sector varies considerably in the few cases where this is estimated: Agriculture accounts for around three quarters of the total in Senegal and Zambia, but little more than one quarter in Niger (Reardon et al., 2007, table 7A.1, pp. 174–182).[13]

3. Hard and soft infrastructure

Density and quality of infrastructure (e.g. electricity and water supply, storage facilities and roads) are crucial to agriculture and RNF activities. By providing greater access to output and input markets and allowing lower production and transaction costs, better infrastructure increases investments and incomes and improves supply response (Anderson and Leiserson, 1978). Similar benefits are provided by the "soft infrastructure" of institutions (e.g. marketplaces, communications networks, education and health services, financial and payments systems and market information systems). Infrastructure investment policies can thus increase agricultural productivity, strengthen linkages between the RNF sector and agriculture, and create new opportunities for RNF employment (Ahmed and Hossain, 1990; Kingombe, 2011).

Infrastructure investment policies can increase agricultural productivity and strengthen linkages between the RNF sector and agriculture.

However, both hard and soft infrastructure are extremely limited in most rural areas in LDCs, particularly beyond peri-urban areas and in areas of low population density. This further reinforces the other advantages of urban proximity, and can contribute to an agglomeration of capital-intensive firms in urban areas, undermining the viability of smaller and more labour-intensive rural firms.

Both hard and soft infrastructure are extremely limited beyond peri-urban areas, reinforcing the other advantages of urban proximity.

Rural electrification is a critical element of rural development and diversification. It has the potential to transform non-farm activities — and, indirectly, the agricultural sector — in LDCs, increasing productivity by allowing the introduction of new productive technologies and extending potential working hours, as well as contributing to higher educational attainment and improved health outcomes with longer-term benefits (UNCTAD, 2014, box 5, p. 133). As chart 1.10(e) demonstrates, access to electricity in rural areas is particularly limited, especially in African LDCs, where it is less than 10 per cent in nearly two thirds of cases. Even in most Asian and island LDCs, only a minority of the rural population have access to electricity. The potential effect of moving to universal access is thus considerable, especially in African LDCs, where the proportion of households with access to electricity will increase more than tenfold in just 15 years.

While rural towns and some immediate or densely inhabited peri-urban areas may be able to benefit from grid extension from existing centralized generation and distribution systems, in most other contexts, off-grid and micro-grid approaches will be needed. The potential for such systems is greatly increased by the development of renewable energy technologies, which can operate on a much smaller scale and are now more economically viable than available fossil fuel alternatives (including diesel generators) in many areas, although the costs and logistical challenges remain considerable.

Rural electrification has the potential to transform non-farm activities — and, indirectly, the agricultural sector.

As shown in chart 1.10(g-h), rural areas are also generally disadvantaged in access to ***education***; and this disadvantage tends to increase with distance from urban areas. As discussed in section C.2, the comparative experiences of Malawi, Nepal and Bangladesh suggest that education alone is not sufficient as a driver of RNFE development. Nonetheless, empirical studies identify education as a key determinant of household participation in RNF activities, and of RNF productivity, incomes and enterprise success (e.g. Jolliffe, 1998; Glewwe, 1999; Lanjouw, Quizon and Sparrow, 2001; Abdulai and Crole-Rees, 2001). The higher-productivity RNF activities critical to rural economic transformation,

in particular, generally require more advanced skills and knowledge to handle more complicated technologies (Yamauchi, 2004; Fafchamps and Shilpi, 2005; Barrett, Reardon and Webb, 2001); and the lack of such skills is one of the major barriers confining poorer households to less remunerative income sources.

More and better education is a significant factor influencing the pace and nature of RNFE development.

More and better education is thus a significant factor influencing the pace and nature of RNFE development, and the scale and distribution of its benefits. Increasing access to education can provide a means of promoting rural development, diversification and pro-poor growth (Winters et al., 2009); and improvements in school quality can have a still higher return than additional years of schooling (Glewwe, 1999).

Access to ***financial services and credit*** is at best limited in most rural areas of LDCs, especially beyond the peri-urban, so that capital for investment is largely limited to each household's own savings, sometimes supplemented by resources mobilized from family and friends (including remittances). Even in Bangladesh, the home of microfinance, a 2000 survey found that more than 70 per cent of rural enterprises cited household savings as the main source both of start-up capital and of subsequent investment, while only 10 per cent had received loans from banks.

Access to financial services and credit is at best limited in most rural areas of LDCs, especially beyond the peri-urban.

In many LDCs, lack of access to commercial finance reflects both underdevelopment of the financial system and a strong risk aversion in the banking sector, skewing assets towards safer investments such as government securities and away from riskier activities such as lending to small and medium-sized enterprises (SMEs) and microenterprises. Banks are reluctant to lend to small businesses and microenterprises (and suppliers to provide credit), largely because of high risks and limited information about creditworthiness.

Microfinance has been widely promoted as a means of financing small-scale investment in a context of poverty reduction. Since its popularization in Bangladesh, several microfinance programmes have been initiated in developing countries, in particular LDCs, by international organizations, non-governmental organizations (NGOs) and donors.

Banks are reluctant to lend to small businesses and microenterprises, largely because of high risks and limited information about creditworthiness.

Despite initial observations highlighting the effects of such schemes in easing the finance constraints of the poor, the evidence for positive effects is at best very weak. Notwithstanding numerous studies, some of which have been widely cited in support of microfinance, a recent systematic (Cochrane review) assessment of the available evidence finds no valid evidence for positive effects due to serious problems in methodology and research design. Its conclusion is that "it remains unclear under what circumstances, and for whom, microfinance has been and could be of real, rather than imagined, benefit to poor people", and that its "putative success… may well have diverted attention from opportunities for alternatives" (Duvendack et al., 2011, p. 75).

Microcredit is characterized by very high interest rates and short maturities, while investment returns are highly uncertain.

Where microcredit is available, it is characterized by very high interest rates and very short maturities, while rates of return on investment in rural areas of LDCs are highly uncertain, especially on the innovative investments essential to rural transformation, and often relatively low. Additional risks arise from the possibility of crop failure (affecting demand for non-agricultural products as well as agricultural incomes); from household income losses (e.g. due to ill-health) more generally; and from diversion of funds to maintain a minimum level of consumption due to very low and variable incomes. Supply-side constraints on microfinance result from the high cost of reaching clients in widely dispersed populations and problems in enforcing repayment.

A systematic review of evidence from sub-Saharan Africa finds that these factors result in some recipients of microcredit becoming over-indebted and

impoverished rather than enriched, and concludes that "a growing microfinance industry may as easily be a cause for concern as one of hope" (Stewart et al., 2010). High interest rates, short maturities and uncertain returns also limit investments, particularly in innovation; skew investment opportunities to better-off households who can more readily afford to finance investment from their own resources and to bear the costs and risks involved; and increase the risk of business failure. Where land is used as collateral, this results in a risk of dispossession, seriously impairing the borrower's ability to emerge from poverty.

Where available, mobile phone coverage allows the use of mobile phone-based banking services which can substantially reduce transaction costs.

In peri-urban areas and an increasing proportion of intermediate rural areas, the availability of mobile phone coverage allows the use of mobile phone-based banking services such as those developed in Kenya and South Africa, which can substantially reduce transaction costs. This advantage should spread rapidly to other intermediate rural areas where coverage remains limited, and ultimately to remote and isolated areas. Combined with increasing investment opportunities through rural development, this could contribute substantially to increasing the scale of lending opportunities to a level sufficient to attract commercial lenders to rural areas, potentially reducing the cost of microcredit to a more sustainable level.

Transport infrastructure, particularly roads, plays a pivotal role in rural economic transformation and RNFE development...

Transport infrastructure, particularly roads (but also waterways in some areas), plays a pivotal role in rural economic transformation and RNFE development. As noted above, proximity and access to urban markets is a major determinant of rural development, providing considerable benefits to both the agricultural sector and the RNFE. As towns and cities grow, new towns emerge in rural areas and transport links improve, rural areas will effectively become "closer" to towns and cities economically. Such opening leads, in varying degrees, to a progressive delinking of RNFE growth from agriculture (Haggblade, Hazell and Reardon, 2007), and can create new opportunities for the production of exportable goods and services (e.g. agroprocessing, mining and tourism), promoting wider development through linkages to non-tradable activities (Wiggins, 2014). In the long term, this process is likely to be indispensable to the transformation of rural economies and thus to sustainable poverty eradication.

... but the opening associated with strengthening transport connections is a two-edged sword.

However, this is not a linear process, and the opening associated with strengthening transport connections is a two-edged sword. In remote and isolated rural areas (and in varying degrees some intermediate rural areas), the high costs of trade beyond the local market provide a substantial degree of natural protection from outside competition; and local rural economies have evolved over many generations in response to this reality. Strengthening transport connections with urban areas effectively reduces this natural protection, and in doing so it radically changes the context within which the RNFE operates: It exposes producers to unprecedented competition in local food and non-food markets from large urban and foreign producers with much greater economies of scale and modern distribution networks (Reardon et al., 2007). While small-scale local producers also gain access to new opportunities and incentives, they typically have neither the experience nor the means to respond to them effectively.

A sudden ingress of urban products and/or imports of non-farm goods into rural areas can be a major challenge for local producers.

A sudden ingress of urban products and/or imports of non-farm goods into rural areas can thus be a major challenge for local producers, particularly of cottage-industry manufactured goods, and for those dependent on income from unskilled labour. The potential scale of this negative effect is very substantial: The sectoral activities data in table 3.3 above indicate that manufacturing activities account for 22 per cent of RNF employment in Nepal, 29 per cent in Malawi and 32 per cent in Bangladesh.

This highlights a critical paradox of poverty-oriented structural transformation in rural economies. Poverty is unlikely to be eradicated in rural areas of LDCs without improved transport infrastructure; but improving transport links plunges rural producers into a much larger and more competitive market, in which they are ill-equipped to succeed because of their multiple disadvantages, in scale, financial and human resources, access to infrastructure and markets, and inexperience in operating in such markets. Resolving this paradox will be a key challenge in the post-2015 context.

Achieving the SDGs will require a considerable increase in the level of infrastructure investment in rural areas of LDCs in the post-2015 era.

Construction of rural infrastructure can also play a very important secondary role in rural development. As highlighted in Chapter 1, achieving the SDGs will require a considerable increase in the level of infrastructure investment in rural areas of LDCs in the post-2015 era; and, beyond the long-term benefits of infrastructure provision, this can serve the additional and more immediate purpose of creating productive employment opportunities, with the potential to reduce the deficit in demand that constrains RNFE development (ILO, FAO and IFAD, 2010; ILO, 2014; ILO et al., 2015; UNCTAD, 2013b, Chap. 5.D).

Depending on their nature, many infrastructure investments have considerable potential for job creation through the use of labour-based construction methods (Kingombe, 2011), which can also be more cost-effective than intensive use of construction equipment in labour-abundant, low-wage economies. Equally, where construction materials of adequate quality are available, local sourcing can provide additional opportunities for non-farm employment and enterprise development, and may again reduce costs in remote and isolated areas where transport costs are high.

Many infrastructure investments have considerable potential for job creation through the use of labour-based construction methods.

In practice, however, direct and indirect employment effects are not generally considered in decisions on construction methods in infrastructure. By making investment more "employment-friendly" (ILO et al., 2015), taking account of these considerations can make a significant contribution to rural economic transformation. Labour-based approaches also allow wider inclusion of infrastructure beneficiaries at community level in all project stages, permitting more effective integration of social and environmental considerations (ILO, 2014).

Labour-based approaches also allow wider inclusion of infrastructure beneficiaries at community level in all project stages.

"Workfare" programmes of labour-intensive public works are long established in many developing countries as a means of mitigating the adverse consequences of natural disasters, emergencies and humanitarian crises (e.g. droughts, floods, hurricanes and harvest failure) and in post-conflict situations (Lanjouw, 2007; UNCTAD, 2013b); and there have been a number of (mostly donor-funded[14]) labour-based infrastructure construction projects, primarily in the transport sector. However, many other areas of infrastructure investment are also conducive to labour-based construction methods and local procurement, including water supply (wells and rainwater harvesting), sanitation, agricultural infrastructure (drainage, irrigation, terracing, etc.), and schools and health facilities (including furnishings). Given the scale of such investments required in coming years, a more "employment-friendly" approach could have major benefits for the structural transformation of rural economies.

A more "employment-friendly" approach to infrastructure investment could have major benefits for the structural transformation of rural economies.

F. Urban proximity and sectoral priorities for rural economic transformation

As noted above, a key aspect of rural economic transformation is the progressive opening of local rural economies to wider markets as transport infrastructure is improved; but this generates threats to local producers, from

Identifying the priorities for agricultural upgrading and economic diversification, based on future (dynamic) comparative advantage is key to exploiting opportunities.

exposure to wider competition, as well as generating the opportunities offered by larger markets. The potential benefits thus depend on ensuring that producers are able both to withstand the threats and to exploit the opportunities. A key aspect of this is identifying the priorities for agricultural upgrading and economic diversification, based not only on immediate (static) comparative advantage, but also on future (dynamic) comparative advantage within the rapidly changing context implied by a post-2015 world. Such priorities differ widely between peri-urban, intermediate, and remote and isolated areas (table 3.6).

While growth of large cities is a major focus of attention, it should be noted that smaller cities and towns are also of increasing importance. In West Africa, for example, smaller towns and cities comprise 60 per cent of the urban

Table 3.6. Rural development priorities by urban proximity

	Agriculture	Agroprocessing	Other RNFE	General
Peri-urban	Develop intensive production of high-value crops for urban market	High-value food processing for urban market	Commuting to urban area	Entrepreneurial agriculture
			Weekend leisure activities for urban elite/middle class	Primarily microenterprise expansion and SME development
			Transport services	
	Develop direct links with urban retailers		Small-scale industry	
Intermediate (and peri-urban areas around small towns)	Expand and increase productivity of traditional export crops	Export crop processing	Commercialize production of craft products	Entrepreneurial agriculture
	Increase productivity of staple production for local (and possibly urban) markets	Food crop (and meat/fish) preserving and packaging to increase tradability of agricultural produce to urban and/or export markets	Construction and related services	Mix of SMEs and microenterprise
	Diversify into higher-value crops and livestock for local markets	Value added processing for local market (and tourism, where developed)	Construction materials, mining, tourism, fisheries, sustainable and community forestry, etc., where local conditions are favourable	Develop/ consolidate producers' associations/ cooperatives
	Develop biofuels	Biofuel processing		Develop local and supplier-led value chains
	Product differentiation: organic, fair trade, sustainability certification, geographical indicators, etc.			Develop links between smaller towns/rural hubs
	Link to tourist sector where developed			
Remote/ isolated	Increase productivity of staple crops, mainly for subsistence consumption (initial focus)	Small-scale processing for local market, initially on-farm and artisanal	"Z goods" (transitional)	Progressive commercialization of small-scale agriculture
	Diversify production towards higher-value crops and livestock for local market	Food crop (and meat/fish) preserving and packaging to increase product life and tradability of agricultural produce to nearby markets	Local services	Microenterprise formation
		Progressive upgrading and commercialization	Construction and related services	Develop, connect with, and strengthen links between local hubs
			Where local conditions are favourable: construction materials, sustainable and community forestry, niche (e.g. eco- and adventure) tourism, etc.	

Source: UNCTAD secretariat elaboration.

population (Hollinger and Staatz, 2015), while the near-doubling of Uganda's urban population between 2002 and 2014 occurred partly through a still greater increase in the number of urban centres, from 75 to 197.[15] In the post-2015 context, the establishment of new social infrastructure (schools and health facilities) can be expected to accelerate the emergence of local hubs in rural areas. This is particularly important as smaller towns typically have much stronger linkages with their surrounding rural areas than do larger urban areas (Christiaensen, Weerdt and Todo, 2013; Berdegué and Proctor, 2014).

The establishment of new social infrastructure (schools and health facilities) can be expected to accelerate the emergence of local hubs in rural areas.

1. Peri-urban areas

The greatest comparative advantage of peri-urban areas, particularly around major cities, lies in servicing urban markets. Urban markets provide a considerable source of demand for goods and services produced in peri-urban areas (e.g. household products and higher-value and processed foods), reflecting higher income levels, and often rapid market growth. Cities in African and Asian LDCs already provide much bigger markets than export sales for food and rural non-food products, and their relative importance is likely to grow further in the future (Dolislager, Tschirley and Reardon, 2015; Reardon et al., 2015).

Urban markets provide a considerable source of demand for goods and services produced in peri-urban areas.

This can create substantial opportunities for intensive production of fruit, vegetables and other high-value crops, for meat and fish, and for high value added food processing, including production of luxury foods. Proximity and the possibility of regular direct contact provide the potential both to build long-term relationships with larger outlets such as supermarkets and wholesalers and to develop sales to smaller retail outlets and direct sales in markets. Linking with supermarkets may offer particular benefits in terms of women's employment opportunities, as women tend to be preferred for activities such as cleaning and bundling vegetables (Qaim and Rao, 2012).

Daily commuting can provide another option; and some well-located peri-urban areas close to major cities, with favourable infrastructure, might also hope to attract urban workers as residents. Leisure activities oriented towards better-off urban residents may generate valuable economic opportunities; and such interactions with urban areas increase demand for transport services.

Once power supply is available, there may be the scope to develop small-scale industry in peri-urban areas.

Proximity to urban services, and to urban markets for the purchase of inputs, provides substantial advantages; and access to electricity and water supply (where not already available) may be facilitated by the possibility of extending existing supply grids. Once power supply is available, there may be the scope to develop small-scale industry, exploiting the advantages of lower land costs than in the city itself.

2. Intermediate rural areas

In intermediate rural areas, most non-farm activities are closely connected with agriculture, through forward and backward linkages.

In intermediate rural areas, most non-farm activities are closely connected with agriculture, through forward and backward linkages. Hence, a productive agricultural sector increases RNFE activity; but sluggish agricultural growth leads to anaemic consumer demand and to limited opportunities for agroprocessing and input supply (Reardon, 1997; Wiggins, 2014).

Intermediate rural areas (and peri-urban areas around rural towns) are often the primary area for production of export crops. Where this is the case, a major focus is increasing yields for these crops, and moving up value chains through increased local processing. Expansion of the cultivated area may also be possible, where suitable uncultivated land is available, based on assessment of, and appropriate efforts to ease, the economic or institutional constraints that

prevent its cultivation. Product differentiation, for example through organic, fair trade and sustainability labelling schemes and geographical indicators, may offer opportunities to increase prices for export crops (box 3.1).

Box 3.1. Organic agriculture in LDCs

Organic produce represents an important market segment in developed countries, commanding substantial market premiums; and production in many rural areas of LDCs would in principle meet organic standards, reflecting limited use of non-organic inputs, although the need for certification to access such markets can be a significant obstacle. While the extent of certified organic production varies very widely across LDCs, some have had significant success in promoting it. In some African LDCs, such as Ethiopia, Sudan, Uganda and United Republic of Tanzania, more than 100,000 producers are engaged in organic production; and it accounts for around 7 per cent of the total cultivated area in two island LDCs, Sao Tome and Principe and Timor-Leste (box table 3.1). The average size of the farms involved varies very widely: Average certified areas per organic producer range from less than 1 ha in Afghanistan, Bangladesh, Benin, Senegal, Togo and Zambia to around 100 ha in Niger, 300 ha in Lesotho and Timor-Leste, 600 ha in Sudan and 2,800 ha in Mozambique.

Box table 3.1. Organic agricultural production in LDCs, 2013

	Number of organic producers	Organic land		
		Hectares	Percentage of total	Hectares per producer
Afghanistan	264	61	0.000	0.2
Angola	n/a	2 486	0.004	n/a
Bangladesh	9 335 (2011)	6 860	0.07	0.7
Benin	2 355	1 987	0.06	0.8
Bhutan	n/a	6 726	1.33	n/a
Burkina Faso	11 395	16 689	0.14	1.5
Burundi	36	550	0.03	15
Cambodia	6 753	9 889	0.18	1.5
Comoros (2011)	1 416	2 642	1.7	1.9
Dem. Rep. of the Congo	1 123	51 838	0.23	46
Ethiopia (2012)	134 626	164 777	0.46	1.2
Guinea-Bissau	n/a	1 843	0.11	n/a
Haiti	1 210	2 878	0.16	2.4
Lao People's Dem. Republic	1 342 (2011)	6 442	0.27	4.8
Lesotho	2	560	0.02	280
Madagascar (2012)	14 550	30 265	0.07	2.1
Malawi		265	0.005	n/a
Mali	8 048	3 727	0.01	0.5
Mozambique	5	13 998	0.03	2800
Myanmar	15	897	0.01	60
Nepal	687	9 361	0.22	14
Niger	1 (2012)	106	0.000	106
Rwanda (2011)	876	3 705	0.19	4.2
Sao Tome and Principe (2012)	2 180	4 051	7.23	1.9
Senegal	18 393	7 176	0.08	0.4
Solomon Islands (2012)	384	1 307	1.56	3.4
Sudan	222	141 479	0.1	637
Timor-Leste	72	24 690	6.58	343
Togo	9 428	4 638	0.14	0.5
Uganda (2012)	189 610	231 157	1.66	1.2
United Rep. of Tanzania	148 610	186 537	0.53	1.3
Vanuatu	696	4 106	2.2	5.9
Zambia	10 055	7 552	0.03	0.8

Source: FiBL and IFOAM, 2015, table 70, pp. 277–280.

Among food crops, diversification into higher-value crops and livestock production to respond to growing local demand is a major opportunity; and increasing processing (preserving and packaging) can boost this opportunity by increasing tradability to urban markets, as well as increasing local value added and providing off-farm income opportunities. To the extent that peri-urban economies move towards higher-value products and non-agricultural production oriented towards urban markets, this may also open up opportunities for the sale of staple foods to the urban market. Development of biofuel crops for local use may also be an important opportunity, providing the potential for employment creation in processing and for foreign exchange savings as well as increasing the sustainability of transportation.

RNFE opportunities may arise from commercialization of craft production, construction and related services and construction materials.

Beyond agroprocessing, RNFE opportunities may arise from commercialization of craft production and, particularly in the post-2015 context, construction and related services and construction materials. Depending on the nature of the area and the natural resources available, other potential sectors may include tourism, fisheries, sustainable forestry (including forest products as well as timber and wood products) and possibly mining, whose developmental benefits can be enhanced by maximizing forward and backward linkages to other sectors.

Remote and isolated areas are generally oriented primarily towards subsistence production, particularly in agriculture.

3. Remote and isolated areas

Remote and isolated areas are generally oriented primarily towards subsistence production, particularly in agriculture. A first priority is thus to increase staple productivity and promote reliable market access (and storage). This is an essential foundation for diversification of agricultural production, adoption of new technologies and development of non-farm activities. Households' critical dependence on staple food production inevitably gives rise to extreme risk aversion; and assurance of access to sufficient food is a prerequisite for investment of resources or effort in other activities. Other mechanisms, such as development of functioning markets and local food security stocks, can contribute as well, but these also depend significantly on local production.

A first priority is to increase staple productivity and promote reliable market access (and storage).

Increasing staple yields allows households to meet their own consumption needs with less land, releasing land for production of higher-value crops for sale as incomes rise and households upgrade and diversify their diets. Demand for livestock can similarly be expected to grow. Processing of locally produced foods may also provide a useful income source, and may lay the foundations for an artisanal agroprocessing sector, which is a major source of income and employment for women; and preserving and packaging foods can contribute to food security and seasonal price stability, as well as potentially allowing sales in more distant markets. Movement from a traditional pattern of home-processing towards purchasing processed foods can also release women's time from unpaid domestic work to engagement in economic activities outside the home.

"Z goods" can represent a valuable source of supplementary income and provide a starting point for microenterprises, but are unlikely to be viable in the long term.

Increasing incomes in relatively closed markets are also likely to raise demand for so-called "Z goods" (non-food goods, typically of relatively low quality, produced on a small scale using traditional labour-intensive methods) (Hymer and Resnick, 1969). This does not generally represent a viable option in the long term, as local production will be uncompetitive with industrially produced goods in price and/or quality once they become available; and this limits the resources it is worth investing in upgrading production. Nonetheless, "Z goods" can represent a valuable source of supplementary income in the interim. They may also provide a starting point for microenterprises that may later move into other activities, and a training ground for business skills.

Increased infrastructure investment can be expected to generate opportunities for the production of construction materials in remote areas.

Increased infrastructure investment can be expected to generate opportunities for the production of construction materials in remote areas, benefiting considerably from the closed nature of local markets, although such materials are unlikely to be competitive beyond the local market. Other possible productive sectors are similar to those in intermediate areas, and again need to be based on available natural resources; but their potential and the nature of the activities developed will inevitably reflect the more closed nature of local markets in remote and isolated areas. For example, the potential for tourism is likely to be limited in most cases, with a few exceptions such as ecotourism (e.g. on small remote islands) and adventure tourism (as in the Himalayas in Nepal).

G. Summary

In summary:

- Aside from outward migration, the main routes out of poverty in rural areas are market-oriented agriculture and productive non-farm activities. Both require rural economic transformation.
- Non-farm activities are a major driver of agricultural upgrading and rural transformation.
- Data on rural diversification and non-farm activities are very limited, and their interpretation is complicated by the multiple dimensions of diversification.
- Nonetheless, it is clear that all but a few LDCs in all regions are still in the first stage of rural economic transformation.
- The extent of rural economic diversification varies widely between LDCs, but does not necessarily reflect transformation: The non-farm sector includes low-productivity "survivalist" activities as well as transformative high-productivity activities.
- The greatest driver of rural economic transformation is proximity to urban areas, but other drivers are needed beyond peri-urban areas.
- Remote areas and the poorest households have the greatest need of income diversification, but the most limited opportunities to diversify productively.
- Demand is critical to rural transformation, but often neglected; local rural markets play a major role, especially beyond peri-urban areas.
- Poverty eradication will require improved transport infrastructure in the long term, but will only have a positive impact if rural producers are enabled to compete in wider markets.
- Sectoral priorities for agriculture and the non-farm economy in the post-2015 context differ markedly between peri-urban, intermediate and remote/isolated areas.

Notes

1 See, for example, Haggblade, Hazell and Reardon, 2010; Hossain, 2004; Cannon and Smith, 2002; Lanjouw and Feder, 2001; Gordon and Craig, 2001; http://projects.nri.org/rnfe/; http://www.fao.org/economic/riga/riga-publications/riga-publications/en/.

2 Wage employment in agriculture is generally considered to be part of "off-farm" income (income earned by a household other than from its own farm), but not part of "non-farm" income (income earned other than from agricultural activity).

3 Such a classification, divided between primary processing, manufacturing and services, is provided in Annex III table A2.

4 This is based on the criteria laid out in World Bank (2007). Subsistence-oriented and market-oriented smallholder households are defined as those deriving more than 75 per cent of total income from agriculture, and subdivided between subsistence-oriented and market-oriented according to whether the majority of their output is consumed or sold. Labour-oriented households are defined as those deriving more than 75 per cent of total income from wage or non-farm self-employment; migration-oriented households as those receiving more than 75 per cent of total income from transfers and other non-labour sources; and diversified households as those who do not derive more than 75 per cent of total income from any one of these sources.

5 Estimated on the basis of data from the Rural Income Generating Activities Project (RIGA).

6 Labour Force Surveys and Living Standard Measurement Study surveys. Country selection is based on data availability.

7 While the figure for the finance, insurance and real estate sector in Nepal is zero, as mentioned in the notes to table 3.5, the sample comprises a single individual.

8 The sample consists of data from years between 1986 and 2006 for four LDCs (Ethiopia, 1998; Malawi, 2002; Mozambique, 1986; and Zambia, 2003) and four ODCs (Cameroon, 1992; Côte d'Ivoire, 1996; Namibia, 1996; and South Africa, 1996). Population-weighted figures are also given in the original table. However, while they give a slightly greater weight to LDCs (59 per cent compared with 50 per cent in the unweighted figures), they also skew the result strongly towards Ethiopia, which accounts for 63 per cent of the population of the LDCs included (based on census year populations).

9 Agriculture-based countries are defined as those in which agriculture accounts for at least 32 per cent of GDP growth, largely reflecting a substantial share in total GDP, and at least 70 per cent of the poor are in rural areas. Transforming countries are those with a smaller share of agriculture in economic growth, but where poverty remains overwhelmingly rural (World Bank, 2008).

10 Migrant income and sales of livestock and surplus agricultural produce can play a similar role for those households who have these advantages.

11 http://www.iso.org/iso/home/standards/management-standards/iso22000.htm.

12 African exports to markets outside the continent face an average protection rate of 2.5 per cent, largely as a result of preferences under the Generalized System of Preferences, the European Union's Everything But Arms initiative and the United States' African Growth and Opportunity Act, compared with 8.7 per cent for intraregional exports (UNCTAD, 2013a).

13 Based on multipliers calculated for rural regions (Burkina Faso, Niger, Senegal, Sierra Leone and Zambia) and national studies estimating rural and urban effects separately (Gambia and Madagascar).

14 While most labour-intensive public works programmes in LDCs are introduced and designed by donors and funded either through donor grants or loans, some independently developed and domestically funded programmes are still in operation, such as the Karnali Employment Programme in Nepal (UNCTAD, 2013b).

15 Uganda - National Household Survey 2012-2013, available from http://catalog.ihsn.org/index.php/catalog/4620.

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Annex table 3.1. Proportion of rural households deriving incomes from different sources, selected LDCs
(Per cent)

	Year	Agriculture				RNFE			Transfers	Other	All non-agriculture
		Crops	Live-stock	Employ-ment	All	Employ-ment	Self-employment	All			
African LDCs											
Ethiopia	2012	87	80	24	89	6	19	24	22	19	47
Madagascar	1993	93	78	26	96	18	21	36	43	11	67
Malawi	2004	96	65	55	98	16	30	42	89	7	93
	2011	93	48	49	97	13	16	28	66	11	79
Niger	2010/11	96	77	11	98	8	60	65	58	0	84
United Rep. of Tanzania	2009	88	65	20	99	16	38	43	43	2	77
Uganda	2005/06	88	65	20	92	16	38	49	43	2	72
	2009/10	89	67	23	92	25	43	56	32	24	77
Asian LDCs											
Bangladesh	2000	82	39	35	87	32	26	53	49	55	91
	2005	85	73	29	93	35	22	53	42	59	90
Nepal	1996	93	82	42	98	35	20	50	26	8	69
	2003	93	86	38	98	36	21	52	38	27	82

Source: Davis (2014), table 2, p.8.

Annex table 3.2. Proportion of rural household income by source, selected LDCs
(Per cent)

	Year	Agriculture				RNFE			Transfers	Other	All non-agriculture
		Crops	Live-stock	Employ-ment	All	Employ-ment	Self-employment	All			
African LDCs											
Ethiopia	2012	73	11	4	88	2	4	6	3	3	12
Madagascar	1993	57	13	6	77	6	8	15	6	2	23
Malawi	2004	56	9	11	77	7	9	16	6	0	23
	2011	59	6	15	80	8	6	13	6	0	20
Niger	2010/11	48	9	3	60	4	26	30	10	0	40
United Rep. of Tanzania	2009	53	13	4	70	7	13	19	10	0	30
Uganda	2005/06	47	7	11	65	10	16	26	9	0	35
	2009/10	48	11	8	66	12	16	28	6	0	34
Asian LDCs											
Bangladesh	2000	15	1	20	37	20	16	36	13	13	63
	2005	18	9	16	43	22	13	36	9	12	57
Nepal	1996	32	14	18	64	17	9	26	10	1	36
	2003	20	18	13	51	21	9	30	17	2	49

Source: Davis (2014), table 3, p.9.