

TRADE AND THE INFORMAL ECONOMY

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4.1 INTRODUCTION

It was generally understood during the 1960s and 1970s that, with economic growth, the informal economy would shrink. But despite strong global growth that coincided with a massive increase in international trade, many jobs in developing countries remain in the informal economy. The share of employment in the informal economy has been persistent in many developing countries over recent decades and even increased in some regions. On average, 60 per cent of employment in developing countries is in the informal sector. Research findings from the 1990s and 2000s indicate that globalization and trade reforms have shown a tendency to encourage precarious forms of work. In contrast to developed countries’ experiences, the formal sector in developing countries has not been able to absorb informal workers and production processes as expected. In fact, many studies suggest that globalization and trade reforms lead to competition in the formal sector, which may result in a reduction in formal employment, at least in the short run. Today’s global value chains combine various modes of production, such as traditional, semi-industrial and fully industrial production mechanisms. The downside of such a system is that processes can be outsourced into the informal sector and larger firms tend to capture a major part of capital, leaving little for informal enterprises, which generally continue to remain small scale and less productive. Moreover, workers in the informal economy are

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generally not covered by social protection mechanisms and have a high incidence of poverty.

The informal economy, though, has provided employment opportunities for both the newly unemployed and certain informal workers who have little opportunity to enter the formal workforce without planned interventions. The high proportion of employment in the informal economy in developing countries was, by the late 1990s, recognized as being of enormous importance (Meagher and Yunusa, 1996; Ranis and Stewart, 1997; Sinha, 1999). Given the considerable influence exerted by the informal economy, it is important to study how it interacts with other economic variables. In fact, for more than two decades, scholars and policy-makers have paid increasing attention to the informal economy as they grapple with the challenges faced by many developing countries. Moreover, new understanding of the informal economy has surfaced. In earlier discussions, the informal economy was often viewed as an underground economy or illegal sector that was detrimental to healthy growth, and squeezed out resources from formal and legal activities. However, this perception began to change because of a series of studies, led by de Soto (1989). De Soto argued that policies and certain circumstances prevented people in the informal economy from improving their own lives through entrepreneurial endeavours. They could, if not constrained, make an important contribution to economic and social progress. De Soto's book on Peru's informal economy opened up discussions about informal economies around the world.

With global trade reaching 60 per cent of the world's gross domestic product (GDP), and trade liberalization continuing across the globe, it is important to review the impact of trade and trade liberalization on employment, wages and welfare in the informal economy. Studies conducted since the late 1990s have indicated that, contrary to classical trade theories, trade liberalization does not necessarily lead to rising welfare of unskilled labour. In fact, opening economies up to trade may instead lead to informalization of work, increased wage differentials across formal and informal manufacturing and market segmentation, rather than a greater degree of economic integration. Stallings and Peres (2000), Sinha and Adam (2000), Carr and Chen (2002), Harriss-White (2003), Sinha et al. (2003, 2007), and others have described the rapid expansion of informal economies, which contradicts assumptions of neoclassical economic theories of international trade.

This chapter surveys various theoretical and empirical studies to examine the link between trade and informality, and attempts to identify the specific contexts where they are positively or inversely related. In addition, the study provides guidance on how to develop a model to assess the impact of trade on informality. Examples of data sources from four countries are provided (Bangladesh, Benin, Guatemala and Indonesia). Such a model can help policy-makers and social partners develop a sound understanding of the impact of trade and labour market policies on the informal economy. When combined with background information on their linkages, such a model could constitute a global knowledge tool on trade and informality.

The rest of this chapter is organized as follows. Section 4.2 discusses the definition of the informal economy that has evolved over time. Section 4.3 briefly provides

some stylized facts about the informal economy, and identifies the theoretical links between trade and informality. Qualitative and quantitative approaches to assess the impact of trade on informality are shown in section 4.4, where case studies, empirical studies and general equilibrium models are discussed. Policy recommendations are provided in section 4.5, and section 4.6 concludes.

4.2 THE CONCEPT OF THE INFORMAL ECONOMY

Different characterizations of informality have been used during recent decades – shifting the focus away from economic units toward workers – and increasingly heterogeneous phenomena have emerged.

Hugon (1990) is often an accepted starting point for the conceptualization of the informal economy. Hugon characterized the informal sector as a production process that uses a specific type of technology that is not capital intensive, produces different kinds of goods, and accesses different types of markets. The *Fifteenth International Conference of Labour Statisticians* (ILO, 1993) defined the informal sector as follows:

- (1) The informal sector may be broadly characterized as consisting of units engaged in the production of goods or services with the primary objective of generating employment and incomes to the persons concerned. These units typically operate at a low level of organization, with little or no division between labour and capital as factors of production and on a small scale. Labour relations – where they exist – are based mostly on casual employment, kinship or personal and social relations rather than contractual arrangements with formal guarantees.
- (2) Production units of the informal sector have the characteristic features of household enterprises. The fixed and other assets used do not belong to the production units as such but to their owners. The units as such cannot engage in transactions or enter into contracts with other units, nor incur liabilities, on their own behalf. The owners have to raise the necessary finance at their own risk and are personally liable, without limit, for any debts or obligations incurred in the production process. Expenditure for production is often indistinguishable from household expenditure. Similarly, capital goods such as buildings or vehicles may be used indistinguishably for business and household purposes.
- (3) Activities performed by production units of the informal sector are not necessarily performed with the deliberate intention of evading the payment of taxes or social security contributions, or infringing labour or other legislations or administrative provisions. Accordingly, the concept of informal sector activities should be distinguished from the concept of activities of the hidden or underground economy.

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Table 4.1: The informal (sub)sector within the sector concept

Corporations sector	Household sector			
		Informal sector		
Quasi-corporate household enterprises	Unincorporated enterprises owned by households, engaged in <i>farming</i>	Unincorporated enterprises owned by households, engaged in <i>non-farm</i> production with <i>fixed</i> location	Unincorporated enterprises owned by households, engaged in <i>non-farm</i> production with <i>non-fixed</i> location	Illegal activities

Source: Advisory Expert Group on National Accounts, SNA/M2.04/12; New York, 8-16 December 2004.

Husmanns (2004), in turn, defined employment in the informal sector as including all jobs in the informal sector enterprises or all persons who, during a given reference period, were employed in at least one informal sector enterprise, irrespective of their status in employment and whether it was their main job. Illegal activities, however, are not part of the informal sector definition.

The broader concept of an informal economy as a composite of production-unit and labour-process aspects of informality has been recognized and defined by the ILO Task Force (ILO, 2002a) and in Sinha (1999) and Sinha and Adam (2000), in contrast to earlier studies, which identified only production units. The “informal economy” captures employment relations as well as enterprise relations. The concept of “informal employment” refers to the production unit and the characteristics of the job or worker.

Box 4-1: The ILO framework of informality

The 2002 ILO International Labour Conference Resolution concerning decent work and the informal economy provided a framework rather than a specific definition. The term “informal economy” refers to “all economic activities by workers and economic units that are – in law or in practice – not covered or insufficiently covered by formal arrangements. Their activities are not included in the law, which means that they are operating outside the formal reach of the law; or they are not covered in practice, which means that – although they are operating within the formal reach of the law, the law is not applied or not enforced; or the law discourages compliance because it is inappropriate, burdensome, or imposes excessive costs”. (ILO, 2002b)

The term “informal employment”, as used by the ILO Task Force (ILO, 2002a), defines employment that has no secure contracts, worker benefits or social protection. So the major components of such employment are: (a) self-employment in the informal economy; and (b) paid employment in informal occupations. The latter could also be in the formal sector. Thus, it includes casual and precarious work within the formal economy.

More precisely, at the Seventeenth International Conference of Labour Statisticians (ICLS), it was agreed that informal employment comprises the following types of jobs (ILO, 2003):

- Own-account workers who have their own informal sector enterprises and no employees (cell 3 in table 4.2).
- Employers with employees who have their own informal sector enterprises (cell 4) (the informal nature of their jobs follows directly from the characteristics of the enterprise).
- Contributing family workers, irrespective of whether they work in formal or informal sector enterprises (cells 1 and 5).
- Employees who have informal jobs, whether employed by formal sector enterprises, informal sector enterprises, or as paid domestic workers by households (cells 2, 6 and 10) (employment relationship is not subject to standard labour legislation, taxation, social protection or entitlement to certain employment benefits).
- Employees, who hire more than six to nine workers are generally considered formal (cell 7).
- Members of informal producers’ cooperatives (cell 8) (not established as legal entities).
- Persons engaged in the own-account production of goods exclusively for own final use by their household (cell 9).

The three aspects of informal economy defined by the 15th ICLS (as noted above) are useful for analysing informality, both as traditionally defined (based on what might be called the “production unit view” (see table 4.1) that focused on the type of production unit (rows)) and according to the newer focus (defined according to the “social protection” or “legalistic” view by job status). Informal sector enterprises are defined as production units operated by single individuals or households that are not constituted as separate legal entities independent of their owners and in which capital accumulation and productivity are low. This includes “family units” (those operated by non-professional own-account workers with or without contributing family workers) and “micro-enterprises” (productive units with no more than five employees). Furthermore, taking the 17th ICLS on board, table 4.1 shows that total employment in the informal sector includes the self-employed,

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Table 4.2: ILO conceptual framework: Informal employment

Production unit by type	Job by status in employment								
	Own-account workers		Employers		Contributing family workers	Employees		Members of producers' cooperatives	
	Informal	Formal	Formal	Informal	Informal	Formal	Informal	Formal	Informal
Formal sector enterprises					1	2			
Informal sector enterprises ^a	3		4		5	6	7	8	
Households ^b	9					10			

Source: Hussmanns, 2004.

Note: Cells shaded in dark blue refer to jobs that, by definition, do not exist in the type of production unit in question. Cells shaded in light blue refer to formal jobs. Unshaded cells represent the various types of informal jobs.

Informal employment: cells 1-6 and 8-10. Employment in the informal sector: cells 3-8.

Informal employment outside the informal sector: cells 1, 2, 9 and 10.

^a As defined by the Fifteenth International Conference of Labour Statisticians 1993 (excluding households employing paid domestic workers).

^b Households producing goods exclusively for their own final use and households employing paid domestic workers.

own-account workers, with or without family workers, micro-entrepreneurs and their employees. The more recent shift to a “legal” definition of informality recognizes that “informal employment” can be found both within and outside the small-firm sector. Consequently, informal employment now also includes informal contractual arrangements in firms that are otherwise formal (cells 1 and 2 in table 4.2). In this chapter, we follow the ILO concept of informality where both definitions, i.e. definition by activities (economic units/enterprises) and definition by employment categories are considered (15th and 17th ICLS).

It is important to get meaningful data on the informal economy for making effective economic policy decisions. This economy mainly develops due to tax evasion tactics carried out by enterprises and employers. The informal economy discussed so far is one where the concern is in understanding the status of workers, or small firms who are not in the position to pay any direct taxes whatsoever. However, they could be hired by informal enterprises or firms who are in a position to pay taxes, but are evading making such payment. Feinstein (1999) attempts to close the gap between research on tax evasion and the shadow economy. In a study to relate tax rates and the shadow economy, Schneider and Neck (1993) investigate

why such tax evasion occurs by examining how a tax structure can affect the size of the shadow economy. The authors argue that a more complex income tax regime leads to higher rates of tax avoidance than a simpler one. On the other hand, other studies (for example, Johnson et al., 1998a, 1998b) argue that it is government regulations and the ineffective and discretionary application of taxation, rather than high tax rates per se, that lead to expansion of the shadow economy. Loayza (1996) states that when the statutory tax burden is larger than optimal, and when it is weakly enforced, there is an increase in the relative size of the informal economy. This restricts economic growth, since resources are diverted toward an unofficial and unaccounted economy. Loayza further shows empirically that, in Latin American countries, when the shadow economy increases by 1 percentage point of GDP – everything else remaining the same – the official GDP declines by 1.2 percentage points. Naturally, when the shadow (illegal) economy has such an adverse impact, the informal sector is considered a negative phenomenon. The effects of the shadow economy on economic growth remain a matter of concern. It is, however, important to distinguish between the informal economy (which is informal due to lack of resources) and the shadow economy, which is sometimes considered “informal” but where the driving factor is that of hiding resources from the authorities. Thus, various studies have shown that over-regulation and labour costs (such as the level of minimum wages) in the official labour market are driving forces for the shadow economy. However, most studies consider only one particular factor, the tax burden, as a cause of the shadow economy. The shadow economy has a strong adverse influence on the allocation of resources and causes loss of revenue for the State. What is even more important is the negative impact that the shadow economy has on official institutions, norms and rules of the State (Schneider and Enste, 2000).

4.3 THE INFORMAL ECONOMY AND THE RELATIONSHIP BETWEEN TRADE AND INFORMALITY

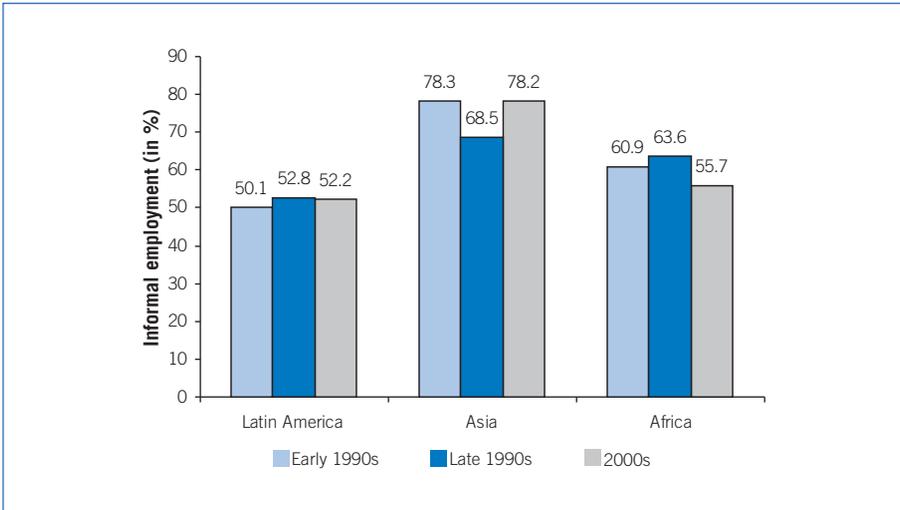
4.3.1 *The informal economy*

In developing countries, the informal economy plays an important role in income generation and employment creation, with the majority of the workforce – over 60 per cent – located in the informal economy. Figure 4.1 shows that, on average, the share of informal employment has remained high in Africa, Asia and Latin America, with Asia leading in informal worker share. Although detailed statistics about the informal economy remain fragmented in many countries, existing data reveal that informal employment is a persistent feature in developing countries.

Although figure 4.1 provides a compelling overview, it is also important to compare data from individual countries within the three regions. Figure 4.2 shows that Paraguay has a very large share of informal workers: 74 per cent compared to 32 per cent for Chile. Similarly, Africa has a wide variation between countries. In Asia, India shows the highest share in the region, at 93 per cent.

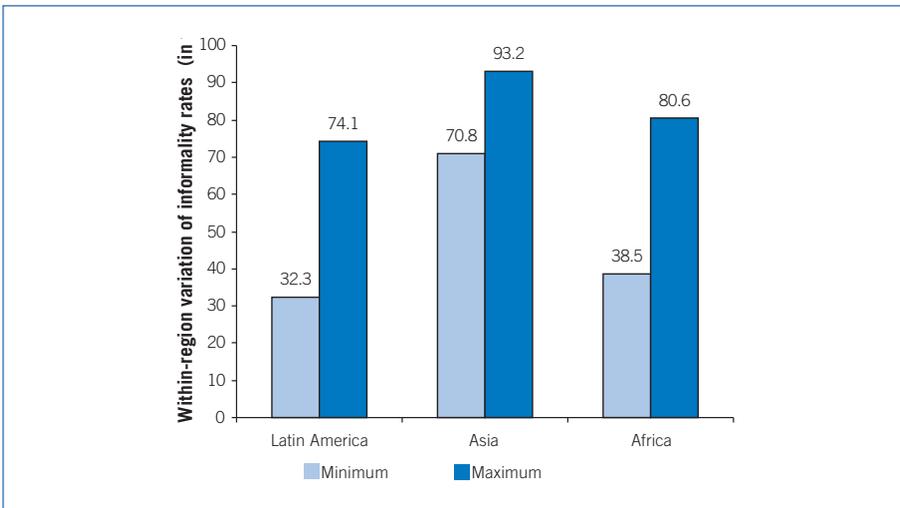
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Figure 4.1: Informality around the world (relative to total employment, per cent)



Note: Latin America: Argentina, Chile, Colombia, Costa Rica, Ecuador, Mexico, Panama, Uruguay and Venezuela; Asia: China, India, Indonesia, Pakistan, Sri Lanka and Thailand; Africa: Botswana, Cameroon, Egypt, Ethiopia, Ghana, Kenya, Malawi, South Africa, United Republic of Tanzania, Zambia and Zimbabwe. Source: IILS estimates based on the IILS Informality Database.

Figure 4.2: Within-region variation of informality rates (relative to total employment, percentage)



Source: IILS estimates based on the IILS Informality Database.

The informal economy has traditionally been viewed to be the last resort for workers who cannot find a job in the formal economy and who need to engage in small economic activities to earn a living. The informal economy is diverse, reaching from home-based producers, casual wage workers and own-account workers to informal employers. On average, workers in the informal economy earn less and have less job security compared to their counterparts in the formal economy. Both capital intensity and productivity are considerably lower than in the formal sector. Women tend to be more likely to be informal workers than men, and the probability of working in an informal job is highly correlated with the skill level of individuals (ILO and WIEGO, 2000). The less educated are more likely to be in the informal economy. This skill difference is likely to be of importance given the observed skill-biased nature of international trade (Bacchetta, Ernst and Bustamante, 2009).

4.3.2 Trade and the informal economy: Theory and concepts

The issues surrounding the informal economy and trade can be conceptualized either as trade influencing the degree of informality in the economy or as the degree of informality influencing the potential gains from trade. A significant number of studies have addressed these issues. Different theoretical models and concepts were developed to analyse the link between globalization and informality. The different concepts reflect the variety of views of the informal economy and its links to the formal economy. No universally accepted concept exists, but the three main views that can be identified are dualist, legalist and structuralist in nature:

- The dualistic view states that no direct link exists between the formal segment and the – inferior – informal segment of the labour market. Often, it is assumed that only the formal economy can engage in international trade.
- The legalistic view sees the informal sector as existing only because of rigid government regulations. Micro-entrepreneurs operate informally to avoid costs associated with registration.
- The structuralist view asserts that the informal economy serves as a refuge or a residual strategy for those who are excluded from the formal economy. The informal economy supplies cheap labour and inputs to larger formal firms. The two segments are connected and interdependent. Informality is therefore seen as a rational response to the obstacles faced in economic development.

Within the dualistic structure, there are models with differentiated wages, which emphasize constraints on the mobility between formal and informal labour markets based on, e.g. differences in skills or access to capital, etc. Through such conceptualization of dualistic models, one could show that the number of jobs available in the formal economy could be restricted, for example, due to lack of potential profitability and cost-cutting ventures.

4.3.2.1 The impact of trade on the informal sector

The three schools of thought are reflected in theoretical models, which describe how trade can influence the informal economy. The studies based on the dualistic model have broadly followed the Harris and Todaro (1970) dual economy model, in which the economy is divided into rural and urban sectors. Differences between the two sectors are marked by both wage differentials and income expectations. The two sectors are separated by space, access to information, market principles, bargaining power and structures of employment and capital intensities. Studies on the impact on the informal economy provide varied conclusions depending on the assumptions they have used. For instance, various studies have assumed that the informal economy produces: final goods, tradable goods or both tradable and non-tradable goods; they also acknowledge the existence of urban unemployment, the duality of the credit markets and capital immobility across the sectors (Gupta, 1993). The majority of these studies find that trade tends to increase employment in the informal economy. The impact on wages in the informal economy varies depending upon the assumptions of the models.

Marjit and Acharyya (2003) find that, when capital is mobile between the formal and the informal economy in a dualistic model, the opening up of trade raises wages in the informal economy, whereas, with immobile capital, trade depresses the wages in the informal economy. If the informal economy produces tradable goods and services, opening up of trade through a decline in tariffs raises both wages and employment in the informal economy. Marjit and Beladi (2005), and Chandra and Khan (1993), seem to corroborate this thesis, provided capital is mobile across informal and formal sectors. With declining tariffs, the formal sector faces competition, thus its return on capital decreases. As capital moves into the informal economy, the rental income of capital in this sector declines and capital intensity of production increases, raising the wages of formal workers.

Studies based on wage differentials – in which the wages in the formal and informal economy are clearly different due to differences in skills, availability of capital, credit and information and various barriers on spatial mobility – suggest that the opening up of trade may shift production to the informal economy, where wages remain stagnant or may even decline. Kar and Marjit (2001) find that opening up of the economy does not increase the welfare of workers in the informal economy, even in cases where activities in the informal economy increase with reduction in tariffs. Marjit and Maiti (2005) observe that the wages may decline even with an increase in employment in the informal economy if capital is immobile across sectors. However, if capital is mobile, wages improve significantly in the informal economy as activities and employment in this sector increase. Goldberg and Pavcnik (2003) note that with the opening up of trade there is a reallocation of production from the formal to the informal economy and the workers in the formal sector face the threat of lay-off. As a result, employment shrinks in the formal sector and new employment is created in the informal economy, but wages in the formal sector rise while those in the informal economy fall. Marjit and Maiti (2005) show that a limited degree of capital mobility between the formal and informal sectors increases employment in the in-

formal sector, which leads to lower wages; however, a lack of capital mobility would constrain such informalization. The total wage bill of the informal economy, however, is predicted to increase after trade liberalization. Chaudhuri and Mukherjee (2002) insist that restructuring of employment and informalization of production and employment is bound to increase wages in the informal economy due to reallocation of capital into this sector.

Cimoli and Porcile (2009) argue from a structuralist stance that, with the opening up of trade in Latin America, production units in the formal sector started specializing in goods for export and that the production of non-export goods and services was relegated to the informal economy, leading to an expansion in the formal sector and inhibiting the growth of employment in the formal sector. Such a situation emerges when exporting firms try to claim a greater share of the existing demand pattern of the traded good rather than face an expanding market. Major fluctuation in trade leads to the less-responsive firms becoming less viable. Hence, it is necessary to build capabilities to address new and sophisticated exports markets. Cimoli and Porcile (2009) suggest that this happens because productivity gains in the formal sector do not translate into overall productivity gains across the economy due to overall demand constraints. Therefore, the ability of gains of the export sector to generate activity in the rest of the economy depends on the trajectory and robustness of economic growth. Thus, it is not trade per se that could be leading to informalization but rather the internal structure of the economy, the degrees of specialization and the levels of skills therein.

Although the majority of the theoretical models find that trade liberalization increases informal employment in developing countries (see also box 3.1 in Bacchetta, Ernst and Bustamante, 2009), and wide-ranging trade reforms carried out in developing countries – including Latin America in the 1990s – often coincide with higher informality, it may still be argued that the effects of trade on informality are not conclusively proven. On the one hand, cheaper imports, which could also result from

Box 4-2: Traditional trade theories

Traditional trade theories distinguish between labour, capital-intensive goods and different levels of skills that correlate only partly with the formal or informal status of workers. Nevertheless, ex post empirical studies (discussed in section 4.4.2) have reviewed two major aspects arising from the Heckscher-Ohlin model. The Heckscher-Ohlin theorem states that a labour-abundant country will export the labour-intensive good, and the Stolper-Samuelson theorem predicts gains for the return to labour in labour-abundant countries with the opening up of trade. However, while there was often an increase in the labour-intensive informal sector with trade opening, incomes in the informal sector did not always rise as predicted by the Stolper-Samuelson theorem within the overall framework of the Heckscher-Ohlin model.

A caveat of applying the traditional trade theory to informality is that the informal economy appears to produce non-tradable goods rather than tradables as assumed in the Heckscher-Ohlin model.

appreciation of a trading partner's currency, may introduce pressure on domestic prices, drive local firms out of business, reduce their incentives to open new positions, or push them toward cheaper means of production in the informal economy. In the model proposed by Fiess et al. (2006), this could be seen as a negative productivity shock to the formal/traded sector, the adjustment to which would depend on the degrees of rigidity in the formal sector, but would in any case lead to a decline in formal sector employment. The increase in salaried informality could be manifested through two channels. The negative shift of the demand curve for formal labour would lead to lower employment and earnings in the formal sector. Part of the fall in earnings could occur through lower benefits, an effect that might be exacerbated if wages were relatively rigid. The same scenario would lead to hiring workers without benefits or subcontracting tasks to lower-paid external workers.

On the other hand, lower tariffs may also foster the import of technology and capital from abroad, thereby increasing the demand for complementary skilled labour that, in the long run, tends to lead to greater formality. Generally speaking, industries that are more exposed to trade tend to pay higher wages and be more formal (de Ferranti et al., 2001), given the human capital of their workers. In addition, the availability of higher-quality or lower-cost intermediate inputs in essence constitutes a positive productivity shock to the formal sector and leads to lower informality. Furthermore, Aleman-Castilla (2006) develops a dynamic industry model with firm heterogeneity in which import tariff elimination could reduce the incidence of informality by increasing the profitability for some firms to enter the formal sector, forcing the less productive informal firms to exit the industry, and inducing the most productive formal firms to engage in trade.

The above studies on the impact of trade on the informal economy suggest that capital mobility and formalization of credit, as well as upgrading of skills, are crucial for the informal economy to benefit from trade. Trade may lead to an expansion of the informal economy if it pushes firms to cut production costs and overheads.

4.3.2.2 The impact of the informal economy on trade

A large informal economy can in turn have an impact on a country's ability to benefit from international trade. Empirical evidence suggests, for example, that it is often the bigger and more productive companies that benefit from trade liberalization. A small formal sector with few large firms may thus limit the potential to benefit from international trade.

Conceptually, the impact of informality on trade may vary according to the three main views of informality. According to the dualistic view, only the formal economy can engage in international trade and hence the existence of large informal economies is detrimental to trade. The legalistic view treats the informal sector as one that exists only because of rigid government regulations that can hardly match up to the pace of developments in the real world. Hence, informality indicates the failure of the government to address trade and economic development and, to this extent, informalization can retard trade. According to the structuralist view, the informal economy is a rational response to the obstacles faced in economic development

and hence informalization indicates the limitations of the economy in absorbing the gains from trade. However, the possibility of subcontracting and using cheaper informal labour may provide companies with a competitive advantage and, thus, may have a positive impact on exports. De Soto (1989) and others suggests that the informal sector is an engine of growth.

Empirical analysis²

Empirical analysis of the impact of informality on the capacity to benefit from trade is rare. However, a related literature strand that has looked at informality, growth and inequality provides some insights. Most of the studies suggest that a large informal sector has an adverse effect on international trade. Short-term cost advantages may be possible, but this appears to be at the expense of longer-term dynamic gains.

Several studies attribute adverse effects to the small size of entities in the informal sector. La Porta and Shleifer (2008) observe that the informal economy, due to the small size of firms, is less likely to find good talent and hence economies with a predominance of such firms are not likely to specialize or become competitive enough to benefit from trade. Elbadawi and Loayza (2008) find that, in Arab countries, informality has negative marginal effects on small enterprise performance and conclude that informal establishments have difficulties penetrating regional or international markets. Smaller firms cater to local markets and larger firms are more likely to serve international markets. In the case of such neat divisions, the informal economy must become formal in order to be able to participate in global trade. Such a process of formalization may require easier access to credit, capital and skills. In another study, Inshengoma and Kappel (2006) observed that home-based production usually comes with marginalization of economic resources and economic agents by limiting their access to social services and also to capital. This phenomenon therefore tends to impact trade adversely, since such micro-firms are not able to function in a competitive trading framework.

Some studies find a positive effect on trade, often linked to subcontracting. Carr and Chen (2002) recognized the potential of the informal economy to help expand opportunities in trade in cases where firms are vertically linked with the formal sector – such as outsourcing and subcontracting. The informal economy, as observed by the authors, helps to minimize production costs and overheads. Under some conditions, positive effects are also found in studies reflecting the dualistic approach. Davis and Haltiwanger (1990, 1992), and Davis et al. (1996), observe that informality helps trade, provided job switches are possible from the informal to the formal sector with skill upgrading and new skills. Trade destroys jobs in both sectors and creates new ones according to new demands. This requires certain levels of education, opportunities for retraining, and so on.

² Although section 4.3 discusses theories and concepts, empirical results of the impact of informality on trade is discussed here since the literature on this topic is small.

However, cost advantages from informality may only provide short-term gains. Farrell (2004) observes that low-cost and small-sized firms grow less and hence cannot contribute to long-term productivity growth. Davis (2004) corroborates this observation and adds that, despite being low cost, the informal economy constitutes a drag on the economy due to its low productivity growth.

UN DESA (2005) finds that income inequality retards access to education and health, and eventually blocks access to capital, skills, infrastructure and markets and hence depresses trade. The main finding of this study is the linkage of informality with income inequality. Hall and Sobel (2008) argue that the owners of informal production units face enormous hurdles in the form of regulations, and that this increases the transaction costs for these businesses. Bigsten and Söderbom (2005) state that the existence of government regulations traps workers in the informal economy with poor wages. Low wages keep workers in poverty and prevent them from overcoming their low skills and asset bases. The informal economy appears to keep the poor as poor and does not help create real productivity gains, and hence retards development as well as trade.

A main area of concern raised by these studies is the finding that informality itself exists due to income inequalities. Rising informality therefore indicates rising inequality, which in turn implies that the distributive structures in the economy are retarding the process of specialization and growth, and hence trade. Thus, trade and social policies, including labour market policies, need to be coherent and sensitive to the impact of informality and inequality on the potential to benefit from trade.

Gravity models have not yet been used to assess the effects of informality on trade. Although there has been significant progress in gravity models to understand factors determining trade, the author of this chapter is not aware of any study incorporating the informal economy in any gravity model – for example, the gravity models dealing with trade issues in Wright (2004), Anderson and Wincoop (2001), and Matthieu and Mehl (2008), do not discuss the impact of trade on the informal economy.

4.4 APPROACHES TO ASSESS THE IMPACT OF TRADE ON THE INFORMAL ECONOMY

The theoretical models identify several mechanisms through which trade can impact the informal sector, and vice versa. In most modelling approaches, trade liberalization increases informal employment, but the extent is unclear. Moreover, the impact on wages in the informal economy is ambiguous and the impact of informality on the ability to benefit from trade is unclear. Therefore, since a large proportion of the population is involved in informality in developing countries, contributing a major share to GDP, there is a need to carefully assess the informal economy to help in formulating and implementing appropriate policies. Such policies need to address both productivity and employment rights, including social security.

For more than two decades, quantitative and qualitative studies have tried to assess the impact of trade liberalization on the informal sector and the presence of a large informal sector on export competitiveness. Three approaches have been used and are discussed below:

- Qualitative studies (case studies, partly using data).
- Quantitative ex post studies (econometric analysis).
- Quantitative ex ante studies (mainly computable general equilibrium (CGE) models).

In quantitative studies, published or specifically collected data are used to analyse the relationship between trade and informality for policy analysis. Quantitative studies can be exact in establishing relationships between variables in order to track the impact of tariff reduction, for example, while field studies can establish nuances that cannot be easily captured through data and models. Moreover, qualitative studies use cases from the field. Policy-makers are interested in studying the impact of particular policy measures, such as the impact of a change in income tax on welfare of people below poverty lines and other socio-economic categories of households. It is possible to study the impact of policies that are targeted and are not likely to have major indirect impact on other variables of an economy through focused case studies.

Econometric exercises have also used samples to establish relationships between informalization and other variables. Econometric studies allow determination of the significance of a relation between variables using established statistical methodologies. Most of the studies, with certain exceptions,³ have used micro-level (i.e. firm- or industry-level) data in specific countries to draw their conclusions.

Economy-wide analysis is essential when the indirect impact of policy changes is potentially wide and other groups and other markets may be affected as a result of a policy change. CGE models take the entire macroeconomy into consideration. To provide a framework, in which the influence of policy changes or any exogenous change can be traced through different sectors and different socio-economic classes, it would be helpful to use a multi-sectoral model in which informal transactions and “agents” can explicitly be tracked. In such a model, the magnitude of the impact of different policies can be quantified to identify sectors that respond more strongly through production, to analyse the impact on the demand for informal factors, and eventually to identify income generation for the households belonging to the informal economy. Moreover, through their expenditure pattern, second-round effects on the economy can be identified. For instance, through simulations based on government investment expenditure or alternative trade policies, it is possible to explore the inter-relationships among the various economic factors considered. A particular expansion of sectoral exports may bring about repercussions that could be counter-intuitive. For example, if the objective is to raise informal incomes in the

³ Sinha (1999), Sinha et al. (2003), Sinha and Adam (2006), and Sinha (2009).

short term, it might be more beneficial to encourage export in specific sectors, such as agriculture and allied activities, rather than in traditionally accepted sectors like manufacturing.

The impact of trade policy changes on the informal economy needs to be examined to better understand how such policies should be designed, modified if necessary, and implemented. Impact analysis can be carried out through many approaches. Qualitative and quantitative and, in this case, econometric and general equilibrium analysis approaches have different strengths and weaknesses and are suitable for different research questions (see Annex 4.A). In this section, the three approaches that were used are discussed.

4.4.1 *Qualitative approach (micro-level studies)*

Case studies and field surveys have been undertaken to collect and analyse information about the nature of the trade liberalizations, how policies are implemented and the resulting impact on different groups of people within the area surveyed. The studies attempt to build reasonable linkages between the reforms and the changes in the welfare of different groups of the labour force, such as informal and formal workers.

The field studies discussed here clearly indicate that the informal economy is structurally connected to the formal economy and does not have a distinct existence. Thus, this economy seems to defy the very premises of dual economy.

Several field studies have analysed the effects of policy changes in developing countries on poverty and inequality. Squire (1991) and Van der Hoeven (1996) conducted reviews of the linkage between adjustment and poverty during the 1980s. The findings of qualitative analysis of the relationship between reforms and poverty are presented in a short review by Killick (1995), and White (1997) provides a more recent review on this. Such work describes methodically the reforms undertaken in a selected country and the changes in a variety of welfare indicators among different households and socio-economic groups. Studies have also been reported in a series of Background Papers on “globalization with a human face” prepared for the Human Development Report 1999 (UNDP, 1999). Similarly Cornia (1999), Handa and King (1997), and McCulloch et al. (2000) provide similar analyses for different African countries.

Glick and Roubaud (2004) investigate the impact of the establishment of an export processing zone (EPZ) on earnings, employment and the gender composition of employment as well as gender-specific wage differentiation from 1995 to 2002 in Antananarivo, Madagascar.⁴ The authors find that, in the aftermath of globalization, there is a decline in: (a) women’s participation in the workforce; (b) the total number of self-employed and private informal workers; and (c) the number of firms in the informal economy. At the same time, there was a disproportionate rise of female

⁴ In fact, the study uses time-series labour force survey data and is thus an econometric analysis, but the authors also describe the sector qualitatively and use descriptive data so that it is also a case study.

workers in the EPZ. The formal sector outside the EPZ remained largely unaffected. The wages in the EPZ, though lower than in the formal sector, were higher than in the informal sector. Again using a field study in 2005, Marjit and Maiti (2005) investigated in the state of West Bengal, India, how the Government's trade-opening policies affected the informal economy. The survey found that, with the growth of dedicated export sectors, the production units in the informal economy became tied to formal units through various types of agent. The informal economy existed and even expanded; but it expanded as a web of relationships with the formal units, rather than as independent units, and consequently exhibited trends such as adoption of technology and even growth.

In a case study conducted by Singh and Sapra (2007) in the industrial clusters of Tiruppur (southern India) and Delhi, garment factories that were linked to the global value chain were found to operate in clusters, and were considered informal since they hired casual, temporary and daily-wage labour. The lower castes formed the bulk of such informal labour in Tiruppur, but migrant workers formed most of the labour force in Delhi. Labour had no bargaining power and, over the years, the entire hiring and firing process seemed to have been taken over by the labour contractor. What was important was that even within the informal economy there seemed to be a division between "factory" and "home-based" work, in which the latter was a further subcontracted form of the former. There was also a hierarchical division of work, with the better-paid and skilled jobs going to males and the lower-paid jobs going to women, reflecting that informal work was at the lower end of the production value chain and women within the informal economy were at the bottom of this chain.

4.4.2 Empirical quantitative studies

Similar to some qualitative case studies, several empirical studies on the informal sector shed light on the structure of the informal economy and its link to the formal economy. Agenor and Aizenman (1994) employ an econometric model using data from both the formal and the informal economies to show that the efforts of workers to find formal employment depend on the wage differentials between the formal and the informal sectors. Bauch (1991) uses econometric models using firm-level data across the economy to examine the relationship between firm size, employment and minimum wages, and observes that the insistence on minimum wages creates the formal-informal duality. Fortin et al. (1997) use an econometric model including firm-level data to observe formal and informal firms in the same productive sector of the economy, and find that market segmentation takes place due to scale of the operation, the evasion of taxes and the wages paid to workers. Following liberalization, trading countries want to become more competitive, reducing the wages of workers and cutting down on overheads associated with the regulations of the formal sector. This desire to minimize the costs of labour, and other costs of compliance such as fees and taxes, informalizes both firms and employment.

Most of the empirical literature on trade and informality is focused on Latin America, including Argentina, Brazil and Mexico. From the data presented in the various OECD papers (e.g. OECD, 2009; see <http://www.oecd.org/dataoecd/4/49/42863997.pdf>), we observe the gradual informalization of the workforce across developing countries. With gradual integration into the global economy, countries either expand production bases for exports or improve competitiveness of home industries to withstand cheaper imports. In either case, a desire to reduce costs leads to informalization of production as well as employment. In Mexico, changes in the distribution of formal employment across age groups over the last decades, in which trade was liberalized remarkably, have been minimal, with some loss of formality (with absorption in both informal salaried and independent work) among prime-age males and perhaps older workers in the 1987–96 period. There were no substantial changes in the 1996–2004 period. In Brazil, however, the 1990–2002 period brought a decrease in formal employment of roughly 10 percentage points across the whole age spectrum, with a fall of 20–30 percentage points for young workers. In Argentina, a similar pattern has prevailed, with one exception. Although the similarly dramatic losses of formal jobs among young workers, in their early life cycle in the 20's, in Brazil the greatest losses level out at about 20. Moreover, there is a marked decrease in formalization among workers over 45 years of age that is roughly double that of the prime-age males. In light of this, concern in Argentina about the increased informalization of the workforce is high. Argentina, one of the richest countries in Latin America, once had a consistently high formal employment rate of almost 70 per cent, where 17-year-old workers had the same access to formal sector jobs as prime-age males. The situation now more closely resembles Mexico, especially in the preservation of formal sector employment, except that large firms in Mexico are relatively more formal than those in Argentina. At the very least, this represents different experiences with trade liberalization. But the summary picture is striking. Mexico's far-reaching trade liberalization, which began in 1987, coincides with small changes of informality and small changes of its allocation across age groups or firm sizes. Meanwhile, Brazil has experienced an increase in informality in terms of its labour force, although investments in informal and formal firms remain proportionately the same as in Argentina. The above section suggests that, although the allocation of capital remains more or less unaffected in proportion to expansion in economic activity through trade liberalization, employment tends to be tilted in favour of the informal sector rather than toward firms in the formal sector.

Small impact of trade on the informal economy

Econometric studies have tried to determine whether there is a statistically significant link between trade and informal employment and wages in the informal economy. In Latin America, empirical evidence on the impact of openness to trade on levels of informality is mixed, but it generally suggests marginal effects. Goldberg and Pavcnik (2003) find a very modest impact from trade reforms in Colombia on informality, and none in Brazil. Bosch et al. (2006), revisiting the Brazilian case

through the lens of job creation and destruction, find again a small but positive impact (whereby trade liberalization increased informality). In the absence of trade liberalization, formal employment may have been higher (Shimer, 2005). The evidence from Mexico also does not suggest a large impact. As noted by García-Verdú (2007), among others, given the dramatic unilateral liberalization beginning in 1987 and then continuing through the North American Free Trade Agreement (NAFTA), there is little trend in informality.

Some studies find that trade liberalization increases informality ...

Goldberg and Pavcnik (2003) use data from Brazil and Colombia, countries that experienced large trade barrier reductions in the 1980s and 1990s, and examine the response of the informal sector to liberalization. The authors build a model in which firms optimize the share of formal and informal workers that are employed and relate changes in the likelihood of informal employment to tariff changes in each sector. Underlying the model is the observed premise that mobility across the formal and informal sectors within an industry is greater than mobility across industries. For Brazil, the authors do not find evidence of a relationship between trade policy and informality. For Colombia, they find weak evidence of such a relationship and show that trade liberalization leads to an increase of the informal economy. However, this link depends on the labour market structure, since the impact is only significant for the period prior to a reform that increased the flexibility of the Colombian labour market. Prior to that reform, the opening up of trade led to a reallocation of production from the formal to the informal economy, and the workers in the formal sector faced higher threats of lay-offs and retrenchments. Employment shrank in the formal sector and new employment was created in the informal economy. Wages in the formal sector rose while those in the informal economy fell. In other words, wage differentials seem to persist between the formal and the informal economies despite the restructuring, leading to an increase in informalization of employment, notwithstanding capital mobility.

Mondino and Montoya (2002), and World Bank (2007), show a very large increase in the share of informal salaried workers in Argentina in the early 1980s. Though the last round of trade liberalization began only in 1990, reforms in the late 1970s radically lowered tariffs and led to an appreciated exchange rate. Galiani and Sanguinetti (2003), and Porto and Galiani (2006), find that the decreased protection had some effect on both the absolute level of wages and the gap between skilled and unskilled labour. To the degree that downward pressure on unskilled wages came through the reduction of benefits, or subcontracting, it seems possible that trade liberalization had an impact. However, preliminary analysis replicating the Goldberg-Pavcnik exercise for Argentina suggests that the impact of trade reform per se had a magnitude similar to that in Brazil – i.e. very low direct impact – on employment although there was a downward pressure on wages (however, there may have been significant additional impacts from the various periods of sustained currency over-valuation).

... while, under some circumstances, trade liberalization can reduce informality

When examining how trade liberalization affects informality in Mexico, Aleman-Castilla (2006), broadly following the Goldberg-Pavcnik (2003) methodology, finds that industries that were more exposed to trade saw higher increases in the rate of formality. The author argues that the impact on product prices was minor, while the reduction in import prices raised the productivity of the tradables sector and, hence, expanded the demand for formal labour overall. The results are based on data for the period 1988–2002 and the study focuses on trade liberalization under NAFTA. Aleman-Castilla models the decision process of firms facing the option of producing either in the formal or the informal sector. Secondly, the author incorporates a framework that explains how trade liberalization affects the performance of firms. And thirdly, these two points have been put together. The author uses a dynamic industry model with firm heterogeneity similar to that used by Melitz (2003) to describe the way in which trade liberalization could affect the rate of informality. The original model shows how exposure to trade induces only the more productive firms to export while simultaneously forcing the least productive firms to exit. Both the exit of the least productive firms and the additional export sales gained by the more productive firms reallocate market shares towards the more productive firms and contribute to an aggregate productivity increase. Profits are also reallocated towards more productive firms.

Box 4-3: Individual characteristics of informal workers

Apart from providing estimates of industry informality differentials, the first stage estimation of Aleman-Castilla (2006) is also useful to study the determinants of informal labour at the individual level. As expected from the human capital theory, the probability of being informal decreases with years of experience and schooling. It is also lower for married workers, but not for those cohabitating with a partner without being married. Males seem to be more likely to be informal than females. This result does not seem to support what Roberts (1989) finds for the labour market of Guadalajara, Mexico, but is consistent with Goldberg and Pavcnik's (2003) findings for Colombia. Within a household, the likelihood of informality is significantly lower for the first provider of income and significantly higher for the second provider, which supports the results of Roberts (1989) and Maloney (1999). The findings are reasonable considering that, as found by Roberts and argued by Maloney, the deductions made for social welfare in formal employment are perceived as a disadvantage by many workers. Since social welfare in Mexico normally covers not only the worker but his family as well, there is no benefit for the second provider of income to work in the formal sector and pay the welfare deductions to get his or her own social insurance.

The findings from Aleman-Castilla (2006) reveal interesting results regarding the geographic characteristics of informality. The probability of informality varies significantly across cities. The probability of informality appears to be positively correlated with the population of the city where the worker lives,⁵ and also with the

⁵ More precisely, the natural logarithm of the population.

proximity to the city (relative distance). Workers are more likely to be informal when they live closer to Mexico City than to the US-Mexico border. However, the estimated coefficients are statistically significant only for a few years of the sample. Furthermore, the estimates indicate that the likelihood of informality is significantly lower for workers living in a state with high exposure to globalization (for nine years of the sample) and higher for those living in a state with low exposure to it (for eight years of the sample). In most cases, these indicators were individually and jointly statistically significant, suggesting that geographic location is an important determinant of the likelihood of informality and that informality in Mexico is lower in states with a high exposure to trade.

Goldberg and Pavcnik (2003) state that part of the variation in informal employment that cannot be explained by worker characteristics can be explained by coefficients reflecting workers' industry affiliations. The authors call these coefficients industry informality differentials.

Goldberg and Pavcnik show that trade reforms affect tariff rates differentially in different sectors. They argue that sectors with traditionally high protection rates, such as textiles and apparel, experience sharper reduction in tariff. On the other hand, sectors with relatively low rates of protection experience smaller tariff cuts. Such differential tariff rates are examined by the authors across industries in order to identify the effects of tariff changes on informality. A high measure of year-to-year correlations of industry informality differentials in Brazil suggest that trade policy changes are unlikely to be associated with changes in informal employment. On the other hand, the lower correlation coefficients in informality differentials in Colombia suggest that trade policy could at least in principle affect the incidence of informal employment in this country.

From the second stage results, the estimates suggest a significant effect of trade liberalization on the probability of informal employment. Specifically, a 1 percentage point decline in the Mexican import tariff is associated with a 0.392 percentage point reduction in the likelihood of informality. The US import tariff does not seem to have a significant effect, which is a reasonable outcome considering its already low level in the pre-NAFTA period. The analysis also suggests that the benefits of trade liberalization have not spread over to the labour force in the non-tradable sectors, at least in a statistically significant sense.

Recent trends in Mexico also seem related to international exposure. The sharp increase in both self-employment and informal salaried work after 2000 has occurred concomitantly with the entry of China as a major competitor in some areas of Mexico's comparative advantage. Therefore, while Mexico saw an increase in the formal sector after NAFTA, the entry of another developing country such as China informalized the Mexican economy. Hanson and Robertson (2006) argue that, had China's growth in export capacity remained unchanged after 1995, Mexico's annual export growth rate of Chinese-substitutable goods would have been 1.5 percentage points higher in the late 1990s and 3.0 percentage points higher than the 1.9 per cent it experienced going into the new millennium. This does suggest that international competition is constraining the expansion of some formal export jobs. On the other

Box 4-4: Methodology suggestion to quantify trade liberalization to capture effects on non-tradables

Apart from using the standard import tariffs, the effect of trade liberalization on informality can also be estimated by using an input-output matrix (IOM) to calculate an import tariff that reflects the taxes payable on imported inputs more precisely. The input-output matrix shows the intersectoral transactions at current producer prices, which can be expressed as shares of the total output of each sector. Moreover, the input-output matrix also contains the share of imported inputs for each sector. Therefore, apart from summarizing the intersectoral dependence, the IOM tariff also reflects the relative importance of imports across sectors. Among other virtues, this tariff allows assignment of a real import tariff to the non-tradable sectors, because of their interactions with the tradable ones.

hand, Lederman et al. (2006), using estimations of the gravity model of trade, argue that there is little evidence that Mexican (and Central American) non-fuel overall exports were affected. It is also noteworthy that the sharp increase of informality seems to occur with the relaxation of restrictions on Chinese textiles and apparel imports in the United States. The overall reduction in exports due to the US recession may have had a straightforward impact through a reduction in productivity that, in the absence of wage rigidities, led to depreciation of the currency concomitant with a rise in relative sector size and relative employment in non-exporting firms. It is likely that with a slowdown in the US economy, the opportunities became relatively better in informal micro-enterprises. In Mexico, medium-sized and large firms are still becoming more formal over time. Therefore, the shifts in informality measured may be due to the increased relative attractiveness of working for micro-enterprises over the preceding five-year period, and not to greater subcontracting or within-large-firm informality due to trade opening in Mexico.

Overall, the econometric analysis provides supporting evidence for the hypothesis that the tariff elimination process undertaken by Mexico when joining NAFTA in 1994 has helped reduce the incidence of informality. Increasing competition from other developing countries in areas where Mexico has a comparative advantage could lead to increasing informality.

The studies discussed above analyse specific developing countries and provide interesting insights into the impact of trade on informality. However, due to the specific circumstances in each country, results cannot easily be generalized. Fliess and Fugazza (2008) tried to work through statistical macro-level and internationally comparable data to attempt to find relationships between trade and informality. But the results yield a mixed picture. While cross-sectional data suggest that opening up of trade reduces informality, panel data suggests that the reverse is true. Micro-level data seem to suggest that lower tariffs and lower restrictions reduce informality in countries. In a dynamic panel estimation set-up that accounts for endogeneity, the authors find that informal employment decreases with deeper trade liberalization, while informal output increases. The authors argue that their results may suggest that the productivity of the informal sector increases after trade liberalization. Due to the partly conflicting

results, Fliess and Fugazza call for more research in this important area that involves trade and poverty.

Another strand of econometric literature focuses on turbulence in employment. This is related to the creation and destruction of jobs in certain sectors and the mobility between sectors, including between the formal and the informal sector due to fluctuation in trade. Blanchard (2005) analyses trend data from industrialized countries and shows that the gradual restructuring of such economies towards greater openness does not lead to more turbulence in employment. Turbulence emanates from restructuring within economies and, contrary to what trade theories suggest, leads to job reallocations within sectors rather than across sectors. Jansen and Turrini (2004) also observe that turbulence in employment does not mean net job loss. Comin and Philippon (2005) use firm-level data to construct sales volatility and find that higher volatility need not mean higher job creation or job loss. Ljunqvist and Sargent (1998, 2005) insist that turbulence increases skill specialization and wage differentials and that this may actually create rigidity in labour movement across sectors.

The findings suggest that the outcomes of trade liberalization depend more on the structure of the individual economy rather than in the intrinsic nature of trade liberalization. Neoclassical economics predict that open trade will generate gains from trade. However, various econometric studies reveal that this is not always the case. Econometric studies indicate that conditions specific to each country determine the outcome of trade more than the fact of open trade. In this sense, the CGE models are capable of capturing the structures intrinsic to each country and examining the impact of open trade therein.

4.4.3 Computable general equilibrium (CGE) models

Quantitative studies based on CGE models are useful in examining the impact of policy changes on production, employment, wages and other variables by sector, including informal units and informal workers. General equilibrium models are useful when a policy change that targets a specific sector has an effect on other sectors or has second-round effects, such as income effects. Since the informal economy is so large in many developing countries, it is important to assess the impact of trade policy changes on the economy using general equilibrium models.

Some studies have used CGE models in relation to the informal economy. Savard and Adjovi (1997), and Paquet and Savard (2009), study Benin's informal sectors in response to changes in Government policies. Gibson and Godoy (1993) study Bolivia through a 38-sector social accounting matrix (SAM) that helped them to assess the short-term impact on the earnings of workers in the informal sector. Gibson (2005) studies Bolivia through a CGE model and presents findings showing that a rise of the informal sector had reduced the output of the formal sector. Bautistia et al. (1998) study Zimbabwe using a CGE model to quantitatively examine the income and equity effects of trade liberalization, fiscal and land policies. The exercise reveals that positive effects on income may not have a positive impact on equity. Kelley (1994) studies Peru through the CGE model and observes that the informal

sector emerges because the formal sector cannot serve the highly segmented and differentiated market for goods and services. Sinha and Adam (2006) study India through a labour-segmented CGE model and find that casualization of work leads to loss of labour welfare and a reduction in the wages of informal workers. The study by Agenor et al. (2003) uses the integrated macroeconomic model for poverty analysis (IMMPA) to analyse rural and urban areas as the poor recover from the effects of earlier financial policies and the transmission of external shocks. Other CGE studies that analyse the impact of policy changes on the informal economy include Savard and Adjovi (1997), Sinha (1999), and Sinha and Adam (2000).

CGE models

CGE models are theoretically founded upon neoclassical theories. Such models are generally short term with a comparative-static framework using mainly relative prices for commodities with excess capacity so that prices and quantities adjust to changes in demand and markets are cleared. However, dynamic CGE models can also be developed that have potentially longer time-period analysis, since many variables may have different trajectories over the longer term. In both static and dynamic models, consumers are utility maximizers while producers are profit maximizers. Circular flow of income between firms and the household is incorporated, as is the government, though the latter is not an optimizer. The standard feature of such models consists of an imperfect substitution between imports and domestic demand for goods, known as the Armington assumption. Firms are assumed to be perfectly competitive, produce a homogenous output with imperfect transformability between production for domestic and foreign markets at the sectoral level, determined by a constant elasticity of transformation function. The treatment of export and import in such models allows autonomy to the domestic prices to adjust to changes in the world prices of sectoral substitutes and assumes that the country under consideration cannot affect world prices. Such models are often used for developing countries to observe the impact of structural adjustment on economies. The CGE is a model in which micro-level decision-making parameters of firms can be related to the macro-level policies of countries.

In these models, factors of production, mostly labour and sometimes land and capital, are assumed to behave differently for different markets. Though full employment and perfect mobility of factors of production are possible in the long run, in the short run, capital is assumed to be fixed for each sector and immobile across sectors, thus possibly creating excess and unutilized capacities. Aggregate domestic demand in such models has four components, namely: consumption, intermediate demand, government and investment. The major macroeconomic parameters that are supposed to balance are savings and investments and government deficit and balance of trade. Markets for goods and services respond to the forces of the market, and market forces are affected by government policies and the external environment. The CGE and other general equilibrium models are usually Walrasian in nature with all markets in balance. Each sector produces a fully differentiated good so that there is no overlap. The goods are produced through various combinations of labour and

capital with constant elasticity of substitution (CES). The domestic output of the sector is derived from a CES function of factor inputs and the intermediate good used in the sector. Chapter 3 of this book discusses further details of CGE models used in relation to trade policy analysis.

Application of CGE models to the informal economy

The CGE models characterize informality through various markets. The assumptions underlying these characteristics depend on concepts regarding informality in goods markets and factor markets. Hence, it is important to conceptualize the differences of the output of the formal and informal sectors for modelling purposes and to build the specifications carefully. Even when formal and informal output is similar, it has been observed from field studies that product differentiation and imperfect substitutability between the two sectors often exist. Informal entrepreneurs generally do not cater to a large market, can have differences in the quality of goods and can occupy different outlets (e.g. streets as vendors, flea markets) as compared to the formal retailers. Another example involves exclusive goods, where limited market size precludes efficient formal sector production. These factors need to be built into a CGE structure. In order to capture these differences in the model, the outputs of the two sectors are treated as imperfect substitutes in many CGE models. Relative prices and the degree of substitution between the outputs of the respective sectors determine the composite good's make-up in each sector's output. Regarding the input factors, there could be two types of capital, one in the formal and the other in the informal economy. The CGE models incorporating the informal distinction also need to distinguish labour by informality. Various types of labour could be identified as either formal or informal.

A CGE model for India

The CGE work by Sinha and Adam (2006) for India includes four key aspects on informality. First, there is product differentiation between the informal and formal sectors as they are shown to produce very different products. Second, the formal and informal economies use different technologies. Third, the formal and informal factors of production are distinct, especially since the formal wage is rigid. Finally, the informal sector does not pay taxes on the factor incomes. The model identifies ten sectors. Agriculture and construction are wholly informal while government and capital goods sectors are wholly formal. The rest, namely manufacturing, services and agro-processing have both formal and informal units. Both the formal and the informal units export, and both use informal factors. Total capital is fixed by sectors. The model is set up in two versions, one in which full employment is assumed and the other in which wages are rigid in the formal sub-sectors while they are totally flexible in the informal economies, and workers from the formal sector can join the informal sector. The simulations quantify the employment effects of two types of trade reforms: a revenue-neutral 60 per cent tariff reduction across the board, and a corresponding reduction of quantitative restrictions where they exist. The main findings of this exercise are that trade reforms lead to an inter-sectoral balancing of production away from

the formal economy and toward the informal economy as the formal economy must cut costs due to the increased competition that opening up of trade brings about. Under flexible labour markets, the informal economy workers benefit at the cost of entrepreneurs, while in rigid labour markets the urban self-employed tend to benefit more. It may be noted here that different approaches often lead to similar results.

Description of a Benin model

A CGE model for Benin was developed by Paquet and Savard (2009) using 1999 macroeconomic data. In the model, the authors distinguish between formal and informal households (households that work in the informal economy), and also the re-exportation industry, by dividing into Benin's eight most important export sectors. The model has incorporated informality aspects in a stylized form where the informal sector undertakes trade with Nigeria. Paquet and Savard carry out simulations where import tariffs were reduced. The model findings demonstrate a great sensitivity of government revenue to the activity of the informal economy. The SAM helps in identifying the imports that went into the re-exporting sector because all imports are categorized as domestic consumption. The SAM is also useful in identifying product-by-product trade. There are two factors of production: labour and capital. The agents in the model are the Government, households, firms, the rest of the world and Nigeria (because Benin's economy relies on re-exportation to Nigeria). All households are separated into formal and informal types. Informal households are the ones that work in the informal economy of re-exports while the formal households are those that work in any other sector of the economy. We assume that the workers in the informal and the formal sectors are distinct and separate. The informal economy is more capital intensive, contrary to the general idea that low capital intensity is a

Box 4-5: Building a global knowledge tool to analyse trade and the informal economy

There is a need for wider use of national-level data and government statistics to develop a database that could capture and assess the impact of open trade policies on the organization of production and employment, and hence on wages, wage differentials and worker welfare. The economy-wide models based on macro-level data as developed in India could be used to develop further the framework with which to incorporate the informal economy and trade into CGE models.

The CGE studies discussed in this chapter have used national-level data to analyse the issue of informality and have demonstrated that such analyses are possible. Studies by Sinha and Adam (2006), Sinha (2009), and Paquet and Savard (2009), show the possibility of using economy-wide models to study the impact of globalization on informal workers, employment and wages.

Annex 4.A provides additional details on how to design a CGE model that can be used to analyse the impact of trade on informality. These can be used to provide policy-makers with advice based on quantitative analysis to design policies aimed at improving the informal sector's efficiency as well as addressing equity concerns, such as poverty reduction. It can thus be part of a global knowledge tool on trade and employment.

property of informality, and hence 70 per cent of value-addition goes to capital and 30 per cent to labour. The total input is imported and the total output is sold to Nigeria. The exports to the rest of the world take place in the formal sectors, while the informal economy exists only as a re-exporter to Nigeria. Paquet and Savard (2009) carry out two simulations in their paper: (a) simulation with a 20 per-cent decrease in tariffs across the board; and (b) simulation with 10 per cent appreciation of the Nigerian naira compared to the CFAF currency. The findings show that the simulated changes strongly influence the wealth of informal households, but have marginal impact on the formal households. The authors state that informal households are worse off than formal households for the first simulation and just the opposite results are seen by conducting the second simulation.

4.5 POLICY RECOMMENDATIONS

Economic trends show that the informal economy is not likely to wither away soon without focused intervention. On the contrary, there is concern that the informal economy will be a permanent feature during the development process. Growth in informal employment is of great concern. Indeed, in some countries, all segments of the informal workforce, i.e. micro-entrepreneurs, the self-employed, as well as casual, piecemeal, temporary and part-time workers, appear to be growing. The informal workforce is generally not covered by any form of social protection and average wages tend to be very low. Another concern is that the opportunity of economies to benefit from trade and trade liberalization appears to be hampered by the existence of a large informal sector.

On the other hand, the informal economy makes substantial economic contributions, and it also has the ability to mould itself to the changing conditions. The informal economies in Asia, Africa and Latin America have demonstrated that the informal economy is counter-cyclical and helps absorb shocks of lay-offs and unemployment by absorbing labour. There is a need for governments to be aware of the contribution made by the informal economy, both in providing jobs and removing extreme poverty, and thus unemployment-related social evils. Unfortunately, governments generally have a tendency to look at the informal economy as one that evades taxes and therefore creates a fiscal burden, not one that provides jobs to fit available skill and human capital and increases the domestic demand for goods, which results in higher retail tax collection. Governments need to develop innovative and supportive policies that recognize the contributions of this important sector and its workforce, including their constraints and needs. Governments, as well as the economy, will benefit through the release of entrepreneurial effectiveness and the improved well-being of the workforce.

A need for policy measures

It is important to examine the informal economy to be able to recommend policies that help improve the quality and productivity of such work and its workers. Policy-

making needs to take into account the impact of the global economic structure and the international trading system on the size and the conditions of the informal economy worldwide. Domestic policies, both trade and labour-market policies, as well as other measures such as economic reforms, impact the effects of trade on informality as well as the potential of economies to benefit from trade liberalization.

It stands to reason that informality is not only a matter of concern in terms of social equity, but also in terms of the improved economic efficiency of a country. There is a major concern that the persistent or rising informalization of work in the developing and even developed countries could adversely impact human capital and social progress. Thus, the main reasons for governments to intervene in the informal economy are based on the principles of developing a mechanism to utilize the potential productivity of the informal labour force, poverty reduction, and equity considerations.

Economic policies impact both the informal and the formal economy, but in different ways. Standard economic policies do not have the same effects on the informal economy, where responses are much more varied, as on the formal economy. Hence, it is important to develop policies that fully recognize the interrelationship between the informal and formal economy and other economic and social agents. The informal economy is very much affected by the objects of economic regulation as well as their impact (e.g. the price of capital, labour, inputs and outputs). Trade and industry policy also provides incentives to large formal businesses to increase their international competitiveness, from which small informal businesses in the same industry or sector may not benefit. Proactive policy on the informal economy would shift the structure of aggregate demand, the prices of inputs and outputs, and the set of incentives and subsidies in favour of informal enterprises. Appropriate economic policies on the informal economy should balance incentives, tax burdens and statutory benefits (e.g. unemployment insurance and pension funds) between large and small businesses, and between employers and informal workers.

Clearly, a reappraisal of the impact of existing economic policies and the need for supportive economic policies is needed, since these policies impact the process of redistribution between the formal and informal economies. Policy analysis needs to determine whether the informal economy shares in benefits that result from government expenditure and procurement policies. New methods for assessing government budgets – called social audits or people's budgets – can be used to assess the differential impacts of policies on the formal and informal economy. However, there is a clear need for improved statistics on the informal economy. Collection of budget data is difficult, since allocations affecting those who work in the informal economy may be the responsibility of many different government departments, such as labour, housing, small enterprise development and public health.

Policies towards the informal economy have the potential to create a new contract between the State, business, organized labour and other social actors (including organizations of informal workers and producers). Without addressing the employment needs, constraints and vulnerabilities of those who work in the informal economy, efforts to reduce poverty will not succeed. International labour conventions

also mandate governments to intervene on behalf of all workers, including those who work in the informal economy.

Policy measures on equity and efficiency grounds

Workers in the informal economy are more likely to be poor than those working in the formal economy. Since the informal economy is so closely linked with poverty, it is important to address the various needs and constraints of informal workers in order to alleviate poverty. A large segment of workers in developing countries are in the informal economy, and these workers are a vulnerable group who need certain interventions to improve their welfare. Equity and welfare rationales for government intervention in the informal economy stem from the vulnerability of those in the sector.

Progressive tax policies that would benefit informal workers include lowering taxes on goods and services whose consumption constitutes a high fraction of their spending, and lowering taxes in firms in which the poor are likely to be engaged (Guillermo et al., 2007). Given their poverty, workers in informal employment spend a higher percentage of their incomes on food than other workers, and they are particularly affected by flat value-added tax rates on basic foodstuffs. User fees for social services such as health care and education also affect poor workers disproportionately. Governments need to recognize that formal institutions, such as those dealing with training and credit, often stigmatize workers in the informal economy.

As a large share of the population is involved in the informal economy, policies that improve their welfare would be more conducive to equitable and sustainable growth. With the reduction of poverty and concomitant improvement in standards of health and education, workers in informal employment will become more efficient contributors to the national economy.

In addition, support to informal enterprises will lead to higher productivity of the informal sector and sustainable growth. As the informal economy is a major contributor to GDP and to economic development in general, governments should intervene to promote productivity and growth of informal enterprises.

Policies adapted to the needs of different parts of the informal economy

While recommending policy interventions, at the very outset, it is important to distinguish between illegal activities producing illicit goods and services and informal activities that produce legal goods and services. Admittedly, some informal entrepreneurs deliberately conceal their activities from public authorities to avoid taxes or compliance with bureaucratic procedures. Moreover, in the case of informal wage workers, it is the employer – not the worker – who does not comply with labour legislation or pay payroll taxes (Arias et al., 2007). And many informal wage workers are employed by formal firms either directly or indirectly through subcontract arrangements.

It is important to distinguish between how policies and regulations affect informal enterprises as compared to how they affect informal employment relations. There is also an urgent need to develop policies and regulation for different categories

of workers in this sector. For example, the two types of home-based workers, i.e. micro-entrepreneurs or own-account workers who work from their homes, need different kinds of policies than subcontract workers or industrial outworkers who work from their homes (called home workers).

There is a pressing requirement for governments to develop policies that recognize the informal economy's importance, and to regulate it where necessary so that there is progress and improved well-being for informal workers, which constitute a majority of the workforce in many nations. Therefore, governments should design policies that help increase productivity and promote better working conditions of those who work in the informal economy.

Policies for informal enterprises

Possible policy interventions include providing certain micro-enterprise development programmes for own-account workers to increase their knowledge of, access to, and bargaining power in markets. Governments can support small-scale entrepreneurial activities through training, credit and marketing support. It has been shown above that capital mobility between the formal and the informal economy is essential for a positive impact of trade on incomes in the informal economy. Thus, policies facilitating informal firms' access to capital would have a positive impact on their productivity.

The policy package should be concerned with fiscal policies, trade policies, welfare policies, education, training and labour policies. While considering policy packages for sustained job creation, investment climate reforms need to be given top priority. Need for reforms can be identified by using investment climate surveys that include informal sector enterprises and own-account workers. Labour market regulations are also important but need to be considered within a broader institutional and policy framework. Improving labour market outcomes entails implementation of a set of comprehensive and complex policy reforms that remove a wide range of constraints to business operation. In the Russian Federation and Ukraine, for example, growth in private-sector employment has been achieved mainly thanks to a relatively low tax burden. However, the poor investment climate has impeded job creation. Specifically, heavy market regulations, high administrative barriers to firm formation and poor access to finance, have all slowed the pace of private-sector employment growth.

Apart from the potential to increase the productivity of informal enterprises, policies facilitating graduation to formal enterprises should be pursued. International evidence suggests that governments need to take two approaches to encourage firms to become formal (World Bank, 2005). First, recognizing that formalization will take time, governments can provide a supportive environment for the growth of productivity and improvement in working conditions in the informal sector. The key step here is to remove disincentives to growth. In India, for example, growth-restricting policies include reserving sectors for small-scale firms, regulations that raise transaction costs and costs when firms grow beyond a certain size, and other regulatory barriers discussed earlier. Another prominent example of a regulation that taxes firm growth

in India is Clause VB of the Industrial Disputes Act, which severely restricts the rights of firms employing more than 100 workers to retrench labour. In general, many procedures can be simplified (Chen, 2006). Governments can directly and indirectly (e.g. through private-sector associations) provide business services and access to capital for informal sector firms to grow. Second, governments can gradually improve enforcement by raising incentives for firms to join the formal sector and impose penalties for non-compliance with formal-sector regulations. A range of tax and regulatory reforms that reduce concessions to informal sector firms, and lower taxes, social security contributions and regulatory burdens on formal sector firms, can be employed for this purpose. In implementing the second step to increase the penalties for non-compliance, however, governments should proceed with caution. Eliminating informality can lead to high costs in the short term in terms of firm closures and worker redundancies. Rather, the spirit should be to encourage growth and increase the incentives for firms to become formal, because this will enable them to gain access to services and benefits, and grow faster.

Policies for informal workers

Informal workers can be supported by governments through training and better labour rights. However, training and credit from formal sources tend to be administered by bureaucracies that are generally unfriendly to the poor, women and those with low literacy, who predominate in the informal economy. Economic policy needs to address the disadvantages and vulnerability of the informal economy that derives from its lack of access to formal training and credit institutions. Kenya and India each provide examples of governments enacting national economic policies to encourage the informal economy.

Labour rights

Although the majority of workers in developing countries are involved in informal work, these informal jobs are often not covered by labour laws or notable social protection. Thus, the informal economy is where most jobs – but few workers' rights – are to be found. Today, informal workers and labour advocates around the world are demanding workers' rights for all workers, including informal workers. Some of the impetus behind the demand for workers' rights for the informal workforce relates to concerns about globalization. Though all types of informal wage workers are, in principle, covered by almost all international labour conventions, such internationally recognized rights of informal workers are generally not addressed in the country-specific labour law and, more importantly, they are hardly enforced.

Home workers, who mainly do the work of factory workers but are stationed at home, also need labour rights. However, there is a need to first get information about such workers, and how to reach them, before policy intervention to govern and protect their employment relations can be implemented. There is a lack of data on home-based factory workers in most regular labour surveys, which makes it difficult to understand the concerns and constraints faced by such workers.

**Box 4-6: India: National Commission for Enterprise
in the Unorganized Sector (NCEUS)**

One of the major highlights of the Fourth Report of NCEUS (2007) was the official quantification of unorganized and informal workers, defined as those who do not have employment security, work security and social security. These workers are engaged not only in the unorganized sector but in the organized sector as well.

Examination of the regulatory framework for ensuring minimum conditions of work for unorganized wage workers shows that: (1) there is a lack of comprehensive and appropriate regulations in India; and (2) even where regulations exist, they are inadequately and ineffectively implemented. The Commission reviewed and analysed the various perspectives on a comprehensive legislative framework for unorganized wage workers and made appropriate recommendations. The Commission established at a very high government practice level the need to make separate policies for informal workers and women workers.

Source: NCEUS, 2007.

Box 4-7: International labour standards

Throughout the ILO, a system of international labour standards and labour Conventions was developed during the last century. Workers' rights include both core labour standards around which there is widespread international agreement and other basic rights. The core rights, encompassed in international Conventions, include freedom of association and the right to collective bargaining; elimination of all forms of forced or compulsory labour; elimination of discrimination in respect of employment and occupation; and the effective abolition of child labour. The longstanding commitment of the ILO to protecting the core rights of all workers irrespective of where they work was reinforced in 1998 when the International Labour Conference unanimously adopted a Declaration on Fundamental Principles and Rights at Work that applies to all those who work, regardless of their employment relationship. Most recently, the ILO has explicitly incorporated the informal economy in its policy framework called "Decent Work".

Most ILO standards apply to all workers or, if targeted at workers in the formal economy, have explicit provisions for extension to other categories of workers. One ILO Convention – the Home Work Convention, 1996 (No. 177) – focuses on a specific category of worker in the informal economy: home workers or industrial outworkers who work from their homes. And two ILO Conventions – one on rural workers, the other on indigenous and tribal peoples – focuses on groups who are often in the informal economy.

Source: ILO: *Decent work and the informal economy: Abstracts of working papers* (Geneva, 2002).

Box 4-8: Example from India on labour rights

The National Commission for Enterprises in the Unorganized Sector (NCEUS) was created in 2004 to develop, implement and enforce national labour legislation in the unorganized sector (India's term for the informal economy). Earlier labour commissions in India neglected the informal or unorganized workforce.

The NCEUS mandate was to review:

- The status of unorganized/informal sector in India.
- The nature of enterprises.
- Their size, spread and scope, and magnitude of employment.
- Constraints faced by small enterprises with regard to freedom to carry out enterprise.
- Access to raw materials, finance, skills, entrepreneurship development, infrastructure, technology and markets.
- Measures to provide institutional support and linkages to facilitate easy access.
- Legal and policy environment to govern informal/unorganized sector for growth.
- Government of employment, exports and export promotion.
- Existing programmes relating to employment generation in informal/unorganized sector and suggest improvements for redesign.
- Innovative legal and financing instruments to promote the growth of the informal sector.
- Existing arrangements for estimating employment and unemployment in the informal sector, and examine why the rate of growth in employment stagnated in the 1990s.
- Elements of an employment strategy focusing on the informal sector.
- Indian labour laws, consistent with labour rights, and with requirements of expanding growth of industry and services, particularly in the informal sector, to improve productivity and competitiveness.
- Social security system availability for labour in informal sector, and make recommendations for expanding their coverage.

The Study Group on Women Workers and Child Labour, one of five study groups set up under the Commission, recommended broadening the definition of workers to accommodate more categories of informal workers, promoting equal pay for men and women workers, extending maternity coverage to many informal workers, and mandating the provision of childcare facilities in small- and medium-sized enterprises. Some of the other recommendations of this study group include concrete and comprehensive ideas of how to extend national labour legislation to cover informal women workers.

The Government, through municipalities, has to facilitate career development so that informal traders can progress from the informal to the formal sector. Government officials must ensure that informal economy actors are well trained on policies and legislation that affect their operations. There is also a need for mentors to follow up on training sessions to see if there are any changes in the way training beneficiaries conduct business.

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International labour standards need to be ratified and enforced by individual countries. In consultation with organizations of workers in the informal economy, national governments need to review how existing labour regulations can be extended to protect the rights of workers in the informal economy and whether additional labour regulation needs to be introduced to adequately protect the rights of the informal workforce. Some countries have adopted progressive labour regulation that addresses the insecurity and disadvantages of specific categories of informal or non-standard wage workers, including home workers (Canada), temporary workers (France) and sweatshop workers (California, US).

The Sector Education and Training Authority (SETA) is established to improve the skill levels of low-skilled workers. There are a number of people throughout the developing world who want and need to learn new skills. Many of the potential workers in such countries are still in schools or colleges and require special training through SETA. Even when certain workers are employed, they still need to improve their skills and learn new ones as well as to improve their productivity and get involved as formal/regular workers. In South Africa, for example, an estimated 4.3 million people are unemployed and many of them have little training and low skills. So it is clear that skills development, along with training and education, are vital elements for people in developing and middle-income countries to improve their own income and the GDP of their respective countries.

Given that a large number of people are still low skilled in many middle- and low-income countries, the majority of informal workers within these countries have little formal education. Hence, through SETA, there is a need for basic literacy and numeracy training as well as courses in areas such as managing a business, financial management, pertinent legislation and general life skills. Municipalities should work hand-in-hand with SETAs, other departments and organizations to implement training programmes aimed at building the capacity for informal-economy actors. Understanding regional differences is an important aspect in providing equal opportunities to all workers in a country. Therefore, regional governments within a country should conduct a comprehensive survey to establish training service providers who are currently working in the informal sector. Regional and local governments should play a role in facilitating and supporting skills development in these areas, for the benefit of all concerned.

4.6 CONCLUSIONS AND THE WAY FORWARD

Over 80 per cent of workers in low-income countries, 40 per cent of those in middle-income countries and 15 per cent of those in high-income countries are employed in the informal economy. While these shares are persistent, or in some regions even increasing, trade has increased dramatically during recent decades. Home-based work, piecemeal jobs, subcontracting and outsourcing have for decades been recognized as institutional means whereby employers can avoid the costs of compliance with labour regulations by shifting risks and various social obligations away from the parent com-

pany. However, the contemporary era has seen an unprecedented increase in casual labour employed in a range of rights-less contracts and appalling working conditions.

This chapter presents studies that attempt to conceptualize and formalize how trade and trade liberalization influences the informal economy, and how the informal economy impacts on the potential of a country to benefit from international trade. In this chapter, the term informal economy refers to “all economic activities by workers and economic units that are – in law or in practice – not covered or insufficiently covered by formal arrangements” and thus it includes self-employment in the informal economy and paid employment in informal occupations. Casualized and precarious work within the formal economy is therefore also included.

The informal economy has been addressed in this chapter in terms of three approaches, namely dualistic, legalistic and structuralist. Theoretical studies on the impact on the informal economy have emerged with varied conclusions depending on the assumptions they have used. Many studies find, however, that trade liberalization leads to an increase in the size of the informal economy. The impact on wages in the informal economy is less clear and depends on the specific assumptions in the model. One critical element is the mobility of capital. If capital can flow between the formal and the informal sectors, trade liberalization is likely to lead to higher wages in the informal sector. On the other hand, wages come under pressure if capital is not mobile.

Several econometric studies, mainly from Latin America, confirm a statistically significant link between trade and informality. Although the causality is not unambiguous, liberalization policies may have created incentives to cut costs by registered firms and to outsource into the informal economy. The identified impact of trade on informality is, however, small in most studies. For Brazil, studies failed to find a significant impact. In Colombia, trade increased employment in the informal sector, and in Mexico studies show that trade liberalization has led to formalization. Hence, one could conclude that the trade composition, supply capacity, details of the trade liberalization scenario and other specific circumstances, such as labour market conditions, determine the direction of the impact of trade on employment. Labour markets that facilitate adjustment processes, low administrative barriers, capital mobility and certain forms of regional trade integration are among those circumstances that may support formalization of the informal economy.

Empirical *ex post* studies have also reviewed standard trade theories and indicate that, contrary to traditional theses, trade liberalization does not necessarily lead to rising welfare of unskilled labour. In general, it has been shown that the impact of trade on the informal economy cannot be separated from the impact on employment as a whole. Development in the informal sector is linked to the overall impact that trade has on employment.

This chapter also presents *ex ante* approaches to observe the impact of trade on the informal economy. *Ex ante* studies have tried to anticipate the likely impact of trade on informal production, employment and wages. An advantage of these CGE models is that they cover the whole economy and are thus useful instruments if effects from trade policy changes spread into all sectors and if second-round effects

(e.g. through income effects) exist. This chapter also describes several CGE methodologies that take household-level data and labour market segmentations into account. Models for India and Benin are discussed in some detail. Furthermore, this chapter provides guidance for developing a model on trade and informal employment that can be used for policy analysis to support policy-makers' and social partners' decisions regarding the informal sector.

Trade reforms in certain cases have improved linkages between formal and informal economies and have benefited informal workers (e.g. in dedicated export processing zones). Although the relatively low productivity of the informal economy remains a major concern, its dynamism and flexibility may have helped countries to adapt to a new reality whereby the informal economy makes a substantial contribution to both national GDP and employment. Moreover, the informal sector provides an important opportunity for those who cannot find jobs in the formal economy to engage in small-scale economic activities to earn a living. It is important that these contributions are acknowledged by policy-makers.

Nevertheless, for a large share of workers in developing countries involved in informal work, these informal jobs often generate a low level of income compared to formal sector jobs and do not provide coverage by labour laws nor notable social protection. In many countries, the majority of the workforce is in the informal sector and workers in the informal economy are more likely to be poor than those working in the formal economy. Thus, without addressing the employment needs, constraints and vulnerabilities of those who work in the informal economy, efforts to reduce poverty will not succeed. Therefore, governments need to intervene to support small-scale entrepreneurial activities and informal economy workers to improve the productivity of informal workers and the ability of the economy to absorb such trained workers. International labour conventions also mandate governments to intervene on behalf of all workers, including those who work in the informal economy.

Policies and regulations generally have a different effect on formal and informal parts of the economy and, within the latter, effects on informal enterprises and on informal employment relations are likely to differ. Policy analysis needs to determine the various effects and identify appropriate equity and efficiency policies. The policy package should be concerned with fiscal policies, trade policies, welfare policies, education, training and labour policies. Support to informal enterprises through training, credit and marketing support will lead to sustainable growth. As the informal economy is a major contributor to GDP and to economic development in general, governments should intervene to promote productivity and growth of informal enterprises. Furthermore, appropriate economic policies on the informal economy should balance incentives, tax burdens and statutory benefits (e.g. unemployment insurance and pension funds) between large and small businesses, and between employers and informal workers. Proactive policy on the informal economy could shift the structure of aggregate demand, the prices of inputs and outputs, and the set of incentives and subsidies in favour of informal enterprises. Governments need to improve the perception of workers in the informal economy by formal institutions, including those dealing with training and credit. The disadvantages and vulnerabilities of informal

workers arising from limited access to formal training and credit institutions should be addressed. Graduation from the informal to the formal sector needs to be facilitated by, for example, low administrative barriers.

Some progress has been made. Both Kenya and India, for example, provide examples of governments enacting national economic policies to encourage the informal economy, though much still needs to be done in actual implementation of interventions in these countries. It is important that national governments consult workers' organizations in the informal economy, review existing labour legislation and extend it to protect the rights of workers in the informal economy. In addition, additional labour legislation needs to be introduced whenever necessary to adequately protect the rights of the informal workforce. Such policies will also enable countries as a whole to benefit from trade and globalization.

REFERENCES

- Agenor, P.-R.; Aizenman, J. 1994. "Macroeconomic adjustment with segmented labor markets", *NBER Working Paper* No. 4769.
- Agénor, P.-R.; Izquierdo, A.; Fofack, H. 2003. "IMMPA: A quantitative macroeconomic framework for the analysis of poverty reduction strategies", *Policy Research Working Paper* No. 3092 (Washington, DC, World Bank).
- Anderson, J.E.; van Wincoop, E. 2001. "Gravity with gravitas: A solution to the border puzzle", *NBER Working Paper* No. 8079.
- Bacchetta, M.; Ernst, E.; Bustamante, J.P. 2009. *Globalization and informal jobs in developing countries* (ILO and WTO).
- Bauch, P.A. 1991. "Linking reasons for parent choice and involvement for minority families in Catholic high schools", in *International Journal of Educational Research*, Vol. 15, No. 3-4, pp. 311-322.
- Baulch, B.; Cherel-Robson, M.; McCulloch, N. 2000. "Poverty, inequality and growth in Zambia during the 1990s", *EconWPA Econometrics* No. 0004004.
- Bautista, M.R.; Lofgren, H.; Thomas, M. 1998. "Does trade liberalisation enhance income growth and equity in Zimbabwe? The role of complementary policies", *TMD Discussion Paper* No. 32 (Trade and Macroeconomics Division, International Food Policy Research Institute).
- Bigsten, A.; Söderbom, M. 2005. "What have we learned from a decade of manufacturing enterprise surveys in Africa?", *Policy Research Working Paper* No. 3798 (World Bank, Washington, DC).
- Blanchard, O. 2005. "European unemployment: the evolution of facts and ideas", *NBER Working Paper* No. 11750.
- Bosch, M.; Goñi, E.; Maloney, W.F. 2006. *The determination of rising informality in Brazil: Evidence from gross worker flows* (World Bank, Washington, DC).
- Carr, M.; Chen, M.A. 2002. "Globalization and informal economy: How global trade and investment impact on the working poor", *Working Paper on the Informal Economy* (ILO).
- Chandra, V.; Khan, M.A. 1993. "Foreign investment in the presence of an informal sector", in *Economica*, Vol. 60, No. 237, pp. 79-103, Feb.
- Chaudhuri, S.; Mukherjee, U. 2002. "Removal of protectionism, foreign investment and welfare in a model of informal sector", in *Japan and the World Economy*, Vol. 14, No. 1, pp. 101-116, Jan.
- Chen, M. 2006. *Formalization of informal enterprises: Which, what, how and why?*, presentation to World Bank, Mar.
- Cimoli, M.; Porcile, G. 2009. "Sources of learning paths and technological capabilities: An introductory roadmap of development processes", in *Economics of Innovation and New Technology*, Vol. 18, No. 7, pp. 675-694.
- Comin, D.; Philippon, T. 2005. "The rise in firm-level volatility: Causes and consequences", *NBER Working Paper* No. 11388.
- Cornia, G.A. 1999. "Social funds in stabilization and adjustment programmes", *Research Paper* 48 (World Institute for Development Economics Research).
- Davis, L.S. 2004. "Explaining the evidence on inequality and growth: Informality and redistribution", *DEGIT Conference Paper* No. c009_032 (Dynamics, Economic Growth and International Trade).

- Davis, S.J.; Haltiwanger, J. 1990. "Gross job creation and destruction: Microeconomic evidence and macroeconomic implications", in O.J. Blanchard; S. Fischer (eds): *NBER macroeconomics annual 1990: Volume 5*.
- Davis, S.J.; Haltiwanger, J. 1992. "Gross job creation, gross job destruction, and employment reallocation", in *Quarterly Journal of Economics*, Vol. 107, No. 3, pp. 819-863, Aug.
- Davis, S.J.; Haltiwanger, J.; Schuh, S. 1996. *Job creation and destruction* (MIT Press).
- Elbadawi, I.; Loayza, N. 2008. "Informality, employment and economic development in the Arab world", in *Journal of Development and Economic Policies*, Vol. 10, No. 2, Mar.
- Farrell, D. 2004. "Boost growth by reducing the informal economy", in *The Asian Wall Street Journal*, 18 Oct.
- Feinstein, J.S. 1999. "Approaches for estimating noncompliance: Examples from federal taxation in the United States", in *The Economic Journal*, Vol. 109, No. 456, pp. 360-369, June.
- de Ferranti, D.; Lederman, D.; Malloney, W.; Perry, G. 2001. "From natural resources to the new economy: Trade and job quality" (World Bank).
- Fiess, N.M.; Fugazza, M.; Maloney, W.F. 2006. "Informal labor markets and macroeconomic fluctuations", *Working Paper* No. 2006_17 (Department of Economics, University of Glasgow).
- Fiess, N.M.; Fugazza, M. 2008. "Trade liberalization and informality: New stylized facts", *Policy Issues in International Trade and Commodities Study Series* No. 43 (UNCTAD).
- Fortin, B.; Marceau, N.; Savard, L. 1997. "Taxation, wage controls and the informal sector", in *Journal of Public Economics*, Vol. 66, No. 2, pp. 293-312, Nov.
- Galiani, S.; Sanguinetti, P. 2003. "The impact of trade liberalization on wage inequality: Evidence from Argentina", in *Journal of Development Economics*, Vol. 72, No. 2, pp. 497-513, Dec.
- García-Verdú, R. 2007. *Measurement of the shadow economy or shadowy measurement?* (World Bank).
- Gibson, B. 2005. "The transition to a globalized economy: Poverty, human capital and the informal sector in a structuralist CGE model", in *Journal of Development Economics*, Vol. 78, No. 1, pp. 60-94, Oct.
- Gibson, B.; Godoy, R. 1993. "Alternatives to coca production in Bolivia: A computable general equilibrium approach", in *World Development*, Vol. 21, No. 6, pp. 1007-1021, June.
- Glick, P.; Roubaud, F. 2004. "Export processing zone expansion in an African country: What are the labor market and gender impacts?", *DIAL Working Papers* No. DT/2004/15 (Développement, Institutions et Analyses de Long terme).
- Goldberg, P.K.; Pavcnik, N. 2003. "The response of the informal sector to trade liberalization", in *Journal of Development Economics*, Vol. 66, No. 1, pp. 75-105, May.
- Gupta, M.R. 1993. "Rural-urban migration, informal sector and development policies: A theoretical analysis", in *Journal of Development Economics*, Vol. 41, No. 1, pp. 137-151, June.
- Hall, J.C.; Sobel, R.S. 2008. "Freedom, entrepreneurship, and economic growth", in A.V. Llosa (ed.): *Lessons from the poor* (The Independent Institute), pp. 247-268.
- Handa, S.; King, D. 1997. "Structural adjustment policies, income distribution and poverty: A review of the Jamaican experience", in *World Development*, Vol. 25, No. 6, pp. 915-930, June.
- Hanson, G.H.; Robertson, R. 2006. *China and the recent evolution of Mexico's manufacturing exports* (University of California).

Trade and Employment: From Myths to Facts

- Harris J.R.; Todaro, M.P. 1970. "Migration, unemployment & development: A two-sector analysis", in *The American Economic Review*, Vol. 60, No. 1, pp. 126-142, Mar.
- Harriss-White, B. 2003. *India working: Essays on society and economy* (Cambridge University Press).
- Hugon, P. 1990. "The informal sector revisited (in Africa)", in D. Turnham; B. Salomé; A. Schwarz (eds): *The informal sector revisited* (OECD).
- Husmanns, R. 2004. *Defining and measuring informal employment* (Bureau of Statistics, ILO).
- ILO. 1993. Fifteenth International Conference of Labour Statisticians (ICLS), Resolution concerning the International Classification of Status in Employment (ICSE), in *Bulletin of Labour Statistics* (Geneva).
- ILO. 2002a. *Decent work and the informal economy: Abstracts of working papers*, International Labour Office, Geneva, 2002.
- ILO. 2002b. *Decent work and the informal economy*, Report VI, International Labour Conference, 90th Session, Geneva, 2002.
- ILO. 2003. Seventeenth International Conference of Labour Statisticians (ICLS), *Report I: General Report* (Geneva).
- ILO; WIEGO. 2000. *Social protection for women in the informal economy*.
- Ishengoma, E.K.; Kappel, R. 2006. "Economic growth and poverty: Does formalisation of informal enterprises matter?", *GIGA Working Paper* No. 20 (German Institute of Global and Area Studies).
- Jansen, M.; Turrini, A.A. 2004. "Job creation, job destruction, and the international division of labor", in *Review of International Economics*, Vol. 12, No. 3, pp. 476-494, Aug.
- Johnson, S.; Kaufmann, D.; Zoido-Lobaton, P. 1998a. "Regulatory discretion and the unofficial economy", in *American Economic Review*, Vol. 88, No. 2, pp. 387-392, May.
- Johnson, S.; Kaufmann, D.; Zoido-Lobaton, P. 1998b. "Corruption, public finances and the unofficial economy", *World Bank Discussion Paper*.
- Kar, S.; Marjit, S. 2001. "Informal sector in general equilibrium: Welfare effects of trade policy reforms", in *International Review of Economics & Finance*, Vol. 10, No. 3, pp. 289-300, July.
- Kelley, B. 1994. "The informal sector and the macroeconomy: A computable general equilibrium approach for Peru", in *World Development*, Vol. 22, No. 9, pp. 1393-1411, Sep.
- Killick T. 1995. "Structural adjustment and poverty alleviation: An interpretative survey", in *Development and Change*, Vol. 26, pp. 305-331.
- La Porta, R.; Shleifer, A. 2008. "The unofficial economy and economic development", *NBER Working Paper* No. 14520.
- Lederman, D.; Olarreaga, M.; Soloaga, I. 2006. "The growth of China and India in world markets: Opportunity of threat for Latin America exporters?", background paper for regional study: *Latin America and the Caribbean respond to the growth of China and India* (World Bank).
- Ljungqvist, L.; Sargent, T.J. 1998. "The European unemployment dilemma", in *Journal of Political Economy*, Vol. 106, No. 3, pp. 514-550, June.
- Ljungqvist, L.; Sargent, T.J. 2005. "Jobs and unemployment in macroeconomic theory: A turbulence laboratory", *CEPR Discussion Paper* No. 5340.
- Loayza, N.V. 1996. "The economics of the informal sector: A simple model and some empirical evidence from Latin America", in *Carnegie-Rochester Conference Series on Public Policy*, Vol. 45, No. 1, pp. 129-162, Dec.

- Maloney, W.F. 1999. "Does informality imply segmentation in urban labor markets? Evidence from sectoral transitions in Mexico", in *World Bank Economic Review*, Vol. 13, No. 2, pp. 275-302, May.
- Marjit, S.; Acharyya, R. 2003. *International trade, wage inequality and the developing economy – A general equilibrium approach* (Physica-Springer Verlag).
- Marjit, S.; Beladi, H. 2005. *International trade and interregional disparity* (City University of Hong Kong), mimeo.
- Marjit, S.; Maiti, D.S. 2005. "Globalization, reform and the informal sector", *Working Paper* No. RP2005/12 (World Institute for Development Economic Research).
- Matthieu, B.; Mehl, A. 2008. "China's And India's roles in global trade and finance: Twin titans for the new millennium?", *Occasional Paper Series* No. 80 (European Central Bank).
- Meagher, K.; Yunusa, M-B. 1996. *Passing the buck: Structural adjustment and the Nigerian urban informal sector* (United Nations Research Institute for Social Development).
- Melitz, M.J. 2003. "The impact of trade on intra-industry reallocations and aggregate industry productivity", in *Econometrica*, Vol. 71, No. 6, pp. 1695-1725, Nov.
- Mondino, G.; Montoya, G. 2002. "The effects of labor market regulations on employment decisions by firms: Empirical evidence for Argentina", in J. Heckman; C. Pages (eds): *Law and employment: Lessons from Latin America and the Caribbean* (University of Chicago Press).
- NCEUS. 2007. *Report on conditions of work and promotion of livelihoods in the unorganised sector* (National Commission for Enterprises in the Unorganised Sector, Government of India).
- Neck, R.; Schneider, F. 1993. "The development of the shadow economy under changing tax systems and structures", in *Finanzarchiv*, Vol. 50, No. 3, pp. 344-369.
- OECD. 2009. "Is informal normal? Towards more and better jobs in developing countries", in J. Jutting; J. de Laiglesia (eds): *An OECD development centre perspective*.
- Paquet, M.; Savard, L. 2009. "Impact of informal re-exports between Benin and Nigeria: A CGE analysis", *Working Paper* No. 09-14 (Departement d'Economie de la Faculte d'administration à l'Université de Sherbrooke).
- Peattie, L. 1987. "An idea in good currency and how it grew: The informal sector", in *World Development*, Vol. 15, No. 7, pp. 851-860, July.
- Perry, G.E.; Maloney, W.F.; Arias, O.S.; Fajnzylber, P.; Mason, A.D.; Saavendra-Chanduvi, J. 2007. *Informality: Exit and exclusion* (World Bank).
- Porto, G.; Galiano, S. 2006. "Trends in tariff reforms and trends in wage inequality", *Policy Research Working Paper* 3905 (World Bank).
- Ranis, G.; Stewart, F. 1997. "The urban informal sector within a global economy", in U. Kirdar (ed.): *Cities fit for people* (United Nations, New York).
- Roberts, B.R. 1989. "Employment structure, life cycle, and life chances: Formal and informal sectors in Guadalajara", in L.A. Benton; M. Castells; A. Portes (eds): *The informal economy: Studies in advanced and less developed countries* (Johns Hopkins University Press).
- Savard, L.; Adjovi, E. 1997. "Adjustment, liberalisation and welfare, in presence of health and education externalities: A CGE applied to Benin", *Cahier* No. 97-07 (Centre de Recherche en Économie et Finance Appliquées).
- Schneider, F.; Enste, D.H. 2000. "Shadow economies: Size, causes and consequences", in *Journal of Economic Literature*, Vol. 38, pp. 77-114, Mar.

Trade and Employment: From Myths to Facts

- Schneider, F.; Enste, D.H. 2000. *Schattenwirtschaft und schwarzarbeit: Umfang, ursachen, wirkungen und wirtschaftspolitische empfehlungen* (Munich).
- Shimer, R. 2005. *Reassessing the ins and outs of unemployment* (University of Chicago).
- Singh, N.; Sapra, M.K. 2007. "Liberalization in trade and finance: India's garment sector", in B. Harriss-White; A. Sinha (eds): *Trade liberalization and India's informal economy* (Oxford University Press).
- Sinha, A.; Adam C.S. 2000. *Trade policy reform and the informal sector in India*, paper presented at the Thirteenth International Conference on Input-Output Techniques at Macerata, Italy, Aug.
- Sinha, A.; Adam C.S. 2006. "Reforms and informalization: What lies behind jobless growth in India", in B. Guha-Khasnobis; R. Kanbur (eds): *Informal labour markets and development* (Palgrave Macmillan).
- Sinha, A.; Siddiqui, K.A.; Munjal, P. 2007. "A SAM framework of the Indian informal economy", in B. Harriss-White; A. Sinha (eds): *Trade liberalization and India's informal economy* (Oxford University Press, India).
- Sinha, A.; Siddiqui, K.A.; Sangeeta, N. 2003. *The impact of alternative economic policies on the informal sector: A multisectoral study* (NCAER).
- Sinha, A. 1999. "Trade liberalisation and informal households: A study using a CGE model for India", *Research Report No. 26* (Queen Elizabeth House, University of Oxford).
- Sinha, A. 2009. "Impact of global slowdown on employment and income in India: A CGE model analysis", prepared for a study on *The consequences of the global economic crisis* (NCAER and World Bank), mimeo.
- de Soto, H. 1989. *The other path: The invisible revolution in the Third World* (Tauris).
- Squire, L. 1991. "Poverty and adjustment in the 1980s: Introduction", in *World Bank Economic Review*, Vol. 5, No. 2, pp. 177-185, May.
- Stallings, B.; Peres, W. 2000. *Growth, employment and equity: The impact of the economic reforms in Latin America and the Caribbean* (Economic Commission for Latin America and the Caribbean and Brookings Institution Press).
- UNDP. 1999. *Human development report 1999*.
- UN DESA. 2005. *The inequality predicament: Report on the world social situation 2005*.
- Van der Hoeven, J. 1996. "Differential and mixed differential - difference equations from the effective viewpoint". Preprints.
- White, H. 1997. *Poverty and adjustment in Sub-Saharan Africa: A review of the literature*, report prepared for the evaluation of SPA (Institute of Social Studies).
- World Bank. 2005. "The informality trap, private sector development", *View Point Note No. 301* (Washington, DC).
- World Bank. 2007. *Argentina poverty assessment – Informal employment in Argentina: Towards understanding its causes and consequences*.
- Wright, M.L.J. 2004. "New empirical results on default: A discussion of 'A gravity model of sovereign lending trade, default and credit'", *IMF Staff Papers*, Vol. 51.

ANNEX 4.A: DEVELOPING A KNOWLEDGE TOOL ON TRADE AND INFORMALITY

This annex provides information for the development of a knowledge tool on trade and informality. Such a tool could serve to train relevant government ministry officials and researchers to support policy-makers in designing policies that address the challenges of trade and informality.

First, an outline for the background information is provided. This information is provided in this chapter and could be complemented by additional information from other parts of this book, especially the overviews of trade and employment (Chapter 2) and methodology (Chapter 3), but also the chapter on gender and trade and trade adjustment (Chapter 6).

Second, information about strengths and weaknesses of different analytical approaches is provided in a structured form.

Third, for the development of a CGE model, data requirements are discussed and four examples of possible data sources are provided.

4.A.1 Outline of background information for a knowledge tool

Module 1: What is informal work: Concepts and status

- 1.1 Overview
- 1.2 Aims of the module
- 1.3 Why measure informal work?
- 1.4 The status and trends in data collection on informal employment

Module 2: Guide to policy options, responses and advocacy on informal work

- 2.1 Overview
- 2.2 Aims of the module
- 2.3 Integration of informal work in national policies
- 2.4 What are the perspectives in analysing policy implications of informal work?
- 2.5 Informal work in labour-market and employment policies
- 2.6 Policy options and responses for informal work

Module 3: Guide on methods for measuring informal work through case studies

- 3.1 Overview
- 3.2 Aims of the module
- 3.3 Concepts and terminology
- 3.4 Building a system of interaction with respondents in the informal economy
- 3.5 Building focus-group discussion issues using good practices
- 3.6 Build field-study questionnaires using good practices

Module 4: Guide to building analytical tools for integrating informal work in quantitative models

- 4.1 Overview
- 4.2 Aims of the module
- 4.3 Best practices for quantitative techniques to study trade and informality
- 4.4 Guide to building SAMs
- 4.5 Guide to building CGEs

4.A.2 Strengths and weaknesses of possible analytical approaches

Qualitative approach

Strengths

Qualitative approaches, through the use of various case studies and focus-group discussions of informal worker and enterprises, could provide a very detailed understanding of the focus of the trade reforms (see, for example, Singh and Sapra, 2007). Information on the exact implementation procedures and the changes experienced by the group in which the researchers are interested can be obtained.

Some disadvantages

However, this approach cannot identify the exact linkage between, for example, trade or fiscal reforms and the welfare changes, as these cannot be tested. The results seen after a policy change could be due to other reasons or mixed outcomes, and no direct linkage can be traced without any quantitative connection. Moreover, in cases where there is no impact observed after a policy change, this could in fact be due to some countering factors, even though policy changes had a direct impact on the stated objective. Also, the conclusions drawn from qualitative analyses cannot be taken as general, and should be limited only to the specific group analysed. Such studies, in spite of being very valuable for in-depth understanding, have significant limitations. The inability of descriptive studies to provide a robust causality between impact and result is one of the reasons for the popularity of research based on quantitative approaches.

Quantitative approaches

Strengths

Quantitative approaches, such as those based on CGE models, are numerical representations of economic theory and intuition. The models can be used to address a broad range of policy issues and can take into account “second-round” effects of policy changes (in circumstances where basic intuition can carry us only so far).

- It is important to note that CGE models:
- Can be used to decompose the effects of policy changes.
- Can be used to track the distributional consequences of policy choices.
- Can evaluate feasible policies or “policy packages” in a systematic fashion.
- Can assist in policy formulation by permitting comparisons across the set of compatible policy combinations.
- Are explicitly structural (they do not encounter the identification problems associated with econometric models).
- Force modellers to be explicit about assumptions (which can be changed).
- Offer considerable scope for altering aggregation (across sectors, institutions, households).

- Demand and enforce data consistency, thus identifying data gaps.
- Demand clarity in specification.
- Help prioritize areas of data collection.

Some disadvantages

- CGE models are complex and require skilled maintenance.
- Quantitative CGE models are data-demanding: they do not tolerate inconsistencies in data.
- CGE models are not “forecasting” tools.

4.A.3 Information to develop an informal-economy related CGE model

In its simplest form, the application of CGE simulation techniques is identical to the procedures followed in disaggregating household categories in a standard SAM model. The steps outlined here relate to data requirements to build an informal economy in a SAM that drive the building of a CGE model for technical assistance projects.

Social accounting matrix (base data set for developing CGE)

Bangladesh

Social accounting matrix, 1993–94; available at:

<http://www.ifpri.cgiar.org/datasets/results/taxonomy:5169?page=2>.

Social accounting matrix, 2005; available from Selim Raihan, University of Dhaka, Bangladesh, at: selim.raihan@gmail.com.

Benin

Social accounting matrix, 2006 (Benin’s Finance Ministry, Cotonou).

Paquet and Savard (2009).

Guatemala

Alarcón, J. 2006. “Matriz de Contabilidad Social para Guatemala (2001)”, final report, Institute of Social Studies (ISS) and Secretaría General del Consejo Nacional de Planificación Económica de Guatemala (SEGEPLAN), The Hague, Feb.

Indonesia

Social accounting matrix, 1995 (in billions of rupiah at purchasers’ prices).

Source: Biro Pusat Statistik. 1998. *Sistem Neraca Sosial Ekonomi, 1995* (Jakarta), tables 3 and 6.

Dimensions: 109 accounts and employment of 16 categories of labour.

Imports: Imports c.i.f., duties and taxes are considered negative in the final demand columns of an input-output table.

Available at: http://storm.ca/~sdamus/io_data.htm.

Input-output tables

Bangladesh

Input-output table, 1962/63 (in 100,000 rupees at current purchasers' prices).

Source: Khan, A.R.; MacEwan, A. 1967. *Regional input-output tables for East and West Pakistan* (Pakistan Institute of Development Economics).

Dimensions: 35 sectors, industry by industry.

Imports: c.i.f. plus duty column in the final demand wing. Imports from West Pakistan are shown in a separate column.

Exports: In two columns for exports to West Pakistan and other exports.

Available at: http://storm.ca/~sdamus/io_data.htm.

Benin

Not available in the public domain.

Guatemala

Input-output table, 1971 (in quetzales, at producers' prices).

Source: Centro de Estudios Centroamericanos de Integración y Desarrollo. 1978. *Relaciones económicas intersectoriales: matrices de insumo-producto de Guatemala, año 1971*.

Dimensions: 45 sectors, industry by industry.

Imports: In one intermediate input row, including duties.

Available at: http://storm.ca/~sdamus/io_data.htm.

Indonesia

Input-output table, 1995 (in millions of rupiah at producers' prices).

Source: Biro Pusat Statistik. 1998. *Table input-output Indonesia, 1995, Vol. I* (Jakarta), table 2.

Dimensions: 66 sectors, commodity by commodity.

Imports: Imports c.i.f., duties and taxes in negative F.D. columns.

Available at http://storm.ca/~sdamus/io_data.htm.