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Institutional Weaknesses: Firms, Financial Systems and Knowledge Systems

Chapter 6

A. Introduction

The development of productive capacities within a country is strongly influenced by institutions which enable or constrain processes of capital accumulation, technological progress and structural change. The institutions which matter include both the institutional environment — the set of fundamental political, social and legal ground rules (such as property rights) that establish the basis for production, exchange and distribution — and institutional arrangements – the regular relationships amongst economic agents and related informal rules which govern the ways in which they cooperate and compete. The latter are sometimes strengthened through the establishment of formal organizations, such as firms or trade unions, or they may exist as looser recurrent patterns of interaction amongst agents and formal organizations.

Within development policy debate, there is increasing recognition of the importance of institutions for economic growth and poverty reduction. However, institutional prescriptions must be adapted to the prevailing characteristics of national economies.

A large range of institutions matter for the development of productive capacities. For example, cultural values with regard to the position of women in society can have a major influence on labour supply, and attitudes towards money, consumption and wealth can have a major influence on capital accumulation. With globalization, international regimes governing trade, finance, investment, technology, knowledge and the movement of people have also become increasingly important for the development of productive capacities within countries.

Within development policy debate, there is increasing recognition of the importance of institutions for economic growth and poverty reduction (Rodrik, 2004; Acemoglu, Johnson and Robinson, 2004). Within countries which are highly aid-dependent, attention has focused particularly on the quality of national governance. This focus is closely related to the legitimate desire of donors to ensure that aid and debt relief are well used. However, good governance has also been specified in a particular way which is associated with the policy agenda of freeing the private sector from government restraints and allowing greater room for market forces.

There is a need for a much closer examination of the nature of the private sector within LDCs and the institutions within which entrepreneurship is embedded.

This Report recognizes the importance of good governance (see chapter 8) and the central role which the private sector must play in development of productive capacities. However, institutional prescriptions must be adapted to the prevailing characteristics of national economies. Accordingly, there is a need for a much closer examination of the nature of the private sector within LDCs and the institutions within which entrepreneurship is embedded. As shown earlier in the Report, an important feature of the LDCs is that a large part of production is still organized on a household basis. Market institutions are also underdeveloped in an LDC context (Ishikawa, 1998). If policy reform is undertaken in this context on the assumption that the elements characteristic of a functioning market economy need only to be freed from government interference in order to exist, it is likely to have unexpected and disappointing consequences. The policy problem is rather to develop a capitalist market economy and to ensure that this is organized in a way which supports the achievement of national development and poverty reduction objectives.

This chapter focuses on the nature of the domestic private sector within LDCs and the key institutions which support investment and innovation – the firm, domestic financial systems and domestic knowledge systems. Section B discusses the nature of the firm in the LDCs by drawing on the results of the World Bank Investment Climate Assessment Surveys and also the Research Programme in Enterprise Development (RPED) of the World Bank. Section C analyses the domestic financial systems of the LDCs, whilst section D analyses domestic knowledge systems. A basic argument of this Report is that both financial systems and knowledge systems matter for the development of productive capacities. The former are vital for the investment process, whilst the latter are vital for the innovation process. Section E summarizes the main messages of the chapter.

Firms are critical institutions for realizing the creative potential of the market. Success in the development of productive capacities depends on the existence of firms which are capable of investing and innovating.

B. Firms in LDCs

The development of productive capacities is not an abstract process but occurs through the exercise of entrepreneurship. Entrepreneurship is the act of creating value by seizing opportunities through risk-taking and the mobilization of human, social, financial and physical capital. The critical institution within which entrepreneurship is exercised is the firm (box 17), although it does not operate in a vacuum. Its activities are enabled or constrained by the institutional matrix within which it is operating, including financial and innovation systems.

The size distribution of enterprises within most LDCs has a "missing middle" and the life cycle of small firms tends to be stunted.

Firms are a locus for investment and learning. They are critical institutions for realizing the creative potential of the market. Success in the development of productive capacities depends on the existence of firms which are capable of investing and innovating. A dynamic economy is one which has the ability to create such firms.

In this perspective, a critical constraint on the development of productive capacities within the LDCs is the nature of their firms. Survey evidence is still patchy. But it is possible to identify three broad tendencies which analysts repeatedly find in country studies. They are the following:

- The size distribution of enterprises within most LDCs has a "missing middle" and the life cycle of small firms tends to be stunted.
- There is much heterogeneity in firms' performance within countries, with a strong tendency for large firms to be more productive, investment-oriented and innovative than small firms.
- There are some linkages between formal sector and informal sector enterprises, but they are often weak.

The "missing middle" refers to the weak development of formal sector small and medium- sized enterprises (SMEs), particularly medium-sized domestic firms.

These features are not necessarily unique to LDCs. The evidence on firm performance suggests that small market size, price volatility, subsistence demand patterns and weak supporting institutions result in similar patterns in other developing countries (Tybout, 2000). But, to the extent that these features are more prevalent in LDCs, their enterprise structure is likely to be even more skewed.

1. The "missing middle" and stunted life cycle of firms

The "missing middle" refers to the weak development of formal sector small and medium- sized enterprises (SMEs), particularly medium-sized domestic firms. At one end of the size distribution, there are a multitude of informal

Box 17. The firm as a locus of learning and agent of market creation

Following Williamson (1983), firms are interpreted in this chapter as non-market institutions or hierarchies that operate with bounded rationality in the face of uncertainty. Unlike the neoclassical theory that treats the firm as a "black box" of technological relations (represented through cost functions), which minimizes costs while maximizing profits, the new institutionalist school, in which prominent authors such as Coase, Williamson and North argue that there are initially two types of governance structures: the market and hierarchy. The market is primal. The firm as a hierarchy, emerges only when the transaction costs of economic coordination within the firm (to make) are lower than those of doing business in the market (to buy).

The firm follows routines, that consist of operating characteristics and competences that determine what the firm does in the short run; investment rules which determine the firm's investment behaviour; and search routines that determine its survival and expansion (including organizing R&D and innovation), (Nelson and Winter, 1982). Search routines are limited by past history and are thus path-dependent. The market is essentially a selection mechanism that separates the "wheat from the chaff" (Nelson and Winter, 1982). But, the extended neo-Schumpeterian perspective interprets the firm as a learning, evolutionary institution that blurs the boundary between the firm and the market over time, essentially adopting a dynamic approach to market creation and development (see Dosi, Teece and Winter, 1992). Building on the Austrian theories of the firm, they interpret the market process as constantly changing and creating novel combinations among different economic agents. As such, the market itself is a creative process bringing into existence new innovations, new consumer goods and new ways of doing things. The central agents in this process are firms that realize the creative potential of the market (Schumpeter, 1947).

But unlike the market, the firm employs conscious coordination of the "visible hand" (Chandler, 1977; Schapiro, 1991). In this respect, it fulfils the following essential functions: (i) it stores knowledge (including tacit knowledge); (ii) it reproduces that knowledge and calls forth new entrants or shares it with other firms; and (iii) it establishes trust and cooperation. Tacit knowledge refers to knowledge developed from direct experience and action in contrast to explicit knowledge which can be codified and formally written-down.

To the extent that these three conditions are satisfied, the firm can be said to represent a continuum of relations that develop over time through productive experience and thereby realises what Kaldor called the "creative role of markets" (1967).

Given the experience-based nature of technological capabilities acquired from learning-by-doing, firms must draw on their internal capabilities and creativity in order to produce and develop new products and processes. Tacit knowledge needs to be acquired; it cannot be bought, imported or borrowed. Equally, change and innovation depend on cooperation between various (and possibly conflicting) groups within the production process itself, particularly management and labour, over and above what is normally stipulated in employment contracts. Innovation requires flexibility in employment contracts that pure market-based contracts cannot spell out or accommodate. In order to create an environment that allows interactive learning to occur, firms must share information, and this implies a closeness and continuity of relations.

The firm provides an important forum for discussing and codifying the necessary changes and adaptations to work routines and industrial relations more generally, which are essential if technical change and innovation are to evolve in a satisfactory manner. In all these respects, the firm therefore provides an important forum for long-term learning activities (benefiting from external economies resulting from experience accumulated over time) and strategic decision-making, the importance of which has been greatly underestimated. By creating a context in which a convergent interest in innovation could develop, the firm complements its role in providing the degree of insurance against risk and failure faced by producers in the highly volatile and uncertain markets that technical change itself generates.

This notion of the activist entrepreneurial firm echoes Penrose's (1959) description of the firm as a bundle of physical and human resources engaged in a collection of complementary activities which create wealth by producing one or more than one product which can be used by other firms as inputs into their production processes or by the final consumer for consumption. Moreover, the firm is always operating in an environment which challenges its ability to match the performance of other firms by seeking to reduce unit costs but also by creating new products or continuously improving its existing products. Furthermore, the firm acts as a depository of experiential, practical and tacit knowledge.

Innovative activity must draw on as wide a variety of capabilities as possible, which may not be formalized or codified but require trust and cooperation if appropriate responses are to be forthcoming. Lundvall proposes the notion of organized markets as an intermediate mode of governance between markets and hierarchies characterized by a network of user–producer relationships. Organized markets constitute selective and lasting relationships between users and producers, involving not only traditional market elements such as price, commodity and sale, but also the exchange of qualitative information, common codes of information and conduct, and sometimes even direct cooperation (Lundvall, 1988). This description of the firm as embodying collective entrepreneurship within the context of an organized market is better able to accommodate the dynamic interpretation of technical change referred to earlier. The Schumpeterian innovator is by definition a productive entrepreneur who shapes the economic environment in a creative way.

Source: Kozul-Wright, 2000.

micro-enterprises, most of which are characterized by the use of basic and traditional technologies and cater to the needs of restricted and relatively small local markets. As shown in chapter 4, although these enterprises account for important proportions of employment, they are generally characterized by lower levels of aggregate productivity. At the other end of the spectrum, there are a few large firms, which are mainly capital-intensive, resource-based, import-dependent or assembly-oriented. These firms are often wholly or minority-owned foreign affiliates, or state-owned enterprises. These large firms are not large by international standards, but they dominate the business landscape within most LDCs. Between these two extremes, there are very few formal sector SMEs.

Although the "missing middle" is widely accepted (see UNCTAD, 2001; Commission for Africa Report, 2005; Kauffmann, 2005), it is in practice difficult to get data on a country-by-country basis to substantiate the pattern. A major challenge for comparisons amongst countries is the lack of standardized definition of micro, small, medium and large enterprises across countries. According to ILO estimates, the contribution of formal sector SMEs to GDP in high-income countries is almost double that in low-income countries, over 40 per cent as against 20 per cent respectively, and the contribution of those SMEs to employment in high-income countries, which is over 60 per cent, is similarly double that in low-income countries (ILO, 2004).

The life cycles of enterprises are stunted in two ways. Firstly, informal sector enterprises rarely develop into formal sector firms. Secondly, small firms do not generally evolve into larger firm size classes.

Within Asia, Bangladesh seems to have a more important formal SME sector in terms of its contribution to value added. Although there are serious controversies with regard to their importance, various sources suggest that they contribute between 45 and 50 per cent of total manufacturing value-added (Bangladesh Enterprise Institute, 2004, based on estimates from the Asian Development Bank, the World Bank and the Bangladeshi Planning Commission). But in African LDCs, surveys find that a few large firms contribute the most to manufacturing value-added. According to Albaladejo and Schmitz (2000), SMEs in Africa can be classified into subsistence micro-enterprises and growth-oriented SMEs. The former are informal sector enterprises, which typically employ fewer than five workers, in most cases just one person, and which also use unpaid family labour. They are mainly labour-intensive activities that are characterized by very low entry barriers and minor rents, and employment is dominated by women. Examples of the most common trades include street-selling and home-based subcontracted work. Growth-oriented SMEs are mainly concentrated in the 5–19 worker-size category, but may include some micro-enterprises. They are usually formal sector enterprises, but may include some informal sector enterprises. They predominate in resource-based sectors, but more successful growth-oriented SMEs are in capital-intensive sectors and in some more technologically developed sectors (i.e. ICTs, garment design), and exhibit greater growth potential than subsistence micro-enterprises. They tend to serve domestic markets but also international markets (particularly regional). It is the weak development of these growth-oriented SMEs which constitutes the phenomenon of the "missing middle".

There is little evidence to suggest that entry or exit is a problem for small firms (see, for example, Elhiraika and Nkuunziza, 2005). Empirical evidence on African countries tends to corroborate the fact that the rate of new enterprise establishment is very high (Mead and Liedholm, 1998), but so is the exit rate for small firms in particular. It has been estimated that 50 per cent of start-ups fail in the first three years (ibid.). Moreover, the life cycles of enterprises are stunted in two ways. Firstly, informal sector enterprises rarely develop into formal sector firms. Albaladejo and Schmitz (2000), estimate that in Africa less than 1 per cent

of subsistence-oriented micro-enterprises develop into growth-oriented SMEs. Secondly, small firms do not generally evolve into larger firm size classes (Harding, Soderbom and Teal, 2004; Van Biesebroeck, 2005; Liedholm, 2001).

Small firms are unable to grow and attain minimum efficient production sizes.

The typical life cycle of firms — in which firms are usually small when they are set up and a select few then evolve from small into medium- and then large-size firms — does not seem to be occurring. Small firms are unable to grow and attain minimum efficient production size. New entrants tend to be small and have below average productivity levels and higher exit rates than the large firms. Within sub-Saharan Africa, it has been estimated that only 7 per cent of the new micro-enterprises grow to the medium or large size. Further evidence shows that in sub-Saharan Africa transition between size classes is extremely rare and most firms remain in their initial size categories. Moreover, the probability that the firm will remain in the same size category greatly increases with firm size. Many large-size firms in fact start out as large and tend not to drop below medium size (Van Biesebroeck, 2005).

Contrary to conventional wisdom, these firm dynamics do not necessarily imply that in the LDCs the market selection process does not "prune out" inefficient firms. On the contrary, there is evidence to support the perspective that markets may indeed be very competitive as regards "pruning-out" less efficient firms. However, that "churning" process may be so strong that it may not permit new entrants to acquire the requisite technological capacities for manufacturing, thus imposing high costs on entrepreneurs for acquiring them independently (Shiferaw, 2005). Shiferaw (2005) finds that medium-sized firms in Ethiopia were between 40 and 50 per cent more productive than small enterprises, on average, while large enterprises were found to be between 65 and 80 per cent more efficient, on average. But at the same time the large firms are significantly less likely to exit and to survive longer even when they exhibit weak productivity performance (Mead and Liedholm, 1998; Van Biesebroeck, 2005).

Risk and volatility, access to credit, weak technological capabilities, and access to knowledge, entrepreneurial capabilities and labour force skills, are major obstacles to firm-level expansion in poor countries.

What factors are constraining normal growth dynamics at the firm level in LDCs? A set of standard constraints, including risk and volatility, access to credit, weak technological capabilities, and access to knowledge, entrepreneurial capabilities and labour force skills, are known to pose major obstacles to firm-level expansion in poor countries. The fact that these same factors are strongly correlated with investment performance and productivity would certainly suggest how small firms can get stuck in a perverse business environment (Van Biesebroeck, 2005). In environments in which business information collection mechanisms are not well developed, the perception of greater creditworthiness that tends to accompany larger size may help larger firms access credit more easily (Bigsten et al. 2003). Furthermore, larger firms are found to be more capable of overcoming the legal and financial obstacles faced by all firms on account of their negotiating power, and tend to display lower relative levels of dependence on the local economy owing to their greater levels of access to foreign finance, technology and external markets. Finally, larger-sized firms are found to generally be able to overcome more easily bottlenecks arising from the non-existence or failure of adequate public support mechanisms that would otherwise constrain their growth.

The inability to tap into capital markets or to face very high rates on borrowing undermines investment, and leads SMEs to operate with much less capital per worker than the larger firms.

Small firms in LDCs certainly do have difficulty in accessing credit markets (see Bigsten and Soderbom, 2005 and also section C of this chapter). The inability to tap into capital markets or to face very high rates on borrowing undermines investment, and leads SMEs to operate with much less capital per worker than the larger firms. By contrast, larger firms have more access to

formal credit (see Bigsten and Soderbom, 2005), and since they are more productive and have greater investment propensities than the SMEs, they are better placed to improve their productivity performance.

The lack of formal market institutions to support private sector activities and underdeveloped markets in several LDCs are major business impediments.

Enabling network-building among firms is a further crucial component in successful firm evolution. Membership of a cohesive network is a very important determinant of size at entry in the case of Africa, for example (Biggs and Shah, 2005). This in turn has an important influence on future firm prospects, pointing to the importance of social capital (network externalities) in the enterprise survival process. The lack of formal market institutions to support private sector activities and underdeveloped markets in several LDCs are major business impediments, increasing the "extraordinarily high costs of searching, screening, and deterring opportunism" (Biggs and Shah, 2005: 7). Firms create "architectures of relational contracts that substitute for failed or non-existent formal institutions and economize on search and screening costs" (Biggs and Shah, 2006: 6). But it has been observed in Africa that these business networks are often organized around ethnicity (Ranja, 2003; Mengistae, 2001; Ramachandran and Shah, 1999; Fafchamps, 1999). The business networks provide support for the "insiders", but make it difficult for "outsiders" to enter particular activities or markets.

An important obstacle to growth identified in the firm-level studies was the inadequate size of the market and an inelastic demand for the output of many firms.

While relying on ethnic or cultural networks is a common strategy worldwide, exclusive dependence on such networks cannot be an adequate substitute for an appropriate institutional environment that can support and generate productive entrepreneurship. Prevailing investment patterns suggest that much investment finance in Africa is derived from family sources, thereby reinforcing ethnically or culturally based entrepreneurial links. Almost exclusive reliance on ethnic networks in providing resources for productive investment can be unreliable and insufficient. Networks can also limit competition and lead to unproductive entrepreneurial activities.[1]

An important obstacle to growth identified in the firm-level studies was the inadequate size of the market and an inelastic demand for the output of many firms. This can in turn impose a major constraint on investment in SMEs, which is reinforced by scarcity of credit (Van Biesebroeck, 2005). Exports can provide only a partial solution to lack of demand by expanding the potential market and facilitating the repayment of (trade) credit (Van Biesebroeck, 2005). Unsurprisingly, smaller firms have a much lower propensity to export than larger firms. However, larger firms may face particularly daunting obstacles in expanding abroad. In the first place, wages appear to be higher in larger firms than would be expected from a skill premium. To remain competitive would require productivity to rise equally strongly with firm size. However, this does not often appear to be the case. The squeeze on firms can become even larger in the face of high infrastructure costs. Indeed, high transaction costs appears to be a major bottleneck in many poor countries. From this perspective, many larger firms in LDCs do not appear capable of expanding beyond the size threshold needed to become competitive on world markets.

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2. Firm heterogeneity and the productivity divide between small and large firms

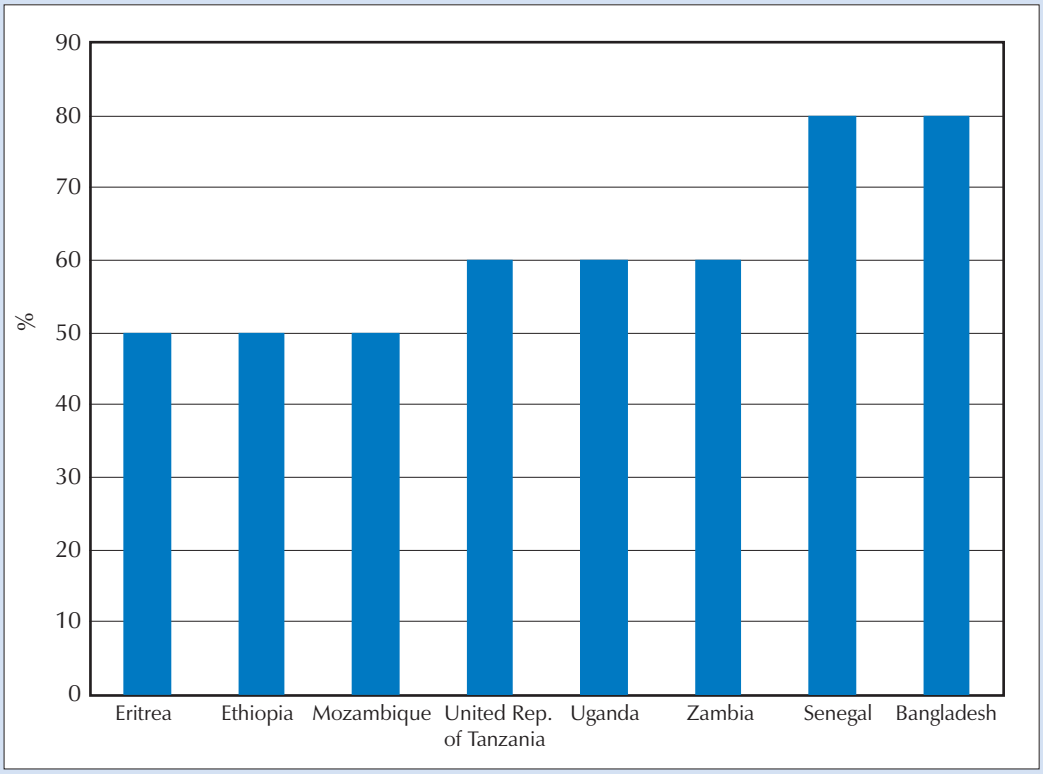
Data on enterprise performance within LDCs can be obtained from Investment Climate Assessments for: Bangladesh, Benin, Bhutan, Cambodia, Eritrea, Mali, Madagascar, Mozambique, Nepal, the United Republic of Tanzania, Uganda, and Zambia.[2] These indicate major weaknesses in the

average economic performance of firms in both African and Asian LDCs. Within African LDCs, capacity utilization rates are relatively low by international standards – generally ranging from 50 to 60 per cent, although Senegal is higher (see chart 46). Capital intensity tends to be high, although capital productivity tends to be relatively low (particularly in the cases of Eritrea and Zambia). This may be due to a combination of factors, most notably the age and quality of capital equipment. Enterprises also operate with relatively high unit labour costs.[3] In the United Republic of Tanzania, Uganda, and Zambia, for example, average unit labour costs for all firms included in the surveys were 0.39, 0.39 and 0.41 US dollars as against 0.32 and 0.27 US dollars in China and India respectively (World Bank, 2004a: table 2.6). In Asian LDCs, capacity utilization rates are similar to those in African LDCs in both Bhutan and Nepal, although they are higher in Bangladesh. Median investment rates are also below estimated depreciation rates in Bhutan and Nepal, a fact which indicates that the capital stock is being depleted faster than it is being replaced.[4]

The most striking feature of the enterprise performance in the LDCs is the high level of firm heterogeneity.

However, the most striking feature of the enterprise performance in the LDCs is the high level of firm heterogeneity, which has been identified as a key finding from the RPED studies in Africa (Bigsten and Soderbom, 2005) as well as in the Investment Climate Assessment Surveys in Asia. Firm heterogeneity means that, within the overall performance, there is much variety in outcomes and some firms are doing much better than others, both within and between sectors. In African LDCs, foreign ownership, export orientation and education of enterprises' managers have significant impacts on productivity measures, investment rates and turnover. Foreign-owned firms and exporting firms tend to perform better than domestically-owned firms and those which do not export. In

CHART 46. CAPACITY UTILIZATION IN FORMAL MANUFACTURING SECTOR ENTERPRISES IN SELECTED LDCS
(Median, percentage of total production capacity)



Source: Based on Eifert, Gelb and Ramachandran (2005).

Note: This chart uses Investment Climate Assessment data for surveys conducted from 2000 to 2004.

Asian LDCs, there are also wide disparities in productivity performance between export sectors and non-export sectors, with firms in export sectors performing substantially better in terms of sales growth, investment growth and employment growth in comparison with non-exporting firms.

Large firms tend to be more productive than small firms on measures of labour productivity, capital productivity and total factor productivity.

A recurrent finding with regard to the heterogeneity of firm performance is that large firms tend to be more productive than small firms on measures of labour productivity, capital productivity and total factor productivity (Mazumdar and Mazaheri, 2003; Van Biesebroeck, 2005; Mead and Liedholm, 1998). Table 48 provides an overview of value-added per employee, a frequently used measure of labour productivity, as well as capital/worker, a measure for capital intensity for selected LDCs, based on the World Bank´s Investment Climate Assessments, which measure mainly manufacturing firm performance across several countries using survey data. The table shows that in all the countries labour productivity in medium-sized firms is higher than in small firms, and that in all countries except Bangladesh and Eritrea, labour productivity in large firms is also higher than in small firms. Labour productivity in the large firms is between 50 per cent and almost four times higher than in the small firms, although in five out of the eight cases labour productivity in medium-sized firms is higher than in large firms. This reversal of the pattern is even stronger with regard to labour productivity differences between the large and very large firms – labour productivity is only higher in the very large firms in the United Republic of Tanzania and Zambia. Capital per worker also increases between small and large firms in all countries in the sample except Bangladesh. As with labour productivity differences, the very large firms may or may not have greater capital per worker than the large firms (see table 48).

TABLE 48. NET VALUE-ADDED PER WORKER AND CAPITAL PER WORKER, BY FIRM SIZE, IN SELECTED LDCS

(Median in dollars)

	Net value-added per worker[a]				Capital per worker			
	Small	*Medium*	*Large*	*Very large*	*Small*	*Medium*	*Large*	*Very large*
Bangladesh	1 300	1 650	1 200	1 150	1 450	1 650	800	1 150
Eritrea	2 450	5 450	2 000	1 600	17 700	52 050	52 650	14 500
Ethiopia	550	750	1 050	650	2 450	3 750	4 600	4 400
Mozambique	1 250	2 800	2 200	..	6 200	5 600	12 250	..
Senegal	7 500	17 100	15 600	14 500	6 900	11 300	11 950	1 000
Uganda	1 000	1 600	4 800	950	1 550	4 700	8 850	1 050
United Rep. of Tanzania	1 850	4 200	3 400	6 800	5 900	4 750	13 250	13 150
Zambia	800	950	1 250	2 500	9 650	14 000	6 700	13 750

Source: Based on Eifert, Gelb and Ramachandran (2005).

Note: This table is based on Investment Climate Assessment surveys conducted from 2000 to 2004.

a Net value-added is the gross value of sales minus the cost of raw materials and estimated indirect costs of production. For definition of indirect costs of production, see source.

3. LINKAGES BETWEEN INFORMAL AND FORMAL ENTERPRISES

The limitations of the skewed size distribution of enterprises is manifested through the lack of linkages between large firms and formal SMEs and also between formal sector and informal sector enterprises.

Once again there are few data on these phenomena. However, table 49 provides some evidence on the extent of linkages between formal sector and informal sector enterprises in the capital cities of six West African LDCs — Bamako, Cotonou, Dakar, Lomé, Niamey and Ouagadougou in 2000 and 2001 (Brilleau et al., 2005). This shows that:

TABLE 49. LINKAGES OF INFORMAL SECTOR ENTERPRISES WITH FORMAL SECTOR ENTERPRISES IN THE CAPITAL CITIES OF SELECTED WEST AFRICAN LDCS

	Cotonou (Benin)	Ougadougou (Burkina Faso)	Bamako (Mali)	Niamey (Niger)	Dakar (Senegal)	Lomé (Togo)	Average
Source of raw material inputs of the informal sector (% of the total value of raw material inputs).							
Formal commercial	27.4	14.8	14.0	4.3	9.8	7.1	12.9
Informal commercial	62.1	76.5	83.1	90.0	79.9	85.6	79.5
Others	10.5	8.7	2.8	5.7	10.3	7.3	7.6
Users of output produced by informal sector (% sales revenue)							
Formal sector	10.2	10.3	6.8	3.7	8.2	6.8	7.7
Informal sector	30.3	22.0	25.8	12.6	10.2	17.6	19.8
Households	56.4	67.6	66.4	82.7	81.2	73.7	71.3
Foreigners	3.1	0.1	1.0	1.0	0.4	1.9	1.3
Major sources of competition for the informal sector (% total informal sector enterprises)							
Formal commercial	3.2	4.2	7.9	6.2	3.7	4.1	4.9
Formal non-commercial	6.8	2.6	4.9	3.4	3.1	3.0	4.0
Informal commercial	61.7	57.6	64.3	71.5	57.8	66.9	63.3
Informal non-commercial	24.6	15.9	23.0	18.7	22.1	14.8	19.9
Other	3.7	19.8	0.0	0.0	13.3	11.3	8.0

Source: Based on Brilleau et al. (2005).

- There are few backward linkages from informal sector enterprises to formal sector enterprises. On average, only 12.9 per cent of the material inputs of the informal sector enterprises in these cities was procured from formal sector enterprises. In five of the six cities less than 15 per cent of the material inputs were procured from formal sector enterprises. But Cotonou stands out as an exception, with 27 per cent of the material inputs of informal sector enterprises procured from formal sector enterprises.
- The outputs of informal sector enterprises are generally not sold to formal sector enterprises. On average, only 7.7 per cent of the sales of informal sector enterprises are to formal sector enterprises. The highest share of sales to formal sector enterprises is in Cotonou and Ouagadougou (10.2 per cent and 10.3 per cent respectively).
- Formal sector and informal sector enterprises do not compete. In all countries, less than 13 per cent of informal sector enterprises identify formal sector enterprises as a source of competition. On average, 83.2 per cent of informal sector enterprises identify other informal sector enterprises as their competitors.

The limitations of the skewed size distribution of enterprises is manifested through the lack of linkages between large firms and formal SMEs and also between formal sector and informal sector enterprises.

These results suggest a segmented production system in which there are weak linkages between different types of enterprises and also little competition amongst them. However, there may be positive consumption linkages between the growth of formal sector enterprises and the incomes of those working in them, and demand for output of informal sector enterprises from households. Evidence in Burkina Faso shows that in particular localities, the growth of the formal and informal sectors was positively correlated (Grimm and Günther, 2005).

Not all informal sector enterprises are subsistence SMEs, but some are growth-oriented.

Not all informal sector enterprises are subsistence SMEs; some are growth-oriented. In this regard, Ranis and Stewart (1999) usefully differentiate between traditional and modernizing informal sector enterprises. The former have very low capitalization, low labour productivity and low incomes, very small size (three or fewer workers) and static technology. The latter are more capital-intensive, usually larger in size (as many as 10 workers) and have more dynamic technology. It is this segment of the informal sector which is part of what Albaladejo and Schmitz (2000) call "growth-oriented SMEs". The modernizing informal sector enterprises are likely to be more closely linked to formal sector

enterprises. They produce consumer goods which may compete with formal sector goods, as well as intermediate products and simple capital goods which meet the informal sector needs but also partly respond to the demands of the formal sector. Within the informal sector it is these enterprises which have the potential to become firms in the formal sector.

Within dynamic Asian economies it is apparent that these types of informal enterprises have played an important economic role (Ranis and Stewart, 1999, and see also the next chapter). But it is difficult to say how important they are within the LDCs.

C. Domestic financial systems

1. The changing policy environment

The nature of the domestic financial systems is critical for the processes of enterprise development and the development of productive capacities in the LDCs. This is widely recognized and after achieving their political independence, many LDCs sought to establish development finance institutions and targeted credit schemes. These were often funded and assisted by foreign aid agencies, and designed to provide credit to priority sectors or specialized concessionary services in rural areas. Governments played a major role in determining credit flows through a system of subsidies, interest-rate ceilings, policy-based credit allocation, high reserve requirements and restricting entry into banking and capital account transactions (UNCTAD, 1996).

In the economic crises during the late 1970s and early 1980s, the inherent weaknesses of LDCs financial institutions were further exposed and the response was to switch from a policy of financial repression to financial liberalization.

These financial policies were often unsuccessful and hindered the development of financial institutions. As Nissanke (2001: 347) has put it with regard to Africa, in terms which are relevant for African LDCs, "Commercial viability was largely prevented by the dictates of government policy objectives and political goals. This history of political interference undoubtedly impaired their risk-handling capacity. Banks failed to develop the capacity for risk assessment and for monitoring loan portfolios, and savings mobilization was not actively pursued. There was neither active liquidity and liability management nor any incentive to increase efficiency, often resulting in increased costs for financial intermediations. Financial repression discouraged banks from investing in information capital, crucial for the development of financial systems. In dealing with the idiosyncratic risks of private borrowers, banks were burdened by problems caused by costly and imperfect information — adverse selection, moral hazard and contract enforcement".

In the economic crises which most LDCs faced in the late 1970s and early 1980s, the inherent weaknesses of financial institutions were further exposed and the response was to switch from a policy of financial repression to financial liberalization, usually as part of stabilization and structural adjustment programmes. There are no systematic data on the extent of this process of financial policy reform. But available data show that Bangladesh, Burundi, Madagascar, Malawi, Nepal, Sierra Leone and the United Republic of Tanzania initiated their financial liberalization process in the second half of the 1980s whereas Haiti, Uganda and Zambia proceeded in the first half of the 1990s (Glick and Hutchinson, 2002). These trends are indicative of a broader movement. Gelbard and Leite (1999), for example, provide data on the status of financial liberalization in 24 LDCs, which indicate that 23 had "repressed" financial systems in 1987, whilst only 4 had such systems in 1997.

Financial liberalization aimed at enhancing the efficiency of financial intermediation and strengthening financial regulation (i.e. reducing the allocative regulation of financial markets), thus targeting increases in deposits (savings mobilization), in the quality of the investment portfolio and in economic growth. The main policy components of financial liberalization in LDCs included reform and liberalization of interest rates, introduction of market-based instruments of money markets (i.e. a switch from direct monetary-policy instruments such as interest rate controls and credit ceilings to indirect monetary instruments such as auction of treasury bonds), removal of sectoral credit directives and of restrictions on the types of activities financial institutions can undertake, liberalization of restrictions on the entry of private-sector and/or foreign institutions into domestic financial markets, privatization of government-owned financial institutions and restructuring/liquidation of banks (UNCTAD, 1996).

The introduction of market-oriented policies within the financial sector of LDCs did not bring about the expected benefits.

The financial reforms have contributed to somewhat increased competition within the financial sector and to the establishment of a more prudential regulation system. However, although the pace and extent of financial liberalization differ greatly from country to country, the evidence, which will be discussed below, suggests that the introduction of market-oriented policies within the financial sector of LDCs did not bring about the expected benefits. The LDC financial sector not only remained undiversified, bank-dominated and weakly competitive, but also developed an alternative mode of credit rationing focusing on short-term profitability instead of long-term productive investment. In other words, the LDC financial sector, and the banking sector in particular, did not act as an engine for private sector development in the aftermath of financial liberalization. Financial liberalization simply failed to promote productive investment in LDCs, as reflected by the poor delivery of credit to the private sector and to SMEs in particular. In the context of high information asymmetry, weak contract enforcement, weak capacity to monitor and assess risk, and a tradition of weak loan repayment, the behaviour of formal lenders is by and large dominated by an extremely high perception of risk, at the expense of enterprise development and employment creation.

2. Trends in financial intermediation

This section shows the evidence of trends in financial intermediation in LDCs since the early 1980s. For comparative purposes, the trends in low- and middle-income countries or in other developing countries are also presented.

The trends in the monetization level of the LDCs tend to indicate that, on average, financial deepening did not occur in this group of countries in the aftermath of financial liberalization.

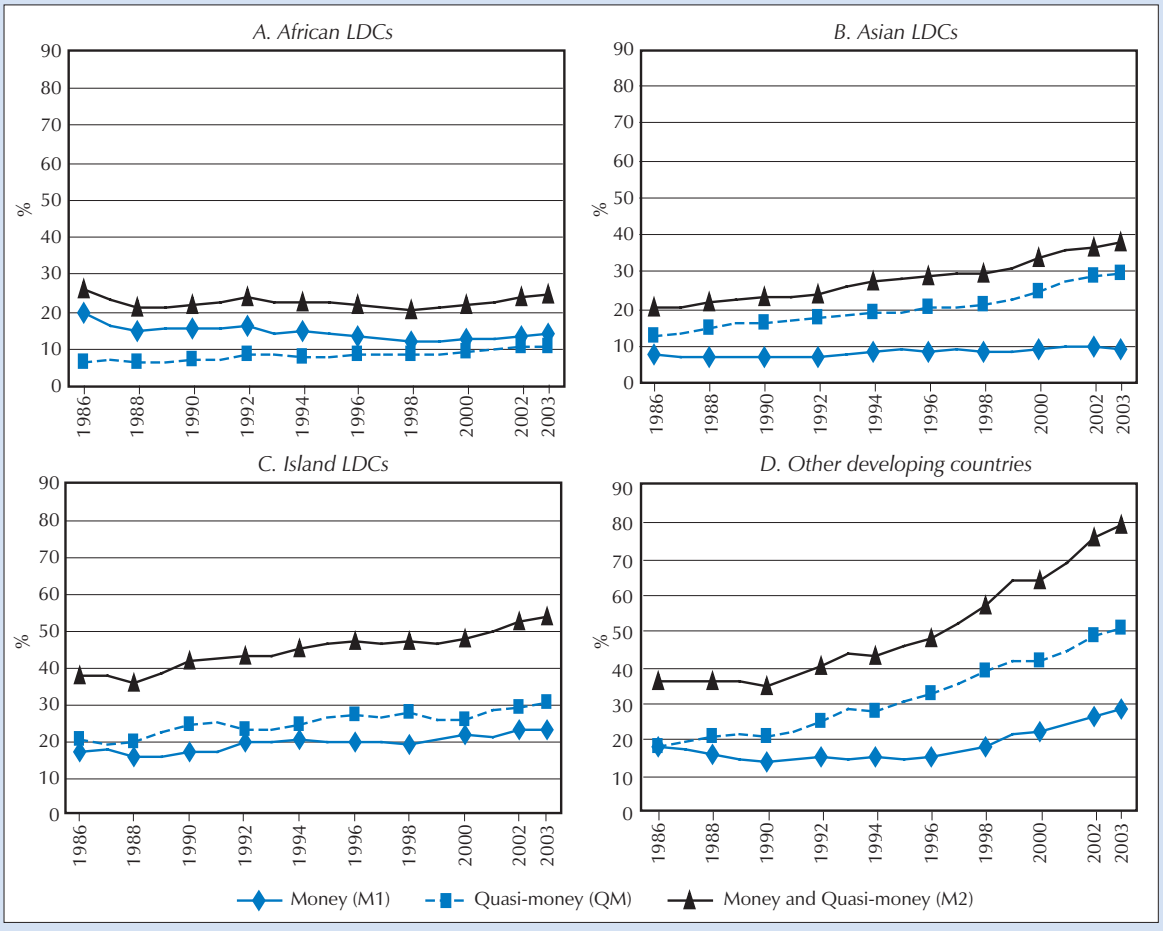
The first general indicator of financial depth is the level of monetization.[5] Data show that the monetization level prevailing in the group of LDCs still lags far behind that of the group of other developing countries. In the group of LDCs, the M2 to GDP ratio increased by only six percentage points between 1986 and 2003. In contrast, the same ratio increased by 43 percentage points in the group of other developing countries over that period. In 2003, money supply did not reach 31 per cent of GDP in LDCs as compared with almost 80 per cent of GDP in the group of other developing countries, with the share of interest-bearing and longer-maturity holdings to GDP being almost three times lower in LDCs (18 per cent) than in other developing countries (51 per cent). As a result, in 2003 the LDC ratio of M2 to GDP was still lower than the one displayed by the group of other developing countries in the early 1980s. The trends in the monetization level of the LDCs tend to indicate that, on average, financial deepening did not occur in this group of countries in the aftermath of financial liberalization. As outlined in box 18, there were distinct patterns of monetization

Box 18. Level and structure of monetization in LDCs

Trends in the monetization structure[1] of both LDCs and other developing countries show that since the mid-1980s a growing proportion of money supply has been in the form of quasi-money (see box chart 6). The share of quasi-money first exceeded that of money (M1) in 1993 in the group of LDCs as compared with as from 1986 in the group of other developing countries, thus indicating that in the period preceding the implementation of financial reforms the LDC economies were already at a much earlier stage of financial development than the group of other developing countries. In 2003, however, the structure of monetization of both LDCs and other developing countries was comparable to that of the group of developed countries, with quasi-money contributing to 60 to 65 per cent of total money supply in all three groups of countries. In disaggregating the group of LDCs by region, data show that these results have mainly been driven by Asian LDCs. In African LDCs, despite an increasing trend in the proportion of quasi-money, the share of M1 was in 2003 still higher than that of quasi-money. This observation may simply indicate that, on average, improvements in the use and delivery of financial services were much slower in African LDCs than in Asian LDCs in the aftermath of financial liberalization.

Box chart 6. The structure and level of monetization in LDC subgroups and in other developing countries, 1986–2003

(Percentage of GDP)



Source: UNCTAD secretariat estimates based on World Bank, *World Development Indicators 2005,* CD-ROM.

Note: Calculations are based on a group of 36 LDCs and 63 other developing countries.

As shown in box chart 6, in disaggregating the group of LDCs by region, it is seen that the average monetization level of Asian LDCs almost doubled from 20 per cent of GDP to 38 per cent of GDP between 1986 and 2003 as the main result of an increase in their ratio of quasi-money to GDP, which almost tripled between the same years. In contrast, in the group of African LDCs, the ratio of M2 to GDP was lower in 2003 (24 per cent of GDP) than in 1986 (26 per cent). This apparent demonetization process is attributed to a sluggish increase in the ratio of quasi-money to GDP (3.9 percentage points only between 1986 and 2003), which has not been sufficient to offset the concomitant decline in the ratio of M1 to GDP (-5.7 percentage points). In fact, the ratio of quasi-money was about twice as high in Asian LDCs (12.4 per cent of GDP) as in African LDCs (6.5 per cent of GDP) in 1986 and three times higher in 2003. According to Brownbridge

Box 18 (contd.)

and Gayi (1999), the better performance of Asian LDCs in enhancing financial depth relative to African LDCs may be attributable, at least in part, to the relatively greater macroeconomic stability prevailing in those countries, that is, lower inflation rates and higher real deposit rates. Data show that, on average, inflation rates were higher in African LDCs than in Asian LDCs in the late 1980s but not in the early 2000s.[2] With regard to island LDCs, data indicate that this group of countries showed an increase in their ratio of both quasi-money and money to GDP between 1986 and 2003. Their financial depth even appeared consistently higher than that of the group of Asian LDCs throughout the 1986–2003 period, although lower than that of the group of other developing countries.

These results tend to highlight the fact that despite an encouraging change in the LDCs' structure of monetization towards a relatively greater reliance on time and savings deposits, the financial depth of the group of LDCs compares particularly unfavourably with that of the group of other developing countries. The latter group of countries has showed substantial progress in their financial depth since the mid-1980s, while progress has been extremely sluggish in the group of LDCs and in African LDCs in particular. Such trends are significant as it has been estimated that a 10 per cent point increase in the M2/GDP ratio would increase GDP per capita growth by 0.2 per cent to 0.4 percentage points (World Bank, 1994: 22). The apparent demonetization of African LDCs in the aftermath of financial reforms is particularly preoccupying. In fact, with regard to the 22 African LDCs for which data are available, the level of monetization decreased in 10 and stagnated in 8 between 1986–1993 and 1996–2003. Weak monetization levels are a common feature of subsistence-oriented economies, where the main form of savings is often physical assets (commodity holdings) and where part of the agricultural sector is non-monetized. In those economies, monetization requires the economic development of rural areas (Akyüz, 1992).[3]

[1] For definition see footnote 5 in the text.

[2] In excluding Angola and the Democratic Republic of the Congo, two outliers, LDC data on inflation (based on the GDP deflator) are available for 39 LDCs in the periods 1986–1990 and 1999–2003, including 31 African LDCs and 5 Asian LDCs. Using simple averages, calculations show that inflation rates decreased from 22 per cent to 8 per cent in African LDCs and from 18 per cent to 14 per cent in Asian LDCs. In island LDCs, inflation rates decreased from 12 per cent to 5 per cent between the same periods. In comparison, inflation rates averaged 14 per cent in 1986–1990 in the group of other developing countries (in excluding four outliers, namely Argentina, Brazil, Nicaragua and Viet Nam) and decreased to 8 per cent in 1999–2003, which is the same level as the one displayed by African LDCs.

[3] The author also notes that interest policies such as increases in deposit rates cannot bring about monetization through the liquidation of commodity stocks.

in African, Asian and island LDCs, with a process of demonetization (reduction in the level of monetization) occurring in the African LDCs since 1986.

Interest rate spreads (the difference between deposit and lending interest rates) are used as a proxy for financial intermediation efficiency. Available data suggest that (i) the interest spread increased in the LDCs, while it decreased on average in the group of other developing countries, and that (ii) the interest spread remained consistently larger in LDCs than in other developing countries (see table 50). High interest spreads generally indicate the presence of high operating costs (including in particular high overhead costs commonly related to the low productivity and the overstaffing of banks), a poorly performing loan portfolio (reflecting a weak culture of repayment), a weakly competitive banking sector and a weak lending environment. According to McKinley (2005), large interest spreads may also imply that commercial banks charge large profit rates on disbursed loans so as to compensate for a low volume of loan disbursement. High profit margins on lending, which reflect high risk premiums charged, weak market infrastructure and weak enforcement of creditor rights, are also indicative of the weak intensity of competition (Èihák, M. and Podpiera, 2005).[6]

During the 1990s, interest rate spreads, commonly used as a proxy for financial intermediation efficiency, increased in the LDCs, while they decreased on average in the group of other developing countries.

Financial liberalization was accompanied by a lowering of domestic bank reserve requirements. Accordingly and as shown in chart 47a, the bank liquid reserves to bank assets ratio, which has constantly been higher in LDCs than in the group of low- and middle-income countries since the 1980s, experienced a declining trend during the 1990s in both groups of countries. This decline was accompanied by an increase in the GDP ratio of domestic credit provided by banks in the group of low- and middle-income economies, but by a decrease in the same ratio in the group of LDCs (chart 47b). As shown in table 51, between

TABLE 50. LENDING INTEREST RATES AND INTEREST RATE SPREAD IN LDCS AND IN OTHER DEVELOPING COUNTRIES, 1990–1993 AND 2000–2003

(Average in percentage)

	Lending interest rate			Interest rate spread		
	1990-1993 (a)	*2000-2003 (b)*	*Change (b-a)*	*1990-1993 (a)*	*2000-2003 (b)*	*Change (b-a)*
Bangladesh	15.5	15.8	0.4	4.8	7.6	2.8
Cape Verde	10.0	12.7	2.7	6.0	8.2	2.2
Central African Republic	18.0	19.7	1.7	10.4	14.7	4.3
Chad	18.0	19.7	1.7	10.4	14.7	4.3
Equatorial Guinea	18.0	19.7	1.7	10.4	14.7	4.3
Ethiopia	8.5	9.6	1.1	4.7	4.8	0.1
Gambia	26.5	24.0	-2.5	13.7	11.4	-2.3
Guinea	24.3	19.4	-4.9	2.9	11.9	9.0
Lao PDR	25.8	29.5	3.7	8.5	21.7	13.2
Lesotho	18.6	16.7	-1.9	7.5	11.7	4.2
Madagascar	25.3	25.3	0.0	5.1	12.7	7.6
Malawi	23.1	52.2	29.1	7.4	21.8	14.4
Mauritania	10.0	21.0	11.0	3.8	13.0	9.3
Myanmar	8.0	15.1	7.1	-4.2	5.5	9.7
Nepal	14.4	8.6	-5.9	0.6	3.2	2.6
Samoa	13.2	10.1	-3.1	6.1	4.6	-1.6
Sao Tome and Principe	32.8	36.9	4.1	2.5	21.1	18.6
Sierra Leone	55.5	23.2	-32.3	13.0	14.8	1.8
Solomon Islands	18.8	16.0	-2.8	8.1	14.6	6.6
Uganda	36.5	20.9	-15.6	-10.4	12.5	22.8
United Rep. of Tanzania	31.0	18.2	-12.8	7.8	13.6	5.8
Vanuatu	16.9	8.0	-8.9	11.0	6.8	-4.2
Zambia	67.7	42.7	-25.0	32.2	20.5	-11.7
LDCs	23.3	21.1	-2.2	7.1	12.4	5.4
Other developing countries	42.8	16.2	-26.6	19.4	8.3	-11.1

Source: UNCTAD secretariat estimates based on World Bank, *World Development Indicators 2005,* CD-ROM.

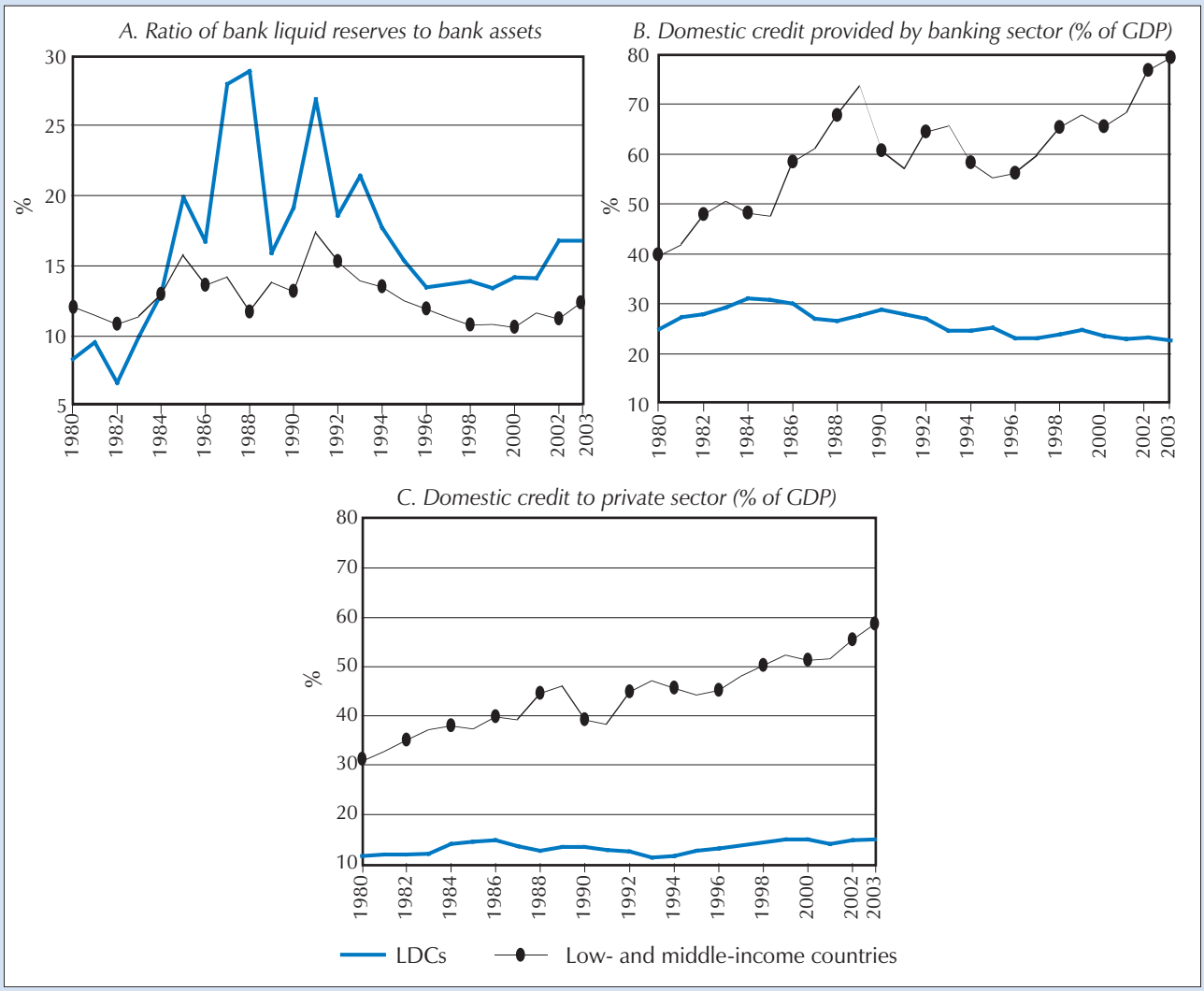
Note: Averages are simple averages based on a group of 23 LDCs and 64 other developing countries.

1990–1993 and 2000–2003, the bank liquid reserves to bank assets ratio declined in 29 out the 42 LDCs for which data are available, while the ratio of domestic credit provided by banks decreased in 60 per cent of them (as compared with 24 per cent of them in the group of other developing countries).

Between 1980 and 2003, whereas the ratio of domestic credit to the private sector doubled from 30 per cent to almost 60 per cent in the group of low- and middle-income countries, it stagnated in the group of LDCs.

Another traditional indicator of financial intermediation is the GDP ratio of domestic credit to the private sector. This variable is supposed to capture the effective re-channelling of financial deposits/savings to the private sector through loan disbursements.[7] Chart 47c shows that between 1980 and 2003, whereas the ratio of domestic credit to the private sector doubled from 30 per cent to almost 60 per cent in the group of low- and middle-income countries, it stagnated at around 14–15 per cent in the group of LDCs. Data show that even the highest-ranked LDC, namely Cape Verde, in which domestic credit to the private sector averaged 37 per cent of GDP in 2003, did not reach the average level displayed by the group of low- and middle-income countries the same year. Those preliminary observations clearly indicate that on average and despite the implementation of financial reforms, domestic financial institutions failed to act as an engine for private sector development in the group of LDCs. As shown in table 52, the GDP ratio of domestic credit to the private sector increased from 12 to 15 per cent for the group of LDCs, but slightly declined in 19 out of the 33 LDCs for which pre-reform and post-reform data are available. With the exception of one country, namely the Solomon Islands, all of the 19 countries were African LDCs. In contrast, the same ratio increased in the five Asian LDCs for which data were available. According to Thisen, (2004), "[In

CHART 47. SELECTED INDICATORS OF FINANCIAL DEPTH IN LDCS AND LOW- AND MIDDLE-INCOME COUNTRIES, 1980–2003



Source: UNCTAD secretariat estimates based on World Bank, *World Development Indicators*, online data, May 2005.

Africa] the one thing that industry and commerce lacked was a sufficient supply of money. Bankers, who were the only source of money, deliberately refused loans to industry, commerce and agriculture".

Domestic financial institutions failed to act as an engine for private sector development in the group of LDCs...

Although provision of domestic credit is very low in the LDCs, banks' portfolios are characterized by a high incidence of liquidity. In 2000–2003, the bank liquid reserves to bank assets ratio exceeded 11.4 per cent (the rate displayed by the group of low- and middle-income countries) in 32 out of the 45 LDCs for which data are available (see table 51).[8] Moreover, the coexistence of a situation of high liquidity and scarce bank domestic credit reveals that any intervention on bank reserve requirements to improve access to credit is expected to fail. Chart 48 shows that in 1999–2003 in the LDCs, the bank liquid reserves to bank assets ratio was invariably associated with a low level in the GDP ratio of domestic credit to the private sector. In contrast, in the group of other developing countries, relatively lower bank liquidity ratios were accompanied by relatively higher levels in the GDP ratio of domestic credit to the private sector.

Yet banks' portfolios are characterized by a high incidence of liquidity.

It has often been argued that the weak level of domestic credit to the private sector is explained by the crowding-out effect of credit disbursed to the public

TABLE 51. RATIO OF BANK LIQUID RESERVES TO BANK ASSETS AND DOMESTIC CREDIT PROVIDED BY BANKING SECTOR IN LDCS AND IN LOW- AND MIDDLE-INCOME COUNTRIES, 1990–1993 AND 2000–2003

	Ratio of bank liquid reserves to bank assets (%)			Domestic credit provided by banking sector (% of GDP)		
	1990–1993 (a)	*2000–2003 (b)*	*change (b-a)*	*1990–1993 (a)*	*2000–2003 (b)*	*change (b-a)*
Cape Verde	147.8	20.0	-127.8	44.8	67.6	22.8
Dem. Rep. of the Congo	109.5	7.5	-102.0	18.5	1.1	-17.4
Yemen	113.3	18.8	-94.4	56.8	3.1	-53.7
Myanmar	88.2	20.9	-67.3	38.2	33.6	-4.6
Samoa	72.5	11.4	-61.1	0.3	24.6	24.3
Bhutan	107.0	58.6	-48.4	7.3	7.2	0.0
Mali	65.4	17.2	-48.1	12.9	16.0	3.2
Benin	60.7	16.8	-43.9	14.9	7.1	-7.8
Haiti	83.1	40.9	-42.2	33.7	35.0	1.2
Togo	51.7	11.4	-40.4	23.4	18.8	-4.6
Niger	42.4	16.4	-26.0	14.6	8.7	-5.9
Sudan	50.5	25.9	-24.6	18.7	9.8	-8.9
Sierra Leone	33.2	10.0	-23.2	19.2	50.5	31.4
Burkina Faso	26.3	8.2	-18.1	9.9	13.5	3.6
Mozambique	30.4	13.5	-17.0	10.9	12.7	1.8
Ethiopia	26.0	12.6	-13.3	52.9	61.0	8.1
Lesotho	22.9	10.7	-12.2	20.4	6.0	-14.4
Liberia	70.8	60.2	-10.6	587.5	177.2	-410.2
Mauritania	13.0	3.9	-9.1	50.6	-4.4	-55.0
Zambia	24.7	17.6	-7.1	62.3	51.9	-10.4
Uganda	15.9	11.1	-4.8	14.9	12.7	-2.2
Rwanda	14.8	10.3	-4.4	15.8	12.6	-3.2
Gambia	16.2	12.2	-4.0	4.8	20.8	16.0
Bangladesh	12.7	8.8	-3.9	22.9	38.1	15.2
Malawi	25.4	22.4	-3.0	24.2	18.3	-5.9
Guinea-Bissau	31.3	29.5	-1.8	27.9	15.2	-12.8
Burundi	5.8	4.0	-1.8	21.7	34.2	12.5
Senegal	13.3	12.3	-1.0	32.6	23.7	-8.9
Maldives	54.1	53.4	-0.6	33.4	38.3	4.9
Central African Republic	1.9	2.6	0.7	13.9	12.9	-0.9
Djibouti	1.1	2.3	1.2	46.9	31.2	-15.6
Vanuatu	3.9	6.3	2.4	29.0	43.3	14.3
United Rep. of Tanzania	6.8	13.7	6.9	31.6	9.9	-21.7
Madagascar	13.8	21.2	7.4	28.9	16.9	-12.0
Nepal	11.5	20.2	8.6	28.3	43.2	14.9
Guinea	8.6	22.0	13.4	6.2	11.3	5.2
Chad	2.9	16.4	13.5	13.1	11.6	-1.5
Lao PDR	12.7	27.4	14.7	6.4	12.1	5.7
Solomon Islands	4.7	20.9	16.1	36.0	36.8	0.8
Equatorial Guinea	14.9	43.6	28.7	41.8	1.4	-40.4
Cambodia	2.9	56.5	53.6	5.1	6.4	1.3
Comoros	18.2	73.1	54.9	20.1	12.3	-7.8
Angola	..	15.9	..	..	-0.9	..
Eritrea	..	27.7	..	..	153.7	..
Sao Tome and Principe	..	64.0	..	..	11.3	..
LDCs	21.5	15.4	-6.1	27.1	23.1	-4.0
Low- and middle-income countries	14.9	11.4	-3.5	62.0	72.5	10.5

Source: UNCTAD secretariat estimates based on World Bank, *World Development Indicators 2005,* CD-ROM.

TABLE 52. DOMESTIC CREDIT TO PRIVATE SECTOR IN LDCS AND IN LOW- AND MIDDLE-INCOME COUNTRIES, 1980–1984 AND 1999–2003[a]

(Average, percentage of GDP)

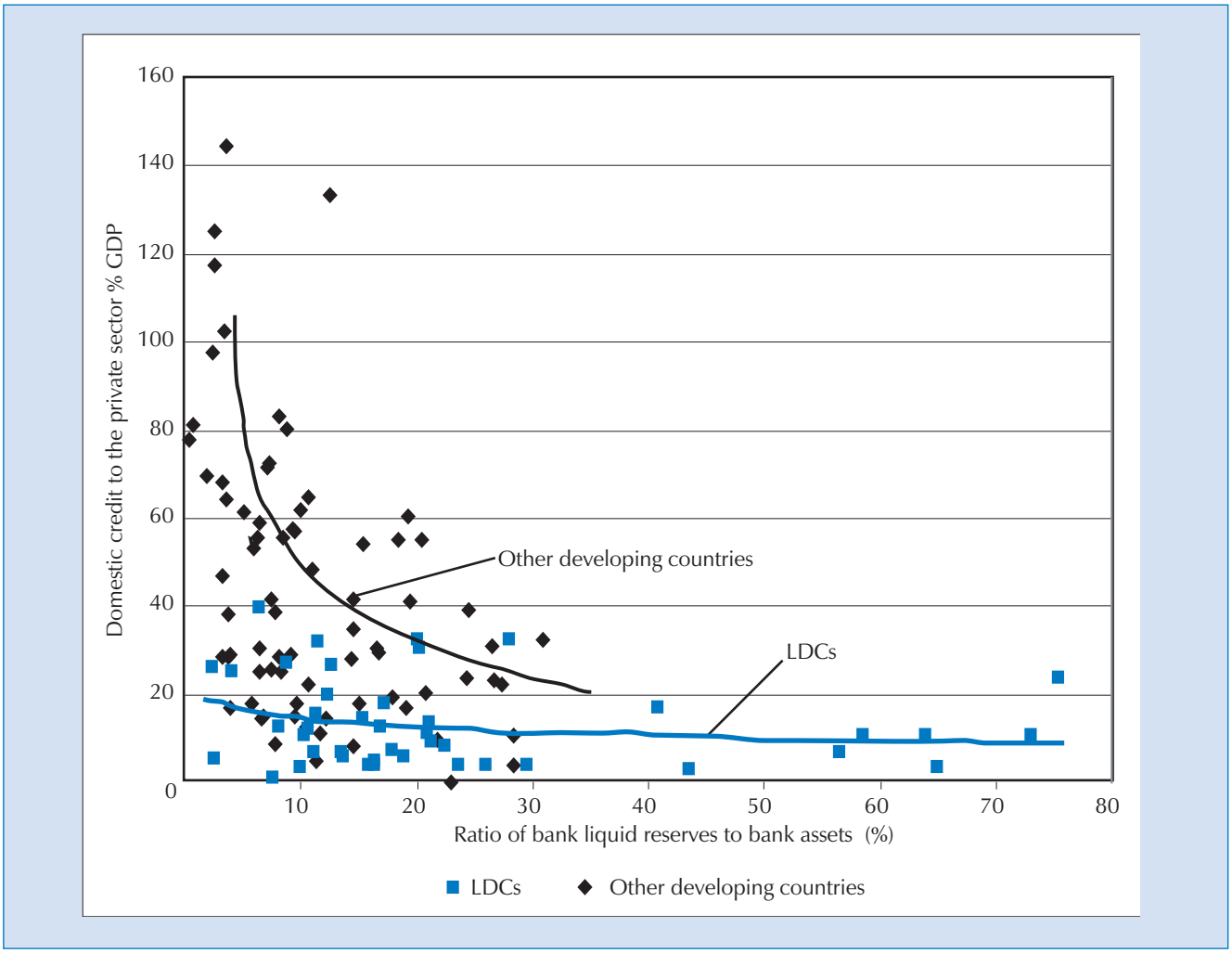
	1980–1984 (a)	1999–2003 (b)	Change (b-a)
Mozambique	59.8	8.6	-51.3
Senegal	41.7	19.3	-22.4
Benin	28.2	12.1	-16.1
Niger	17.2	4.7	-12.5
Zambia	19.6	7.2	-12.3
Solomon Islands	30.8	19.0	-11.7
Togo	25.0	14.7	-10.2
Gambia	23.8	13.8	-10.0
Madagascar	18.6	9.0	-9.6
Sudan	12.9	3.4	-9.5
Chad	12.6	3.8	-8.8
Central African Republic	12.5	5.1	-7.4
Liberia	8.6	3.8	-4.9
Sierra Leone	6.8	3.0	-3.8
Mauritania	31.9	28.3	-3.6
Comoros	13.5	10.7	-2.9
Mali	19.6	18.0	-1.6
Dem. Rep. of the Congo	2.2	0.8	-1.5
Burkina Faso	13.3	12.4	-0.9
Haiti	16.0	16.6	0.6
Lesotho	12.1	12.8	0.7
Maldives	20.8	22.4	1.6
Uganda	3.3	6.5	3.1
Rwanda	6.1	10.2	4.1
Myanmar	5.3	10.4	5.1
Malawi	2.3	8.3	6.0
Vanuatu	33.9	40.0	6.1
Bhutan	2.6	9.8	7.2
Ethiopia	13.8	27.8	13.9
Burundi	11.2	25.6	14.5
Bangladesh	8.3	26.5	18.2
Nepal	8.6	29.8	21.2
Samoa	7.8	32.3	24.5
Angola	..	3.7	..
Cambodia	..	6.7	..
Cape Verde	..	33.0	..
Djibouti	..	26.8	..
Equatorial Guinea	..	3.3	..
Eritrea	..	32.8	..
Guinea	..	3.9	..
Guinea-Bissau	..	4.6	..
Lao PDR	..	8.4	..
Sao Tome and Principe	..	9.6	..
United Rep. of Tanzania	..	5.6	..
Yemen	..	5.9	..
LDCs	12.3	14.7	2.5
Low- and middle-income countries	34.8	53.9	19.1

Source: UNCTAD secretariat estimates based on World Bank, *World Development Indicators 2005,* CD-ROM.

a The 1980-1984 period is a pre-reform period for many LDCs; the 1999-2003 period is a post-reform period for many LDCs.

CHART 48. BANK LIQUIDITY AND DOMESTIC CREDIT TO THE PRIVATE SECTOR IN LDCS AND OTHER DEVELOPING COUNTRIES, 1999–2003

(Average in percentage)



Source: UNCTAD secretariat estimates based on World Bank, *World Development Indicators 2005,* CD-ROM.

Note: Data are available for 119 developing countries, including 44 LDCs.

sector (which comprises credit to central government, local government and public enterprises) to finance the public deficit resulting from weak macroeconomic management (Nissanke, 2001). According to the IFS/IMF database (see table 53), claims on public entities absorb a significantly larger share of bank credit in the LDCs than in the group of other developing countries, a fact which may lead to the premature conclusion that the crowding-out effect of loans to the public sector is more pronounced in the LDCs than in other developing countries. Claims on public entities absorbed 39 per cent of total bank credit in the LDCs in 1990–1993 as compared with 24 per cent in the group of other developing countries in the same period. In 2000–2003 this ratio decreased to 34.5 per cent in the group of LDCs and to 18 per cent in the group of other developing countries. In both country groups the reduction in the contribution of credit to the public sector to total bank credit results from the reduction in the volume of such credit during the 1990s as part of stabilization reforms.

Although the contribution of bank credit to the public sector to total bank domestic credit was significantly higher in LDCs than in other developing countries, it is important to note that as a proportion of GDP, bank credit to the public sector was slightly lower in LDCs than in other developing countries (see table 53). Data also show that the GDP ratio of bank credit was consistently

TABLE 53. CLAIMS IN LDCS AND OTHER DEVELOPING COUNTRIES, BY BORROWER STATUS, 1990–1993 AND 2000–2003

(Percentage)

	Period	% Bank credit		%GDP	
		LDCs	*Other developing countries*	*LDCs*	*Other developing countries*
Claims on public entities	1990–1993	38.7	24.3	10.0	11.6
Claims on private sector	1990–1993	59.9	72.2	15.5	34.6
Bank credit	1990–1993	100.0	100.0	25.9	47.9
Claims on public entities	2000–2003	34.5	18.0	8.3	9.6
Claims on private sector	2000–2003	64.9	78.0	15.6	41.4
Bank credit	2000–2003	100.0	100.0	24.0	53.0

Source: UNCTAD secretariat estimates based on IMF, *International Financial Statistics* March 2005, and World Bank, *World Development Indicators 2005,* CD-ROM.

Notes: The sum of claims on public and private sectors does not equal total bank credit. The residual may represent claims on financial institutions.
Averages are simple averages based on a group of 35 LDCs and 63 other developing countries.

smaller in LDCs than in other developing countries. This is largely due to the smaller level of domestic credit to the private sector prevailing in the LDCs than in the group of other developing countries. In comparing trends in bank credit provided to the public and the private sectors, it appears that as a proportion of GDP, claims on public entities decreased by the same level in the LDCs than in the group of other developing countries (around two percentage points) between 1990–1993 and 2000–2003. Interestingly, however, this decrease was accompanied by a strong surge in bank credit to the private sector in the group of other developing countries, in contrast with the group of LDCs, where this ratio remained flat between the two periods (see chart 49). These observations suggest that during the 1990s and contrary to expectation, credit to the public sector in the LDCs did not act as a major determinant of weak credit delivery to the private sector in those countries. The problem of credit rationing in a liberalized environment seems to be more related to the banking system itself. It arises more from the high perception of risk of bankers and their inability to address the principal–agent problem[9] than from the crowding-out effect of credit to the public sector per se.

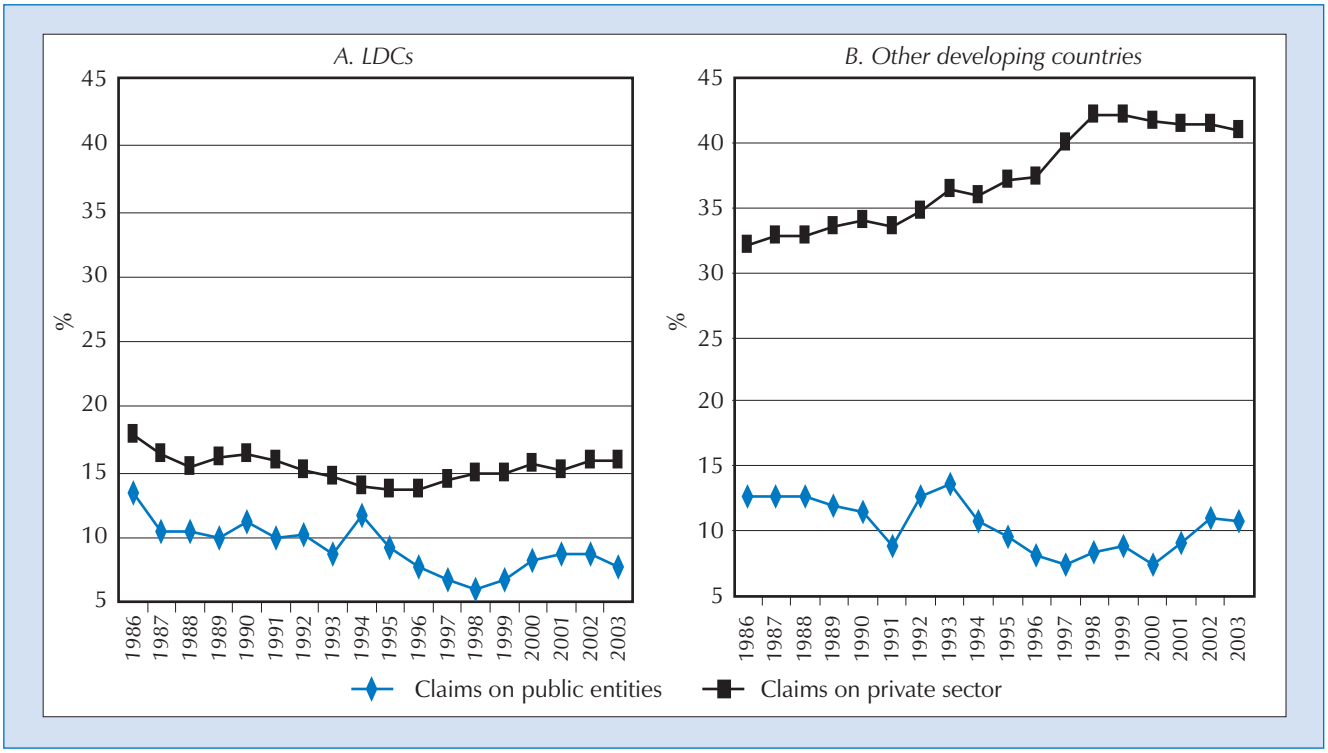
Neither the reduction in domestic credit to the public sector nor the reduction in bank reserve requirements proved sufficient to trigger bank credit to the private sector.

Thus, in the group of other developing countries the increase in the GDP ratio of domestic bank credit since the mid-1980s has been driven by an increase in domestic bank credit to the private sector, which has been sufficient to offset the decrease in claims on the public sector. In the group of LDCs, however, the decrease in the GDP ratio of bank credit resulted from the decrease in credit to the public sector and the stagnation, if not decrease, in domestic bank credit to the private sector, particularly in African LDCs. In the group of LDCs, unlike in the group of other developing countries, neither the reduction in domestic credit to the public sector nor the reduction in bank reserve requirements proved sufficient to trigger bank credit to the private sector. Even after the implementation of financial reforms, banks in the majority of LDCs continued to bear the costs of weak loan repayments and were highly adverse to the risks of non-repayment. In poorly managed financial systems, commercial banks invest in weakly remunerative but risk-free government securities as a way of sterilizing excess liquidity, rather than lend to the domestic private sector.

To sum up, the implementation of market-oriented financial reforms has proved ineffective in supporting the domestic resource mobilization process in the LDCs. This is a basic reason for the persistently weak domestic savings and investment performance in most of these economies, and in African LDCs in

CHART 49. BANK CLAIMS ON PUBLIC ENTITIES AND ON PRIVATE SECTOR IN LDCS AND OTHER DEVELOPING COUNTRIES, 1986–2003

(Percentage of GDP)



Source: UNCTAD secretariat estimates based on IMF, *International Financial Statistics,* March 2005; and World Bank, *World Development Indicators 2005,* CD-ROM.

Notes: Averages are simple averages based on a group of 35 LDCs and 63 other developing countries.

particular, which was shown in chapter 2. The high liquidity levels of the banking sector on the one hand and the weak level of domestic credit delivered to the private sector on the other hand are illustrative of the low intermediation trap[10] in which many LDCs are embedded. It is more likely that domestic financial resources are being underutilized in a number of LDCs and are inadequate to support the development of productive capacities.

3. INSTITUTIONAL WEAKNESSES OF LDC FINANCIAL SYSTEMS

The financial markets in LDCs are dualistic. With formal and informal sectors often forming financial enclaves.

The financial markets in LDCs are dualistic. With formal and informal sectors often forming financial enclaves, the LDC financial market is characterized by a high degree of segmentation (few linkages between segments) and of fragmentation (high market power in each segment). Each segment serves a distinctive clientele on the basis of their respective capacity to manage risk (Nissanke, 2001). In the face of high information asymmetry, the dual feature of the LDC domestic financial sector is symptomatic of the existence of a shallow formal financial sector, which is often described as bank-dominated, highly concentrated, weakly competitive and highly vulnerable.

In 2002, banks held 78 per cent of total financial system assets in the United Republic of Tanzania, 82 per cent in Uganda, 88 per cent in Senegal and 95 per cent in Mozambique.[11] The vulnerability of the financial sector is notably characterized by the high degree of concentration of bank loan portfolios, which has been reported as being particularly acute in Mozambique, Rwanda, Senegal, the United Republic of Tanzania and Uganda, that is in all LDCs for which a Financial System Assessment Programme (FSAP) is available (IMF, 2003a, 2003b, 2004, 2005a and 2005b).[12] The large credit exposure to a small number

of borrowers reflects the high perception of risk of commercial banks, which prefer to lend to a few corporations, namely to those located at the upper end of the market, than to expand their lending to clients that are new but less reputed, in other words, that are perceived as too risky. Trade and industry absorb the bulk of domestic credit. Comparatively, credit to the agricultural sector (i.e. to small farmers) is often limited. The closing down of rural banks during the financial restructuring process has generated an urban bias in the delivery and accessibility of financial services.

Owing to higher processing, administrative and monitoring costs and to the greater risk of default, small and medium-sized enterprises, which often lack the necessary collateral, are regarded as too costly and too risky and are simply marginalized from the banking system. The persistent credit gap facing the SMEs has important implications for private sector development and employment creation in LDCs. This is an important source of the "missing middle" and the stunted life cycle of business firms in LDCs. It is more likely that financial liberalization gave rise to another form of credit rationing, no longer based on the identification of priority sectors, as was the case during the period of financial repression, but rather based on the short-term profitability criteria imposed by a handful of credit suppliers. The problem of loan concentration or of loan exclusion is also sometimes exacerbated by the high degree of concentration in the banking system, which reveals the weak competition level prevailing in the sector. In Mozambique, while bank assets account for 95 per cent of total financial assets, the five largest banks account for 96 per cent of total deposits(IMF, 2004).

The persistent credit gap facing the SMEs has important implications for private sector development and employment creation in LDCs. This is an important source of the "missing middle" and the stunted life cycle of business firms in LDCs.

According to various FSAPs, gross non-performing loans (NPL) still represent a large share of total loans in a number of LDCs: the ratio of gross NPL to total gross loans averaged 33 per cent in Rwanda in 2004, 21 per cent in Mozambique in 2002 and 19 per cent in Senegal in 2000.[13] The weak quality of bank loan portfolios, the weak capacity of the oligopolistic banking sector (UNCTAD, 1996) to monitor/analyse risk and manage project proposals, and the high information asymmetry prevailing in those countries, in conjunction with weak contract enforcement and an inefficient judicial and legal framework, seriously act as a deterrent to loan access/delivery. Moreover, it should be noted that in countries with poor financial systems, domestic loans (and financial instruments in general) tend to be mostly short-term loans, reflecting the banks' preference for liquid assets or their high perception of risk. Consistent with the high liquidity ratio prevailing in the LDC banking sector, and with the high share of M1 in broad money supply (M2), particularly in African LDCs, the predominance of short-term financial instruments and the lack of long-term finance are common features of LDC banking systems. In Uganda and United Republic of Tanzania, most lending has a maturity of less than one year (Cihák and Podpiera, 2005). The weak delivery of long-term loans seriously impedes productive investment in LDCs. Overall, the agent problem is perpetuating the mismatch between borrowers' needs and lenders' supply, thus generating a high opportunity cost notably in terms of enterprise development and employment creation. The question of long-term finance in LDCs must be urgently addressed as part of a strategy to build productive capacities.

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The poor delivery of private loans in LDC-type economies results from supply-side as well as demand-side constraints. On the demand side, it is usually argued that too few private investment projects are bankable. In other words, the rate of return of such projects is too low compared with the interest rate charged.[14] Moreover, the capacity of local entrepreneurs to formulate acceptable business plans is often too limited and their accounting records too

poor (if they exist at all) to successfully go through the bank screening process, while the cost of creating and registering collaterals, when available, required by the banks also acts as a strong deterrent to loan access (see chart 50). In Senegal, where the cost of creating collateral averages 16.5 per cent of per capita income, it has been reported that 80 per cent of SME project applications are rejected owing to lack of collateral (IMF, 2005b). In the United Republic of Tanzania, because of low expectations, 84 per cent of micro-enterprises have never applied for bank loans, as compared with 41 per cent of large firms (Nissanke, 2001). It should be noted that the cost of creating collateral is, on average, much higher in African LDCs than in Asian ones.

In Senegal, 80 per cent of SME project applications are rejected owing to lack of collateral

On the supply side, it is argued that banks are simply not prepared to lend to the domestic private sector, and to SMEs in particular, as they are perceived as too risky. This is related to internal dysfunctions (lack of information capital, lack of skills) as well as regulatory ones (lack of contract enforcement and of regulation), both of which contribute to the increase in intermediation costs. Although Mozambique records the best credit information index amongst the LDCs according to the World Bank's doing business survey (see chart 51), three quarters of firms surveyed reported that the cost of financing and difficulty in accessing credit are the biggest obstacle to their business performance.[15] In eight out of the nine LDCs which are covered in the World Bank investment climate database, access to, or cost of, finance has been reported as acting as a severe obstacle to business performance by 38 per cent to 84 per cent of the firms surveyed. But, on the other hand, legal obstacles to credit recovery also represent a major hindrance to loan delivery: the average number of days to recover debt after insolvency is 540 in Mozambique. This is over twice as many as in Zimbabwe, and over five times as many as in South Africa (IMF, 2004). In the context of poor access to formal finance, small businesses have to rely on internal funds or on prohibitively expensive informal finance to finance their expansion or survival. Under these conditions, the shortage of working capital may explain the high exit rate of small enterprises.

In Mozambique, the average number of days to recover debt after insolvency is 540.

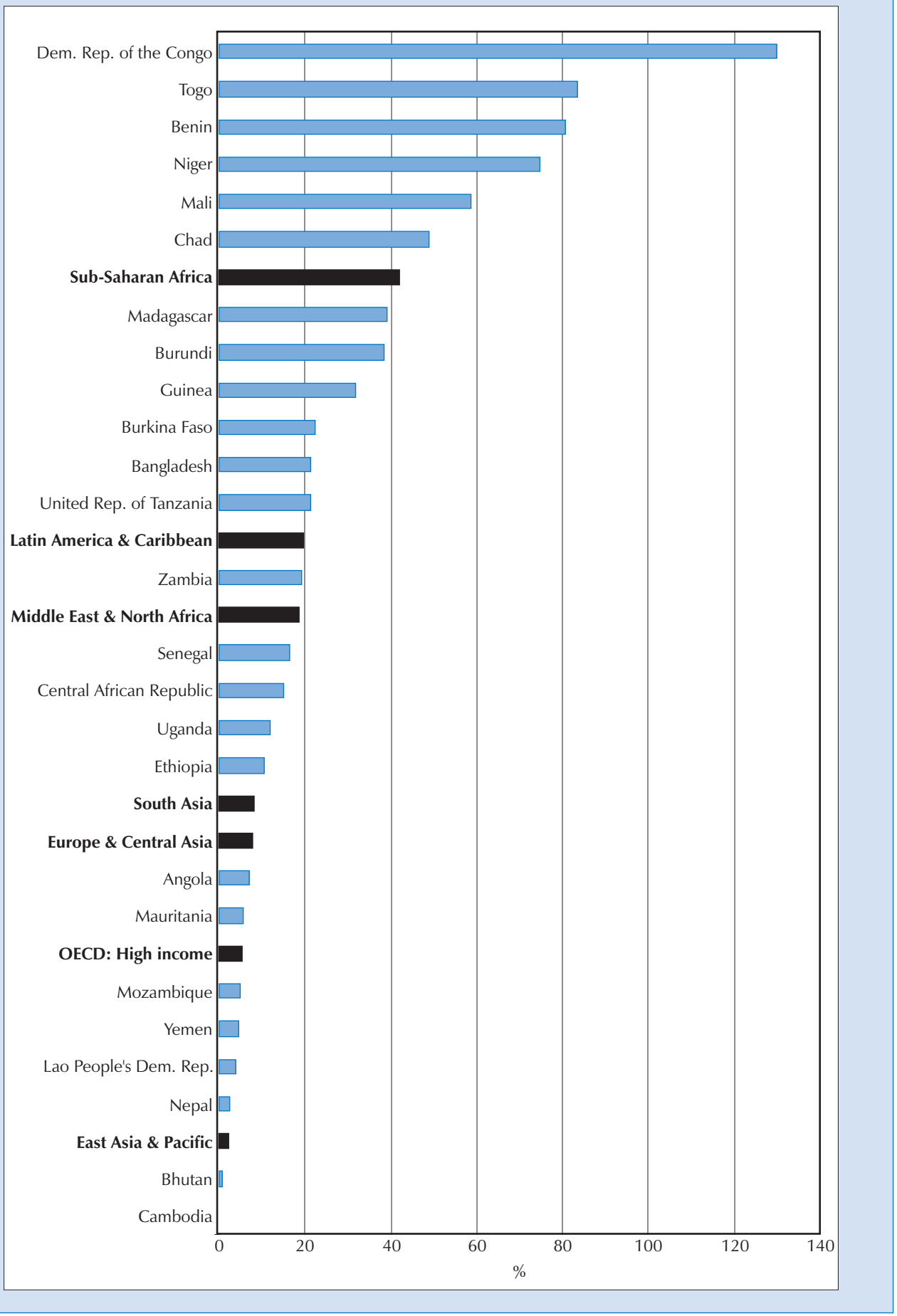
It is well recognized that the credit markets for small-scale farmers/enterprises suffer most from informational deficiencies as most banks avoid extending credit to them. These have found themselves excluded from liberalized financial markets. The closure of rural banks after the period of financial repression has further contributed to the exclusion of small farmers from the banking sector. In view of the structural and institutional constraints, the high information asymmetry and the weak legal and regulatory environment prevailing in LDC economies, it is less likely that private financial institutions alone will be able to take a lead role in supporting productive investment, notably through the financing of domestic enterprise development. Although a strengthened legal and regulatory system may contribute to increasing the confidence of the contractors, it will not be sufficient to respond to the financial needs of small and/or remote private operators.

In view of the structural and institutional constraints, the high information asymmetry and the weak legal and regulatory environment prevailing in LDC economies, it is less likely that private financial institutions alone will be able to take a lead role in supporting productive investment, notably through the financing of domestic enterprise development.

Microfinance is now perceived as the strategic tool for poverty reduction and SME development. According to the MIX Market database on microfinance, 130 microfinance institutions (MFIs) have been officially registered in 23 LDCs. They serve 8.5 million active borrowers for an average amount of $100 per loan. It is worth noting that on average these loans tend to be higher in African LDCs ($243 per borrower) than in Asian ones ($69 per borrower), which suggests that the outreach of Asian MFIs is larger than that of African ones. The literature on microfinance often argues that semi-formal and informal financial institutions interact increasingly with the formal financial sector, thus contributing to increased credit information and increased financial deepening. But according

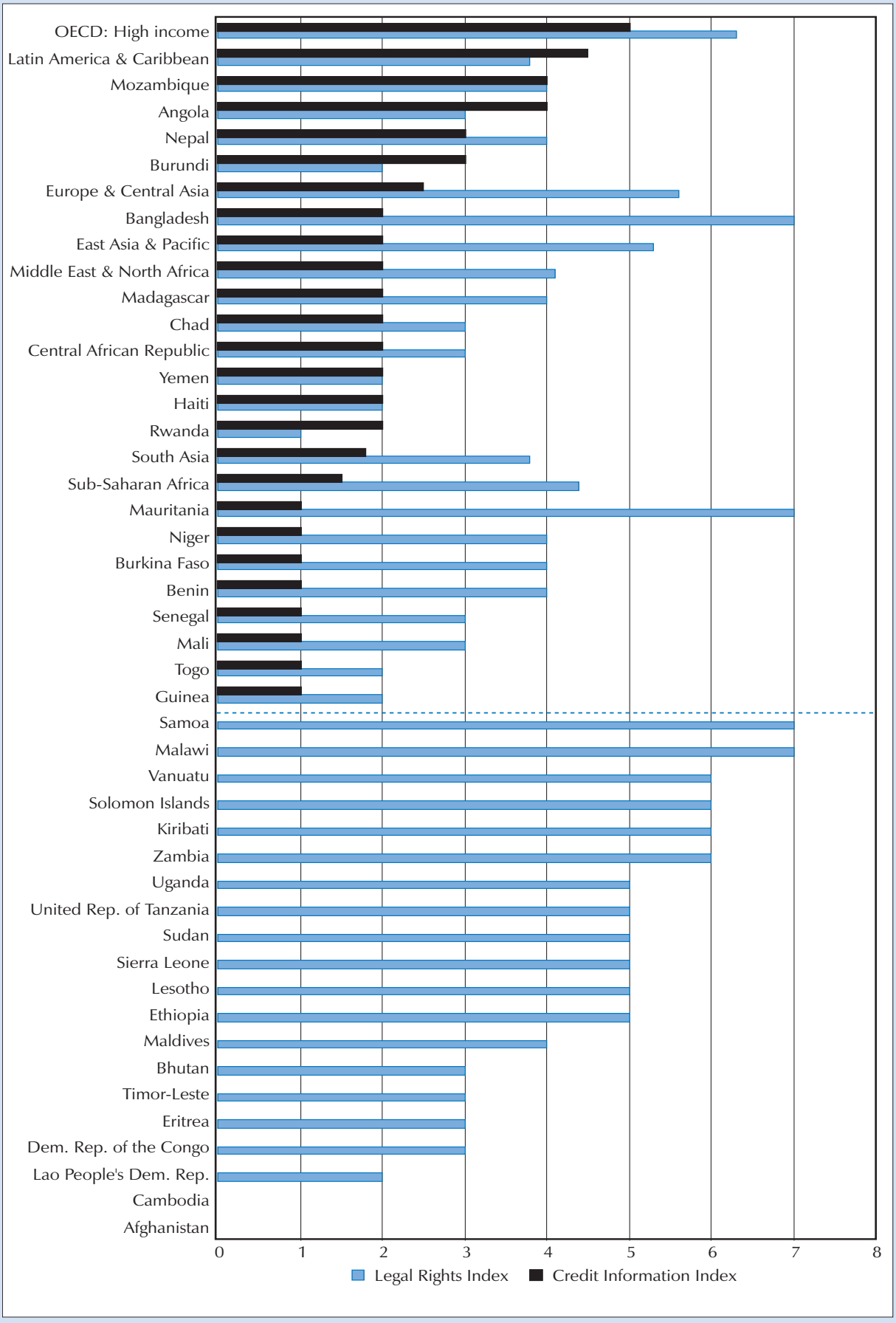
CHART 50. COST TO CREATE COLLATERAL IN LDCS AND OTHER COUNTRY GROUPS, JANUARY 2004

(Percentage of per capita income)



Source: UNCTAD secretariat estimates, based on World Bank, Doing Business 2005.

CHART 51. CREDIT INFORMATION INDEX AND LEGAL RIGHTS INDEX IN LDCS AND OTHER COUNTRY GROUPS, JANUARY 2005



Source: UNCTAD secretariat estimates based on World Bank, Doing business survey online data May 2005.

Note: The Legal Rights Index ranges from 0 to 10 and measures the degree to which collateral and bankruptcy laws facilitate lending. The Credit Information Index ranges from 0 to 6 and measures rules affecting the scope, access and quality of credit information. The higher the index, the better the environment for credit delivery/access. Countries are ranked on the basis of credit information index. This index is zero for countries below the dotted lines. The legal rights index is zero for Afghanistan and Cambodia.

to Nissanke (2001), the scope for both information sharing and risk pooling has been limited in Africa owing to the small number of linkages and interactions between different segments of financial markets. Microfinance can play some role in supporting the start-up and limited growth of micro-enterprises. However, in view of the size of the LDCs financial needs for boosting the development of their domestic entrepreneurial sector, including that of formal sector SMEs, it is unlikely that this can be achieved without the support of a full spectrum of financial institutions.

One innovative approach to financing productive development, which could complement microfinance, is the practice of value-chain lending (i.e. lending that supports enterprises at different points along the supply chain). As discussed in box 19, GAPI in Mozambique provides an interesting illustration of this strategy. However, all such initiatives need to be part of an integrated and holistic strategy to finance, which promotes sound development of financial institutions supporting productive investment and long-term economic development, instead of favouring short-term profitability, in an environment of strengthened creditor rights.

One innovative approach to financing productive development, which could complement microfinance, is the practice of value-chain lending (i.e. lending that supports enterprises at different points along the supply chain).

Box 19. Value-chain lending: The example of GAPI, Mozambique

GAPI is a Mozambican non-bank financial institution that aims to bridge the gap between microfinance and formal finance. It operates mainly in rural areas by providing finance to firms in conjunction with business services. GAPI´s focus is on rural areas, because in Mozambique these are the areas from which most banks have withdrawn their activities, and 50 per cent of its portfolio is on activities related to agriculture, because this is the sector on which 80 per cent of Mozambique´s economically active population depends.

GAPI´s financial services arm provides concessional loans and in some cases, venture capital for SMEs in rural areas. The aim of the business services arm is to provide borrowers with business skills and form relationships with other institutions (i.e. suppliers, customers) in order to build a more sustainable productive system, by focusing on the entire supply chain and providing technical, business and training services to entrepreneurs. This approach may be called 'value-chain lending'.

GAPI's approach is novel since it focuses simultaneously on joint supply and demand action. On the supply side, GAPI focuses on reducing the asymmetry of information between borrowers and lenders by improving the lenders´ information about the nature of the borrower´s proposed investment project. The purpose is not only to focus on an assessment of creditworthiness but also to help actively improve the borrower's ability to repay in the future. On the demand side, this requires a focus on creating and improving productive and technological capabilities. The second key feature is the focus of the *whole system of production*. This includes careful assessment of economic incentives, market structure, ownership structure, and economies of scale and scope, and the promotion of quality and learning in the production system.

GAPI´s approach has the following characteristics:

- *Thinking beyond collateral:* The focus of improving "bankability" is on securing a stable future stream of profits, rather than focusing solely on collateral. This is made possible by GAPI´s relational rather than transactional approach to lending, in addition to the provision of business services.
- *Partnerships to overcome the potential constraints of this development approach to lending.* In order to address the extra risks that it may face in comparison with traditional banking institutions (i.e. lack of project finance, donor reliance, and breadth of areas in which productive expertise is available to assess projects proposed), GAPI works with external organizations (e.g. the NGO Technoserve), operating on the ground in specialist areas to improve production capabilities in rural regions. The purpose is not only to focus on an assessment of creditworthiness, but also to actively help improve the borrower's ability to repay in the future.
- *Value-chain lending*: This involves supporting the entire production system, including the supply chain and the economic and institutional environment in which it is embedded. It entails assistance to networks of producers structured around a particular value chain, rather than individuals or specific types of enterprises (i.e. micro-enterprises). This is facilitated by branch presence in rural areas, so as to facilitate a project´s prospects prior to

Box 19 (contd.)

the financing decision and monitor the implementation of projects after the loan is disbursed. This represents a break with traditional supply-driven development banking.

On the basis of GAPI´s experience in the creation of sustainable production systems, the following success factors have been identified as part of the value-chain lending approach:

(1) *Testing demand.* Market demand is required for any product, and for this reason, market access is essential. Production system creation therefore starts by testing the degree of market access and creates the distribution channels needed for a particular product.

(2) *The importance of scale.* Network formation, in GAPI´s experience, had been found to work best when linking medium-sized firms with associations of small producers and trading networks upstream and downstream by supply chain. This encourages more efficient division of labour, the internalization of externalities, and greater exploitation of economies of scale and of scope. This type of assistance is found to work in improving cluster-specific systemic capabilities as well as in improving systemic capabilities along the value chain to improve productivity and employment growth.

(3) *Building on existing capabilities.* GAPI ensures that its work corresponds to the whole value chain by forming partnerships with expert organizations which provide "islands of competencies".

(4) *Building new centres of competencies that will replace the initial expertise providers by providing them with an exit strategy.* In order to ensure the continuity of expertise provided in GAPI´s approach, which is reliant on time-limited donor funding (i.e. specific NGO expertise), centres of competencies are established to replace the role of NGOs in providing this expertise in the medium run.

(5) *Gradual increase in the internationalization of the value chain.* In order to increase value-added over time, successive layers of the value chain are gradually internalized.

(6) *Clustering.* Spatial concentration is necessary in countries such as Mozambique, in which economic infrastructure is widely dispersed, and in order to further internalize secondary multiplier effects from increased income generation from internalizing value added.

(7) *Attention to quality issues.* In order to help producers attain and maintain competitive edge, attention is paid to quality issues.

Two of GAPI´s key success stories include building the supply chain in Mozambique´s poultry sector by creating a successful import substitution system of production, and the recovery of the cashew-nut-processing sector in Mozambique´s Nampula region, which collapsed following the implementation of trade liberalization reforms.

Source: Fivawo, Simonetti and Wuyts (2005).

D. Domestic knowledge systems

The role of domestic knowledge systems for economic growth and the development of productive capacities has been largely neglected.

The importance of domestic financial systems for economic growth and the development of productive capacities has long been recognized. However, the role of domestic knowledge systems in these processes has been largely neglected, at least until recently. As argued earlier in the Report, investment and innovation are interlinked and cumulative processes. Institutional weaknesses with regard to both domestic financial systems and domestic knowledge systems can thus act as key constraints on the development of productive capacities. This section defines how domestic knowledge systems will be conceptualized in this Report, describes the basic features of such systems within LDCs and includes some case studies to illustrate the major points.

1. The concept of domestic knowledge systems

The concept of a domestic knowledge system is much less well defined than the concept of a domestic financial system. Malhotra (2003: 2) defines knowledge systems as "the national institutions, frameworks and infrastructures that can facilitate effective using, sharing, creation and renewal of knowledge for socio-economic growth", whereas Bell and Albu (1999: 1722) use the term to refer to "knowledge stocks within firms and knowledge flows to them, between them and within them which underlie change in the types of goods they

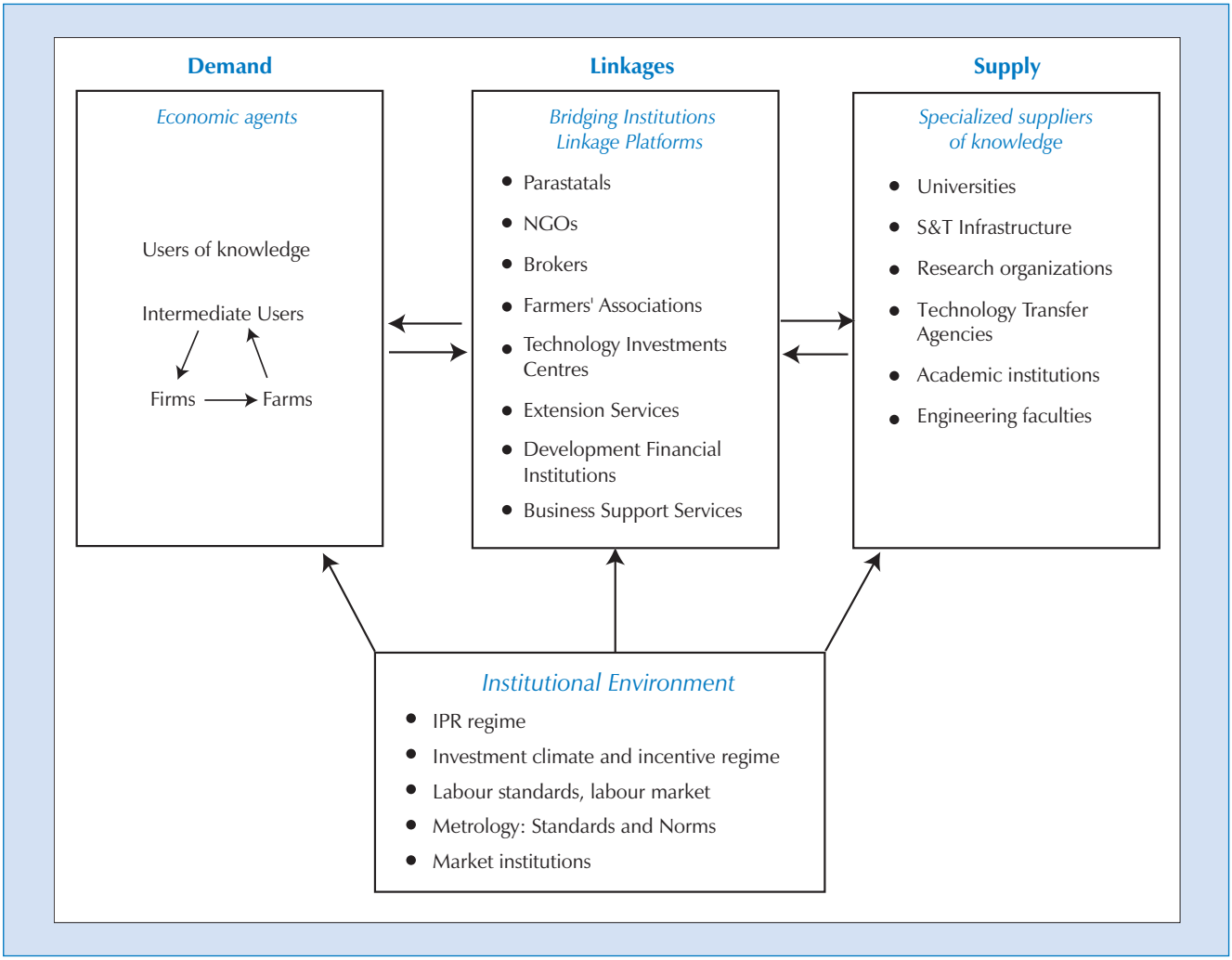
produce and the methods they use to produce them", arguing that "it is the structure and functioning of that knowledge system which generates technological change at particular rates and with particular degrees of continuity and persistence".

In the present Report, domestic knowledge systems will be defined as *the set of institutions within a country, including regulatory frameworks, formal organizations, regular relationships amongst organizations and routine practices, which enable (or constrain) the creation, accumulation, use and sharing of knowledge*. This notion is broader than a national system of innovation. The latter term is associated with particular types of entrepreneurial capabilities, notably the necessary capabilities for transforming knowledge outputs from R&D into commercial innovations in the production of goods and services.[16] This is quite relevant within OECD countries, where the term has been elaborated most fully. But as argued earlier in the Report, the key entrepreneurial capabilities are much broader than R&D. The concept of the domestic knowledge system is preferred here for that reason, as well as because some question the appropriateness of the notion of a national innovation system as a standard for evaluating processes of knowledge accumulation in low-income countries (Bell, 2006).

Knowledge systems are the set of institutions within a country, including regulatory frameworks, formal organizations, regular relationships amongst organizations and routine practices, which enable (or constrain) the creation, accumulation, use and sharing of knowledge.

The major components of a domestic knowledge system are summarized in a schematic way in chart 52. The knowledge system is manifest in recurrent interactions, in the form of flows of people and information, amongst and between three basic types of agents.

CHART 52. DOMESTIC KNOWLEDGE SYSTEM



The first type, on the supply side (top right of the chart), is *specialized suppliers of knowledge*. These include universities, public research institutes, research laboratories, technology transfer agencies, education and training institutions which produce people who can create formal knowledge, (such as tertiary institutions providing education in science and engineering, vocational schools and formal skill formation entities), institutions that provide technology infrastructure, engineering research associations, and metrology, quality and standards institutions responsible for technical regulations, quality control and training.

The knowledge system is manifest in recurrent interactions, in the form of flows of people and information, amongst and between three basic types of agents: specialized suppliers of knowledge; economic agents that use knowledge; and various bridging institutions.

The second type, on the demand side (top left of the chart), is *economic agents* that use knowledge, but who also can produce formal and tacit knowledge (through internal R&D) and who, through linkages amongst themselves, also exchange and disseminate tacit knowledge. Linkages refer to different types of direct relationships that are established by firms engaged in complementary activities leading to external economies. They are external to anonymous pure market transactions and lead to "productivity spillovers" (Blomström and Kokko, 1998). Long-term relationships are important for close, inter-firm technology learning, where supply linkages are deepened over time as a result of recurrent experiences between firms and other actors. These interactions are deeper than arm's-length market transactions. It is these types of linkages that tend to facilitate technology transfer between TNCs and local suppliers (Ivarsson and Alvstam, 2005).

The third type of agent is various *bridging institutions* which act as specialized intermediary institutions to link these two — the specialized creators of knowledge and economic agents that use and apply knowledge — and build capabilities at the firm level by promoting linkages and knowledge flows amongst economic agents. They enable and facilitate knowledge flows throughout the system. They include technology support institutions, business associations, farmers' associations, public extension services (both in industry and in agriculture) and various types of business support services. They also include development financial institutions, specialized NGOs and parastatals, such as technology development centres (rather than formal R&D institutions), productivity centres, skill-building institutions, technology support institutions, specialized agencies that support entrepreneurship, and specialized institutions that provide public goods, technical assistance and skill formation as well as agencies responsible for information sharing and exchanges. In agriculture, they include, agricultural support institutions, extension services and technology training centres.

The linkages and knowledge flows amongst these basic components of the domestic knowledge system include various forms of interactions that are needed to build capabilities throughout the knowledge system. These interactions are shaped by the institutional environment.

The linkages and knowledge flows amongst these basic components of the domestic knowledge system include various forms of interactions – such as personnel mobility, licensing, importation of engineering services, flows of knowledge between components, inter-firm research collaboration, academic conferences and research networks — that are needed to build capabilities throughout the knowledge system. These interactions are also shaped by a fourth component of the knowledge system. This is the *institutional environment* for the creation, accumulation, use and sharing of knowledge. It is within the context of this overall enabling framework that the specific configuration of institutional arrangements between specialized creators of knowledge, economic agents who use knowledge and the bridging institutions and linkage platforms evolves. The institutional environment includes the intellectual property regime and various standards regimes, as well as the overall investment climate and economic incentive structure regimes.

Two final points are worth emphasizing with regard to this conceptualization of domestic knowledge systems. Firstly, although the term "domestic knowledge system" refers to institutions within a country, this does not mean that interactions with the rest of the world are irrelevant. Indeed, quite the contrary is the case in developing countries. An important feature of a domestic knowledge system is how open or closed it is with regard to the rest of the world, and the channels through which flows of information and personnel enter or leave the system.

An important feature of a domestic knowledge system is how open or closed it is with regard to the rest of the world.

Secondly, it is worth underlining that there are close interrelationships between the domestic financial system and the domestic knowledge system. This is evident in chart 52, in the sense that financial institutions are included as an important bridging institution. Domestic financial systems play a prominent role not only in providing investment for innovation and financial resources but also in supporting sector-specific technological learning.[17] The synthetic connections between finance and innovation have not been sufficiently explored in the context of low-income economies. But the weaknesses of the financial systems, which were discussed above, have important implications for the nature of domestic knowledge systems in LDCs and the generation and use of knowledge.

Owing to close interrelationships between the domestic financial and knowledge systems the weaknesses of the former have important implications for the nature of the latter and the generation and use of knowledge.

2. The nature of domestic knowledge systems in LDCs

There has been limited research on domestic knowledge systems in low-income contexts. But work on technological capabilities has revealed a number of their features. The most basic one is that two knowledge systems coexist in the LDCs: a knowledge system based on modern science and technology, and a traditional knowledge system based on indigenous knowledge, which is often community-based (Sagasti, 2004; Bell, 2006). The latter is particularly important for lives and livelihoods. As Sagasti has put it, referring to developing countries in general, "more than three quarters of the world's population relies on indigenous knowledge to meet their medical needs, and at least half relies on traditional knowledge and techniques for crops and food supplies. As about one third does not have access to electricity, all modern technologies and production activities that depend on the source of energy are out of reach" (Sagasti, 2004: 54).

Production activities in LDC economies are largely based on traditional or indigenous knowledge and traditional knowledge systems. Although they are deeply rooted in the cultural heritage of local communities, traditional knowledge systems are severely constrained by their lack of ability to generate technical change and respond quickly to new opportunities and challenges. They are commonly disarticulated in the sense that component activities are weakly linked amongst the traditional stream of activities (World Bank, 2004a). Moreover, traditional knowledge systems tend to be small-scale relative to modern ones. They have also been described as "non-dynamic" (Oyeralan-Oyeyinka, 2005: 14), that is slow to learn.

Two knowledge systems coexist in the LDCs: a knowledge system based on modern science and technology, and a traditional knowledge system based on indigenous knowledge, which is often community-based.

The indigenous or traditional knowledge systems of the LDCs have great potential and represent a hidden reservoir of underutilized creativity and knowledge that could be harnessed, not only as a heritage from the past, but also as "a means and process for articulating what local people know, and involving them in the creation of new knowledge required for development" (World Bank, 2004b:42). Indigenous knowledge is a resource that can be harnessed to help solve local problems, to help grow more and better food, to

maintain healthy lives, to share wealth, and to contribute to global solutions. For example, the cotton farmers in Mali have their own vernacular and bilingual management systems for farmers' associations. Farmers in that country now manage the vertically integrated chain of production and process logistics, which is based on indigenous management techniques and has been used for many years. Releasing the potential of local knowledge in sub-Saharan Africa holds much promise in the areas of agriculture, health, capacity formation and conflict management. As recognized by UNESCO/ISCU (1999), traditional knowledge systems "represent an enormous wealth. Not only do they harbour information as yet unknown to modern science, but they are also expressions of other ways of living in the world, other relationships between society and nature, and other approaches to the acquisition and construction of knowledge". It has been also noted that "…local knowledge plays a very important role in traditional medicine, agriculture, the management of biological diversity, etc." (Touré, 2003:19).

The indigenous or traditional knowledge systems of the LDCs have great potential and represent a hidden reservoir of underutilized creativity and knowledge.

The role of local innovations and indigenous discoveries stemming from Africa's base of indigenous knowledge (IK) is being considered more seriously (see Nwokeabia, 2002; UN Millennium Project, 2005; World Bank, 2004b). The increased use of local innovations of economic significance in agricultural production, which include crop breeding, grafting against pests, water harvesting, soil management, conservation and processing, is currently being seriously re-evaluated. A case in point is the zaï technique for enhanced agricultural productivity used in northern Burkina Faso, although it originated in Mali. The zaï technique, which consists in building pits in the ground, to which organic matter is added, covered with a thin layer of soil into which seeds are placed, has important functions for soil and water conservation, and erosion control for encrusted soil. The upgrading of the traditional zaï technique has been very successful. The diffusion of improved traditional agricultural practices such as zaï has led to positive results. In the majority of the villages, the application of scaled-up zaï techniques has resulted in surplus production of over 50 per cent. This technique has been used to increase crop yields and reduce the risks for food insecurity in the rural areas. Linking traditional techniques such as zaï with modern scientific ones has produced superior knowledge and a more dynamic use of indigenous knowledge.

However, indigenous knowledge systems do not by and large enable the development of the necessary capabilities to attain international competitiveness. This requires synergies between modern and traditional knowledge systems.

Despite these potentials, indigenous knowledge systems — alone or taken from a static perspective — do not by and large enable the development of the necessary capabilities to attain international competitiveness, such as scientific, design and engineering and other types of productive capabilities (Bell, 2006; Mugabe, 2002a). This requires synergies between modern and traditional knowledge systems, which can lead to the emergence of a new hybrid knowledge system in the LDCs. In this context a major policy challenge is how to ensure the protection and promotion of traditional knowledge and to ensure effective ownership in the LDCs.

In practice, the modern knowledge systems within LDCs do not build on and utilize the potential of traditional knowledge systems and are characterized by various weaknesses. Firstly, there are weak linkages within the system between different actors, government agencies, national laboratories, universities, industries and grassroots innovators which are not functioning together in an integrated systemic framework (Oyelaran- Oyeyinka, 2006; Lall, 2004; Mugabe, 2002b; UNCTAD, 1999; Sagasti, 2004; Touré, 2003; Bell, 2006). The science and technology systems in LDCs, by and large, demonstrate an absence of a "system" of technical change and development, low spending rates on R&D,

and a dearth of linkages with the private sector to provide funding for R&D (Oyelaran-Oyelinka, 2006; Lall, 2005; Touré, 2003).

Secondly, in most LDCs, the modern knowledge system has been elaborated on the basis of a particular R&D-centred model of innovation which interprets innovation as a simple supply-push phenomenon, where the demand side exerts no influence on the innovation process. Even where the formal institutional technological regimes have been set up, these do not function as knowledge systems in a cohesive and integrated manner, but tend to be underperforming and are essentially delinked from the local productive apparatus. There are few institutional channels through which economic agents can articulate their needs to the specialized suppliers of knowledge. The dearth of linkages between the formal and informal institutions, private and public institutions, and indigenous and exogenous technological innovations dissipate the considerable inputs already invested over the years (UNCTAD, 2003; Mugabe, 2002b; Oyelaran-Oyeyinka, 2006). Knowledge-based research activities are not carried out by organizations that actually produce goods and services, — that is, research is not done at the farm or at enterprise level but in public laboratories and universities that are not oriented towards the production needs of domestic enterprises (UNCTAD, 1995). Sparse, often disconnected R&D activities have little, if any links with the needs of domestic enterprises or farmers' organizations. In other words, they are not carried out in response to articulated demand by productive sectors. In Africa, public research institutes, which undertake between 60 and 90 per cent of total national R&D (Bell, 2006), tend to have weak links with the rest of the system (Akin Adubifa, 2004; Oyelaran-Oyeyinka, 2006). Demand factors play little, if any, role in the content and design of research in sub-Saharan Africa (Touré, 2003; Bell, 2006). Articulated connectedness is an important component of capability formation in any system, but in traditional knowledge systems this is not generally the case, as linkages amongst the components are typically very weak. This is especially problematic as regards the weak role of demand from the productive enterprises to scientific activity, that is — articulation of demand by firms for technology development activities is either weak or non-existent (Bell, 2006).

In most LDCs, the modern knowledge system has been elaborated on the basis of a particular R&D-centred model of innovation which interprets innovation as a simple supply-push phenomenon, where the demand side exerts no influence on the innovation process.

The dearth of linkages between the formal and informal institutions, private and public institutions, and indigenous and exogenous technological innovations dissipate the considerable inputs already invested over the years.

Thirdly, the modern knowledge systems remain highly donor-driven and much of R&D requires large donor inputs. For instance, in Senegal, between 30 and 40 per cent of scientists are French nationals; and local researchers have a severe disadvantage with respect to funding. Both human and technological resources in Africa are considered to be well below the critical threshold necessary for providing effective and innovative leadership in R&D (Touré, 2003). As shown in chapter 2, basic education and training are very weak in the LDCs. Moreover a large proportion of the highly educated people who are vital for the creation and diffusion of knowledge leave to work in other countries (braindrain).

The modern knowledge systems remain highly donor-driven and are not well integrated with international knowledge systems. This is reflected in the low number of international standards adopted in most LDCs.

Fourthly, the modern knowledge systems in LDCs are not well integrated with international knowledge systems. One indication of this is the strikingly low number of international standards adopted in most LDCs (see table 54). The data indicate that as of 2002, Cambodia had adopted only 3 international standards, Zambia had adopted 12, Rwanda 6, Mozambique 5 and a number of LDCs none at all. This contrasts with Tunisia, which has adopted 4,320, and the Republic of Korea, which has adopted 7,054, whilst Ireland has adopted 12,619 and the Netherlands 10,092. Standards are important as they may enable LDCs to improve the technical quality of their products and processes. This is becoming critical for entry into high-income markets. The costs of complying with standards are sizeable; also standardization can be premature or there can

TABLE 54. NATIONAL AND INTERNATIONAL STANDARD DEVELOPMENT ACTIVITIES IN LDCS AS AT 2002

	ISO status	Staff directly employed by ISO[a] member	Annual budget 2002 (CHF '000)[b]	Number of organisations to which standards development work is delegated	Government subsidy in % of total revenue	Total number of standards published at 31/12/2002	Voluntary standards in % of number of standards	Number of international standards adopted as national standard 31/12/2002
African LDCs								
Angola	Correspondent	..	341	..	100	..	..	..
Benin	Subscriber	10	300	120	60	4	50	..
Burundi	Subscriber	..	44	..	100	..	..	..
Dem. Rep of the Congo	Correspondent	141	7375	..	..	2	100	..
Eritrea	Subscriber	34	495	17	..	334	0	..
Ethiopia	Member	328	..	..	..	389	0	..
Lesotho	Subscriber	11	100	100	..	..	..	..
Madagascar	Correspondent	..	175	..	53	67	90	..
Malawi	Correspondent	145	2100	..	52	450	70	155
Mali	Suscriber	45	250	..	100	..	75	..
Mozambique	Correspondent	15	97	..	82	16	94	5
Niger	Suscriber	7	48953	..	100	..	..	..
Rwanda	Correspondent	..	639	..	100	6	50	6
Sudan	Correspondent	720	3500	4	..	628	0	1100
Uganda	Correspondent	85	1696	..	75	467	70	121
United Rep. of Tanzania	Member	123	1884	..	39	738	68	328
Zambia	Correspondent	..	216	1	85	400	97	12
Asian LDCs								
Bangladesh	Member	478	2347	..	11	1729	92	115
Cambodia	Suscriber	..	..	25	100	10	80	3
Nepal	Correspondent	104	387	..	100	654	99	30
Yemen	Correspondent	134	965	..	85	..	..	..

Source: UNIDO (2005).

a International Organization for Standardization.
b Swiss franc.

be excessive standardization, both of which are inappropriate for countries' level of technological development (Blind, 2005). Governments have a key role to play in setting up the necessary standards infrastructure and helping firms to develop the capabilities to meet standards.

Governments have a key role to play in setting up the necessary standards infrastructure and helping firms to develop the capabilities to meet standards.

In terms of global links, joint R&D research activities with other countries are also rather weak, as reflected in low levels of R&D collaboration with other developing countries or developed countries (UNCTAD, 2005). Moreover, productive arrangements with LDCs mainly involve one-way knowledge flows such as technology licensing agreements (UNCTAD, 2005). The brain drain coexists with large amounts of aid for technical cooperation, much of which fails to build local capacities, supporting instead the salaries of foreign consultants.

Finally, the traditional and modern knowledge systems are weakly linked at best, and largely unsupported by formal education (see chapter 2). Traditional knowledge systems are largely disconnected from the formal sources of knowledge and learning. This dualism replicates the pattern with regard to enterprise structures and financial systems presented earlier in this chapter.

3. Some case studies

This section summarizes some of the diversity in domestic knowledge systems in LDCs. It includes discussion of (i) institutions supporting agricultural research in Bangladesh; (ii) institutions supporting industrialization in the United Republic of Tanzania; and (iii) institutions supporting integration of traditional and knowledge systems in Ethiopia. These cases illustrate some of the general points made above.

(a) Agricultural research in Bangladesh

Within Bangladesh, there is a well-developed set of institutions engaged in agricultural research. Most agricultural research is publicly funded and carried out by ten Agricultural Research Institutes (ARIs). These are governed by the apex body, the Bangladesh Agricultural Research Council (BARC), which coordinates research carried out by ARIs, and is in charge of coordination, human resource development and evaluation of research.

The institutional framework also includes a number of leading research institutions, such as the International Centre for Diarrhoeal Disease Research, the University of Dhaka, the Bangladesh Agricultural University, Rajshahi University, the Bangladesh Rice Research Institute, the Bangladesh Agricultural Research Institute, the Bangladesh Institute of Postgraduate Studies in Agriculture, the University of Chittagong, the Atomic Energy Research Establishment, Dhaka Shishu Hospital and Jahangirnagar University. Impressive research in biotechnology, carried out at the renowned Bangladesh Agricultural Research Institute, (BARI), and aided by the International Rice Research Institute (IRI) and the International Center for Wheat and Maize Improvement, has made a significant contribution to increasing cereal yields and total agricultural production in recent years.

The agricultural research system in Bangladesh is one of the most advanced knowledge systems in the LDCs. However, it is vastly underfunded, uncoordinated, fragmented and disarticulated.

Despite the existence of the formal science and technology institutional regime, recent evaluations suggest that the overall research capacity in Bangladesh is weak, with the exception of some types of agricultural research, namely in biotechnology (World Bank, 2005b). Biotech research is supported by the government and has recently been initiated in leading institutions. However, the availability of funding for research, while it has improved over the last decade, still remains very limited and inadequate to meet the growing demands of the rural sector. Relatively uncompetitive salaries for scientists lead to brain drain and exacerbate the already dire skill shortage to meet the growing demand. Major funding for research comes from the Ministry of Science and Information and Communication Technology, and a few foreign funding agencies that fund agricultural biotechnology research, together with the World Bank. Projects include genetic improvement of jute and lentils, and work is being carried out on developing new rice varieties. While funding of research by the ministry has increased substantially over the last five years, it is still considered inadequate to capitalize on the country's vast research potential, especially as regards the level of scientific human resources. But the considerable domestic scientific research capacity offers only limited opportunities for practical training and is largely limited by the lack of a supportive institutional environment that could translate local scientific creativity and ingenuity into commercial gains.

This system is one of the most advanced knowledge systems in the LDCs. However, the current agricultural research system is vastly underfunded, uncoordinated, fragmented and disarticulated. Agricultural Research Institutes, in partnership with private agricultural business enterprises and NGOs, could

play a critical role in raising productivity levels in agriculture. However, the agricultural research system is largely delinked from local production: "Very weak linkage exists between the RDIs (research and development institutes) and the production sectors (downstream) or human resource development (upstream). Consequently, R&D efforts are unproductive and often inappropriate. Research and Development Institutes are run more as academic institutions rather than as industrial enterprises. Support to industry is weak and as the source of knowledge for new industry, RDIs are inadequate." (ISESCO, 2005: 10). It is difficult to generate new and profitable technologies to meet the changing needs of farmers and agribusiness enterprises. In order to improve the income of small and marginal farmers and facilitate the growth of high-value-added produce such as fruits, vegetables, shrimps, milk, meat and poultry, public research institutes need to become much more engaged with private sector initiatives. This engagement would require multiple partnerships, and not only in regard to increased allocation of resources. It would also require an increase in knowledge-based partnerships to facilitate information and knowledge flows throughout the incipient national innovation system. Better linkages between the ARIs and the domestic agribusiness enterprises would help to increase and improve the production of horticultural crops such as fruit and vegetables, as well increase the production of milk and poultry products. Increased production of these products would in turn increase rural employment as well as demand for labour and facilitate greater investment by the private sector in input supply distribution, reduce high risk management systems that would create more rural non-farm jobs (World Bank, 2004b).

In the United Republic of Tanzania, despite the formal existence of science and technology institutions, learning and innovation by the private sector basically take place through limited inter-firm linkages among the domestic firms only.

(b) Institutions supporting the development of technological capabilities in the United Republic of Tanzania

In the United Republic of Tanzania, domestic research capability was built in public research centres. Research priorities were determined by the Tanzanian Commission for Science and Technology. Several science and technology support institutions were set up in the 1970s, but they lack awareness of private sector needs as well as the sources of motivation to carry out their mandates successfully (Lall, 1999; Wangwe, 1995a, 1995b). The choice of sectors in research areas was supply-driven, rather than based on an analysis of technological needs and problems of domestic productive private enterprises. University-industry linkages remain weak.

In order to benefit from the TNC presence, local companies need to bridge the significant technology gap.

Despite the formal existence of these science and technology institutions, learning and innovation by the private sector basically take place through limited inter-firm linkages among the domestic firms only. Linkage with external sources of knowledge such as public research centres is weak and the technology gap with foreign firms is considered too large to facilitate close cooperation with TNCs to foster domestic innovation. Local companies are generally unable to benefit from TNC presence, as the domestic absorption capacity is too weak and the technology gap between them and the foreign enterprises is too great for any effective transfer of know-how or design, or for joint R&D. In order to benefit from the TNC presence, local companies need to bridge the significant technology gap (UNCTAD, 2003).

Financial systems can hinder as well as facilitate firms' learning performance (see Goedhuys, 2005). Recent work on firm-level learning processes suggests that dualistic financial markets exert a differential impact on the innovative performance of firms in the United Republic of Tanzania. Formal financial markets, which tend to favour larger enterprises or foreign-owned firms, exert an adverse impact on local firms' opportunities to learn and to build capabilities necessary for competing. In this context, product and process innovation in local

firms is mainly taking place as a result of internal learning and inter-firm linkages among the domestic firms. The existing sources of knowledge are underutilized. This exemplifies the current situation in most LDCs.

(c) Linking traditional knowledge systems with modern knowledge systems in Ethiopia

Local traditional knowledge can become a dynamic basis for sustainable development through new initiatives, as is demonstrated by the case of PROFIEET (Promotion of Farmer Innovation and Experimentation). PROFIEET is an example of a recent initiative launched in Ethiopia to enhance rural development (Assefa, 2004). It has been designed as part of the new paradigm of agricultural research and development that is based on traditional knowledge embedded in farmers' and rural communities, and upgrading of local knowledge in support of increased agricultural productivity.

PROFIEET is a recent initiative aimed at promoting greater use of traditional knowledge and farmers' innovation by creating a new policy environment for farmer-led research and extension. Farmers from Amaro and Gojam are working with international experts to improve the use of traditional techniques to arrest the infestation of flea beetles in and bacterial wilt (an aggressive plant disease), for which modern techniques have proved ineffective. In these particular cases, traditional treatment is considered more effective and is being utilized in tandem with more modern techniques to improve farmers' productivity in the region.

Local traditional knowledge can become a dynamic basis for sustainable development such as PROFIEET, a recent initiative launched in Ethiopia, to enhance rural development and upgrading of traditional local knowledge.

As part of the new approach to agricultural research and extension services in Ethiopia PROFIEET is proving to be a successful model for modernizing the traditional knowledge base of local communities. Similar recent initiatives have been proposed in order to include the demand side of the innovation equation, by getting the users, namely, the farmers themselves, more involved in the design of science and technology aimed at enhancing direct stakeholder participation, based on increased use of local knowledge and participatory agricultural research. It is also envisaged that the PROFIEET Steering Committee will work closely with the national research and extension services, and organize workshops, seminars and training sessions for local farmers. These platforms are intended to benefit directly the users of knowledge, in order to share international experiences in stakeholder-based participatory research activities conducted in other countries and local communities.

E. Conclusions

Since the late 1980s, many LDCs have been implementing economic reforms designed to give a greater role to market forces and enable the private sector to lead the development process. The mixed results of the first generation of reforms have led to a greater focus on the importance of institutions for economic growth and poverty reduction, and in particular the role of good governance. But there is an equal need to focus on the nature of the private sector and the institutions within which entrepreneurship is embedded.

The development of productive capacities does not occur in an institutional vacuum. Such capacities are created through the interplay of institutions, incentives and entrepreneurship geared to investment and innovation. In that perspective, this chapter has examined three key institutions: the firms; domestic financial systems; and domestic knowledge systems. These institutions

are interlinked and their nature can either enable or constrain the three core processes through which productive capacities develop – capital accumulation, technological progress and structural change.

The evidence of this chapter shows that most LDCs have serious institutional weaknesses with regard to their firms, financial systems and knowledge systems.

The development of productive capacities does not occur in an institutional vacuum. Such capacities are created through the interplay of institutions, incentives and entrepreneurship geared to investment and innovation.

Firstly, the size distribution of enterprises within LDCs is generally characterized by a "missing middle" in which a multitude of informal micro-enterprises coexist with a few large firms, and there is weak development of formal sector SMEs, particularly medium-sized domestic firms. There are weak linkages between the large firms and other enterprises, and the life cycle of enterprises is stunted. Few informal micro-enterprises become formal sector enterprises. Moreover, small firms are often unable to grow even when they are efficient. There is also wide heterogeneity in firm performance, although it is often found that the large firms tend to be more productive than the small firms with regard to most productivity indicators.

Secondly, and closely related to the phenomenon of the "missing middle", both the domestic financial systems and domestic knowledge systems are dualistic. The financial markets are characterized by an informal segment (including transactions between friends and relatives or small-scale group arrangements, as well as transactions conducted by moneylenders, traders and landlords), as well as by formal banks. The domestic knowledge system includes a modern knowledge system alongside a traditional knowledge system. Different types of enterprises are embedded within these different systems.

Closely related to the phenomenon of the "missing middle", both the domestic financial systems and domestic knowledge systems are dualistic.

Thirdly, the domestic financial systems have large liquid reserves, but as a ratio of GDP, domestic credit loaned to the private sector is four times lower than in low- and middle-income countries (15 per cent as against 60 per cent). Moreover, it has declined in the aftermath of financial liberalization, particularly in African LDCs. During the same period, interest rate spreads have increased in LDCs, and the level of monetization has actually declined in African LDCs. Financial liberalization has simply failed to promote productive investment, as reflected in the poor delivery of credit to the private sector and to SMEs in particular. Banks are partly constrained because of the weak capacity of local entrepreneurs to formulate acceptable business plans and also because of weak contract enforcement. But at the same time, it is clear that the banks are very risk-averse and prefer to do business in the very safe areas of government bonds.

Fourthly, modern knowledge systems are vital to international competitiveness, but they are fragmented. Specialized creators of knowledge, such as research institutions, are not responsive to the demands of users. A particularly striking feature of the case study evidence is that even LDCs which have done well in developing garment exports, mainly on the basis of different trade preference regimes, have very weak knowledge systems supporting these activities. Evidence on the use of international standards within LDCs also suggests that there is a particular problem in terms of the extent to which the domestic knowledge systems are outward-looking and able to keep up with ever-rising international standards.

These results have important policy implications. The weaknesses of the first-generation reforms have led to policy changes, and there is now a new emphasis on improving the overall investment climate. The thrust of this effort has been to improve the overall institutional environment in which market forces operate, rather than meso-level institutional arrangements. Moreover, it has particularly

focused on reducing the costs of doing business which arise because of red tape and bureaucratic rules. These initiatives are certainly important. However, the weak development of firms in LDCs, their high degree of heterogeneity and the segmentation of financial and knowledge systems suggest that this will not be enough. Policy also needs to develop key meso-level institutional arrangements (such as firm linkages and networks) and firm-level capabilities. The evidence shows that markets are indeed very competitive at "pruning out" less efficient firms. However, the "churning" process may be so strong that it may not permit new entrants to survive, grow and prosper in an open global economy. The policy thrust should therefore shift from an exclusive focus on interventions that are intended to increase competition to a policy which develops both the framework conditions and the entrepreneurial capabilities which will enable firms to grow and prosper. This will be taken up in the last chapter of this Report.

Domestic financial systems and domestic knowledge systems need to be addressed as complementary institutions supporting the twin processes of investment and innovation.

In the previous chapter, it was shown that LDCs have a low level and poor-quality stock of physical infrastructure in transport, communications and energy. Increased infrastructure investment is certainly a necessary part of a strategy for development productive capacities in the LDCs. But from the analysis in this chapter, it is unlikely that infrastructure investment alone will work. What is needed is an infrastructure-plus policy which includes policies which address the institutional deficiencies with regard to the nature of domestic firms, financial systems and knowledge systems. Domestic financial systems and domestic knowledge systems also need to be addressed as complementary institutions supporting the twin processes of investment and innovation. Unless these institutions are created and strengthened, the LDCs are not likely to be able to compete effectively in the global economy and to reduce poverty. In the end, the development of productive capacities will depend on the actions of firms, linkages among them and the institutions which support them, together with public action that harnesses underutilized potentials, and catalyses and coordinates change. A private-sector-led approach which does not pay attention to the nature of the private sector will inevitably fail in very poor economies.

Notes

1. Baumol (1990), argued that different incentive structures in different environments can either result in entrepreneurship that contributes to economic growth (productive entrepreneurship) or in rent-seeking behaviour, speculation, tax evasion, limiting competition and corruption (unproductive entrepreneurship), or may even lead to entrepreneurial activities that are detrimental to economic growth (destructive entrepreneurship).
2. The website for these studies is http://www.worldbank.org/EnterpriseSurveys/ICAs.aspx
3. Unit labour costs estimated as the ratio of wages to value added in dollars at the firm level, averaged across the sample of firms using a deflator for physical value added (World Bank, 2004b).
4. For the cases of Nepal and Bhutan, median ratio of investment to capital: 0.05 (Bhutan), 0.01 (Nepal) vs. estimated depreciation capital rate of 0.1 (see World Bank, 2002).
5. The level of monetization refers to the ratio of money supply to GDP. As defined in the World Development Indicators database, money supply is defined as the sum of narrow money supply (M1) and quasi-money (QM). Money (M1) and quasi-money (QM) comprise the sum of currency outside banks, demand deposits other than those of the central Government (M1), and the time, savings and foreign currency deposits of resident sectors other than the central Government (QM) (World Bank, 2005a).
6. It has also been argued that financial liberalization tends to increase the rate of non-performing loans and to raise the interest rate spread thereafter as banks tend to pass the cost of bad loans onto other borrowers (Akyüz, 1993).
7. It is important to note that the private sector includes households. The domestic credit to the private sector to GDP ratio therefore captures credit disbursed for both private investment and household consumption. Data limitation makes it impossible to disentangle household credit from enterprise credit. International Financial Statistics, the IMF database which provides country monetary data, does not disaggregate the private sector into household and non-household. It is, however, largely recognized that in poor countries only high-income households have access to formal finance to finance consumption.
8. It would be interesting to measure the contribution of "structural liquidity" (resulting from aid-financed government domestic spending) to the excess liquidity prevailing in many African countries (IMF, 2003a) .
9. The principal–agent problem is concerned with difficulties that arise between the principal and the agent in situations where information is incomplete and asymmetric.
10. A situation in which "the formal financial system services only large firms leaving SMEs with little access to financial services" (World Bank, 2002, p. 75).
11. Financial institutions such as insurance, pension fund systems and leasing companies are weakly developed.
12. "The FSAP, a joint IMF and World Bank effort introduced in May 1999, aims to increase the effectiveness of efforts to promote the soundness of financial systems in member countries. Supported by experts from a range of national agencies and standard-setting bodies, work under the program seeks to identify the strengths and vulnerabilities of a country's financial system; to determine how key sources of risk are being managed; to ascertain the sector's developmental and technical assistance needs; and to help prioritize policy responses", available at http://www.imf.org/external/np/fsap/fsap.asp.
13. Foreign banks, which capture most creditworthy clients, tend to display better credit quality than domestic ones.
14. A high lending rate also implies that only highly risky projects can be considered bankable. On the one hand, this enhances the vulnerability of the banking system itself (a vicious circle of weak loan repayment), while on the other hand, considering the weak competitiveness of the financial sector, it may generate opportunities for rents for banks.
15. More precisely, 84 per cent of enterprises reported that the cost of finance was the greatest obstacle to their performance and 75 per cent and 74 per cent reported that access to domestic credit and to foreign credit respectively were major obstacles. In fact, financial problems were reported as more severe than corruption, electricity problems or even macroeconomic instability (IMF, 2004).
16. A national innovation system (NIS) has been defined as "a set of distinct institutions which jointly and individually contribute to the development and diffusion of new technologies and which provides the framework within which governments form and implement policies to influence the innovation process. As such, it is a system of interconnected institutions and formal institutions, to create, store and transfer the knowledge skills and artifacts which are defined as new technologies" (Metcalfe, 1995:38).
17. Recent research highlights the role of complementarities between innovation performance and countries' distinct financial infrastructure that can help to explain observable

differences in national industrial structures'. While market-dominated or "outsider" financial systems (equity-based) are more conducive to promoting new generic innovations (because of the capacity to underwrite higher degrees of risk and uncertainty), the "insider" or bank-based financial systems are more compatible with supporting the development of more established technologies (Block, 2002).

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