CHAPTER 2
HOW ARE TRADE COSTS EVOLVING AND WHY?

Contributed by the World Bank

Abstract: *Recent advances in trade theory and empirics make it possible to infer trade costs from the observed pattern of trade and production across countries. This chapter uses that insight to provide evidence on recent trends in trade costs, focusing on the developing world. The data show that developing countries, particularly low income countries, suffer from relatively high trade costs. They risk continued marginalisation from the global trading economy. However, empirical research suggests a variety of policies that can be effective in reducing trade costs, such as improving trade facilitation and logistics performance, boosting connectivity and improving the business environment. There is scope to tackle trade costs on a regional basis – and in a way that is strongly compatible with the aims and values of the multilateral trading system. Going forward, it will be important for partner countries and donors to learn from successful examples of on-the-ground projects that have reduced trade costs sustainably.*

INTRODUCTION

The previous chapter showed that trade costs are an important determinant of the cross-country pattern of trade and production. They have an effect on industrial specialisation and, consequently, on incomes, poverty rates and many other important economic outcomes. In the current trade policy environment, the concept of competitiveness is key. Many different things are meant by the term, but to economists it most typically encompasses the Ricardian concept of productivity-based comparative advantage. A country is said to be competitive in industries where it has a high level of productivity relative to others. Competitiveness is seen as an important driver of economic outcomes, and countries all around the world are working hard to become more competitive and attract a greater share of economic activity, including trade and investment. Trade costs are, of course, an important link between productivity and outcomes. Under Ricardo's paradigm, in a world without trade costs countries would specialise in the industries in which they are relatively more productive. Trade costs alter that outcome and give rise to a different pattern of revealed competitiveness.

Building on the framework set out in Chapter 1, this chapter will take a quantitative look at trade costs as a driver of competitiveness and economic outcomes. The discussion will be data driven. By way of introduction, it is useful to look at some simple correlations to examine the links between trade costs on the one hand and important indicators of competitiveness and economic outcomes on the other. For the moment, we do not provide a technical, empirical definition of the term trade costs – we will discuss this in more detail in the next section. Suffice to say the data we employ reflect the broad sense in which the term will have been used in this report. It is important to stress that the relationships we are going to examine are correlations only. We will not be saying anything about causation – for that, a detailed econometric model is required, not a simple chart. The connections we will be uncovering are evidence of associations, or co-movement, between variables.

TRADE COSTS DRIVE COMPETITIVENESS AND TRADE OUTCOMES

A first key linkage the data can say something about is between trade costs and trade growth. Based on the analysis in Chapter 1, we would expect countries that do more to reduce trade costs to experience faster relative growth in exports than other countries. Is that in fact what the data say? Figure 2.1 presents evidence supporting that contention. The horizontal axis of the figure shows the percentage change in trade costs between 1995 and 2012, and the vertical axis shows the percentage growth in merchandise exports over the same period. The line of best fit is downward sloping, which indicates a negative correlation: bigger reductions in trade costs are associated with stronger trade growth, just as expected. — we cannot be sure based just on a —it would suggest that policies to reduce trade costs can indeed be effective in boosting integration into the global trading economy, in the way suggested in Chapter 1.

Figure 2.1 Percent change in trade costs versus percent change in merchandise exports, 1995-2012
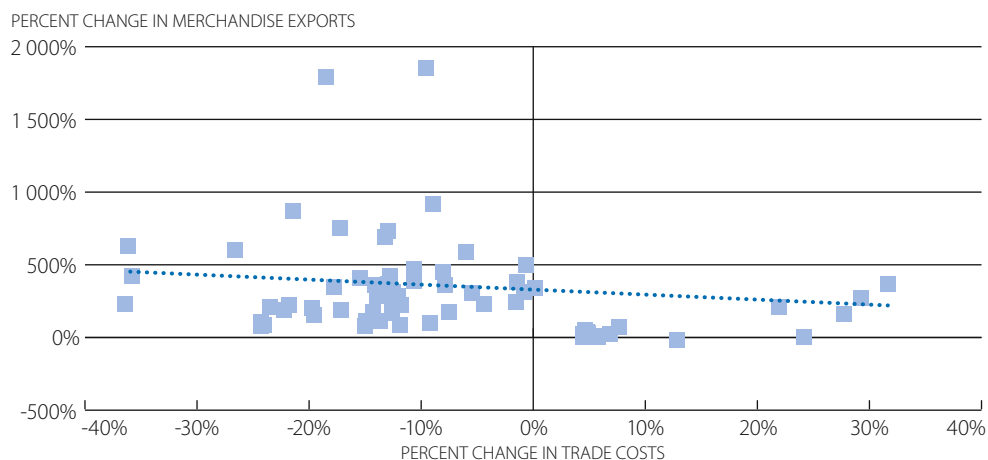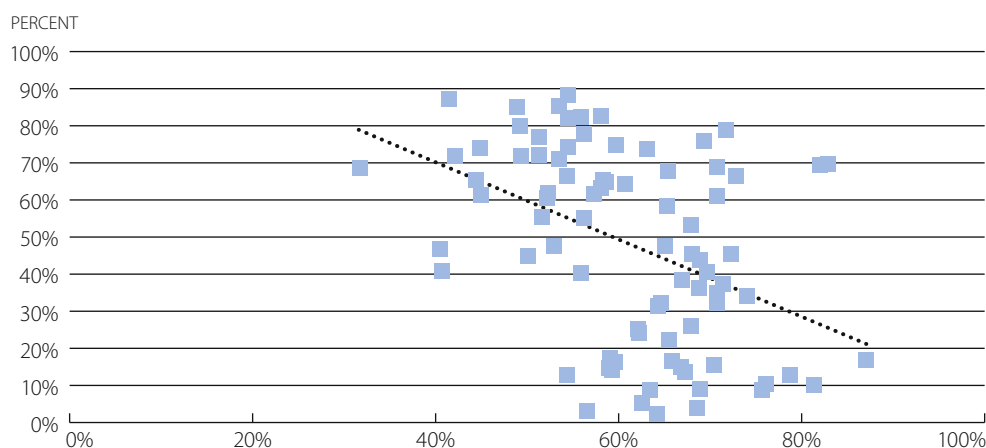

Source: UNESCAP-World Bank Trade Costs Database; World Development Indicators.

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From a competitiveness standpoint, not all sectors of the economy are created equal. Some sectors have the potential for significant spillovers, such as technology creation or upgrading of production processes or human skills. In the context of economic development, manufacturing has usually been considered such a sector, as opposed to agriculture, in which technological spillovers are less significant (although not entirely absent either). Many developing countries are therefore keen to develop their manufacturing potential as a way of fostering these positive spillover effects in addition to the benefits that come with labour intensity – a factor that can help reduce unemployment and encourage people to move into the formal labour market.

Trade costs in a relative sense can affect the balance between sectors – for example between manufacturing agriculture. In a world without trade costs, countries specialise according to their comparative advantage. When trade costs are real, they distort specialisation decisions. For instance, protection of the agricultural sector encourages resources to flow into agriculture at the expense of other sectors, like manufacturing, and supports an anti-export bias in those other sectors. Examining the relative balance of trade costs across sectors is therefore important from a competitiveness standpoint because it has implications for the ways in which export activity is structured. Figure 2.2 shows trade costs in manufacturing relative to agriculture on the horizontal axis, and the percentage of manufactures in total merchandise exports on the vertical axis. The downward sloping line of best fit shows there is an association (again, a correlation, not causation) between lower trade costs in manufacturing relative to agriculture, and specialisation in manufacturing exports.

Figure 2.2 Trade costs in manufacturing relative to agriculture versus manufactures exports as a proportion of total merchandise exports, 2012

Source: UNESCAP-World Bank Trade Costs Database; World Development Indicators.

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Another issue of concern for many developing countries is participation in GVCs. This issue is linked to the previous one, since many well-known GVCs – but not all – are based on manufacturing. GVCs link together businesses in a range of countries, some providing design and headquarters services, some doing research, some manufacturing components of different sorts and some assembling everything into a final product that is then shipped to a consumer somewhere else in the world. GVCs offer real opportunities for employment and manufacturing sector growth, as well as production upgrading through investment and technology adoption and adaptation over time. Many developing countries see GVCs as an opportunity to deploy a new development paradigm, focused on the mastery of tasks rather than complete commodity production cycles. Of course, GVCs are not without their critics, and attention also needs to be paid to the ways in which they are structured and value added is accounted for throughout the network. But on balance there is an opportunity for development in GVCs if the right policy settings are in place.

Theory and practical business sense suggest that trade costs are important for participation in GVCs. These production models need to move goods across borders multiple times prior to final assembly. Transport is a key input, and border procedures need to be fast, reliable and cost effective if the business model – in which inventories are kept very low – can succeed. We would therefore expect that countries with lower levels of trade costs would be more involved in GVCs than those with higher levels of trade costs. Figure 2.3 investigates this contention, using data from the OECD-WTO Trade in Value Added Database. Trade costs are again on the horizontal axis, and the vertical axis records values of an index of GVC participation based on the OECD-WTO data. A country that has a higher participation index exports more of its goods as intermediates that are used in other countries' exports and/or imports more intermediate goods for use in its own exports. Both types of linkages are evidence of participation in GVCs.

As expected, the line of best fit in Figure 2.3 is downwards sloping. Countries with lower trade costs tend to have higher GVC participation indices. Again, this is a statistical association that is not necessarily causal. But the linkage is potentially important from a development and competitiveness standpoint. There is reason to believe that policies that reduce trade costs might help developing countries integrate further into GVCs.

Figure 2.3 Trade costs in manufacturing versus GVC participation index, 2009
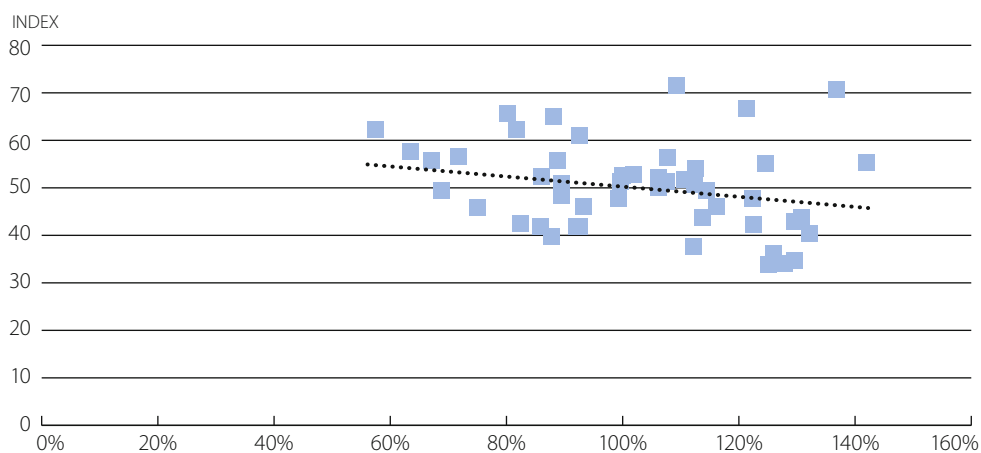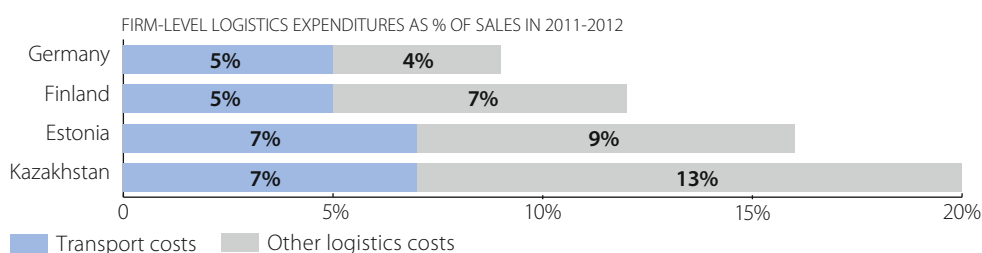

Source: UNESCAP-World Bank Trade Costs Database; OECD-WTO Trade in Value Added Database.

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The three associations presented in this section have shown that based on a simple review of the data trade costs matter for important trade and development outcomes. If borne out as causal relationships, these associations would imply that lowering trade costs can improve country competitiveness. This has important implications for the growth of industry and its internationalisation.

We have presented these associations using data on trade costs from a new UNESCAP-World Bank database. It reflects very well the way in which trade costs were defined in Chapter 1. We now consider the database in more detail, working from a discussion of its roots in economic theory and trade empirics to an analysis of its main trends and patterns and their association with development and aid for trade.

Another source of information on the link between trade costs, sources of trade and competitiveness are the surveys of costs actually incurred by firms, such as logistics costs. At the firm level, a major mechanism for the transmission of trade costs is the cost actually incurred by firms to move goods, generally referred to as logistics or total logistics costs. Logistics costs include three categories: administrative, transport and inventory costs. Logistics costs reflect logistics performance, with clear patterns across country groups. (Figure 2.5). Differences in logistics costs are primarily associated with the reliability of supply chains rather than with transportation costs. Inventory costs are higher in countries with less efficient logistics.
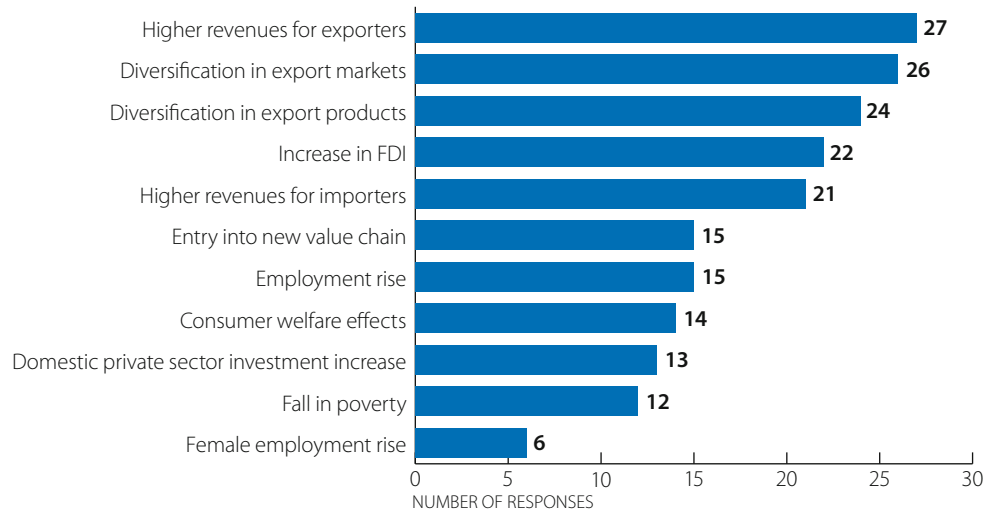
Figure 2.4 Structure of Logistics Expenditures

FIRM-LEVEL LOGISTICS EXPENDITURES AS % OF SALES IN 2011-2012

Country	Transport costs	Other logistics costs
Germany	5%	4%
Finland	5%	7%
Estonia	7%	9%
Kazakhstan	7%	13%

■ Transport costs   ■ Other logistics costs

Sources: TU Berlin for Germany, Turku School of Economics for Finland and Estonia and World Bank for Kazakhstan.

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Along with Chapter 1, this section has examined the possible economic and development outcomes that may be associated with lower trade costs. Partner countries have direct experience of these effects and can speak to how real they are in practice, as opposed to in principle or on average (Box 2.1).

BOX 2.1 Outcomes of lower trade costs – what partner countries say

Figure 2.4 presents responses from the OECD-WTO aid-for-trade survey. Partner countries identify impacts associated with actions taken to reduce trade costs. As the figure shows, policies that aim to reduce trade costs have great potential to support important economic and development outcomes.

Figure 2.5 Partner country impacts associated with actions taken to reduce trade costs

Impact	Number of responses
Higher revenues for exporters	27
Diversification in export markets	26
Diversification in export products	24
Increase in FDI	22
Higher revenues for importers	21
Entry into new value chain	15
Employment rise	15
Consumer welfare effects	14
Domestic private sector investment increase	13
Fall in poverty	12
Female employment rise	6

NUMBER OF RESPONSES

StatLink ⟚ http://dx.doi.org//10.1787/888933240862

Source: OECD-WTO aid-for-trade survey.

Indeed, inventory costs are the consequence of a lack of reliability of the supply chain in a development context: firms need to maintain higher inventory to hedge against the consequences of less predictable deliveries. Furthermore, firms willing to enter global manufacturing value chains encounter a double penalty, with extra logistics costs on both inputs and exports. The causes of unreliability are rarely found in deficient physical infrastructure but rather in inefficient clearance processes, especially at land borders and in ports. Poor services available to traders, such as rail or truck services, forwarding or customs agents, also compound logistics costs.

SMEs are even more vulnerable to supply chain inefficiencies than large firms, typically facing doubled logistics costs. The first reason for this is pure economics. Smaller firms have fewer economies of scale in their inventory (via a higher inventory ratio) and hence incur higher inventory costs, which can be punitively high in developing countries with poor logistics performance. Size is also a disadvantage in several other respects: Small exporters tend to be more affected by a lack of transparency in clearance processes and depend more on independent services to move goods or clear them with border agencies. Logistics services may not be forthcoming when SMEs need to consolidate their goods in single containers to reach their destination market. Consolidation services can be very expensive or simply not available at all. Data from a 2012 study on trends and strategies in logistics supports the notion that many SMEs encounter disproportionally high logistics costs: on average logistics costs may be more that twice as high for industrial firms with less than 250 staff compared to those more than 1 000 staff (Straube et. al., 2013).

Trade costs can be inferred from the global pattern of trade and production

Chapter 1 reported an estimate by Anderson and Van Wincoop (2004) that a representative developed country's level of trade costs are around 170% of the producer price of exported goods. That estimate was based on a bottom-up approach, in which research identifying different trade cost factors was effectively added up to give the overall headline number. Although useful as an order of magnitude –including for emphasising to economists and others that trade costs are large relative to tariffs – this kind of estimate is really a back of the envelope calculation that suffers from a number of drawbacks.

First, how can a bottom-up estimate be sure that it includes all the relevant factors? Anderson and Van Wincoop (2004) used a selection of trade cost factors that had been well established in the previous literature. Yet they did not address many of the issues discussed in the previous chapter, at least not in detail. In particular, behind-the-border regulatory barriers arguably received insufficient attention, given that we know from business that these factors loom large in decision making.

Second, a bottom-up approach necessarily suffers from omitted-variable bias. Each of the estimates that Anderson and Van Wincoop (2004) added together focused on one trade cost factor and were perhaps controlled for a small number of others. Yet the act of adding up the various estimates suggests that all the factors are relevant. As a result, each econometric model needs to include data on all factors, or it risks suffering from omitted-variable bias and providing potentially misleading estimates.

Clearly, it would be desirable to have another approach to measuring trade costs, one less based on bottom-up summation. Intuitively, the opposite approach is top down, i.e. inferring what the level of trade costs must be given the observed pattern of trade and production. Application of a top-down approach necessarily requires the use of some economic theory because trade and production have to be related to trade costs in a cross-country setting. But once the relationship is established, it can be rearranged and solved to give an expression for trade costs. This is in the sense of the full range of factors that drive a wedge between export and import prices rather than the selection used in summation exercises, even if it is very representative.

The gravity model can be used to infer trade costs

The most common way of modelling trade flows between countries, and indeed the model type that Anderson and Van Wincoop (2004) relied on in their summation exercise, is the gravity model. It has a decades-old history in international economics. Its core findings are regarded as some of the most reliable empirical regularities in all of economics, not just trade. At its most basic, the gravity model – which takes its name from an analogy to Newton's law of gravity – postulates that trade between two countries is stronger the larger they are and weaker the further apart they are. Distance is a proxy for trade costs, yet other factors can easily be included.

The gravity model started its life as a sensible empirical rule of thumb that matched the available data well. In more recent times, however, it has been given a sound set of theoretical foundations. Indeed, it has been observed that just about any reasonable trade model should give rise to an equation that looks something like gravity. The important point is that the model now rests on firm microeconomic foundations, based on sometimes sophisticated assumptions about consumer and producer behaviour.

In gravity modelling, the analyst's task is typically to assess the effects of a given trade cost factor on bilateral trade. Trade costs are given, and trade is modelled as the endogenous variable. However, it is perfectly possible to use some basic mathematics to reverse the setup – the "inverse" gravity model of Novy (2013). In that approach, trade costs are expressed as a function of observables (trade and production). The inverse gravity approach produces an index of trade costs expressed in *ad valorem* equivalent terms for each bilateral country pair in a given trade database. The index is the ratio of international trade costs to domestic trade costs and is bilateral in the sense of being an average of trade costs from country A to country B and from country B to country A. Intuitively, if all else is held constant and a country starts to trade more with a neighbour relative to the amount it trades with itself (intra-national trade), it must be because the ratio of domestic to international trade costs has changed. It is this basic insight that the inverse gravity methodology captures.

The UNESCAP-World Bank trade costs database implements the inverse gravity methodology

Novy (2013) implemented the inverse gravity approach for a small number of developed countries, and subsequently extended its reach in a series of papers. However, data constraints meant that the methodology was primarily useful for providing information on developed country trade costs. A collaborative project between UNESCAP and the World Bank sought to bring developing countries into the picture (Arvis et al., 2013). Doing so required a major data collection effort, focusing on international trade data and national accounts data (production).

The UNESCAP-World Bank Trade Costs database now provides data on bilateral trade costs for up to 167 developed and developing countries over the 1995-2012 period, differentiating between trade in agricultural products and in manufactured goods (updated annually with a lag due to data reporting schedules). It differentiates between trade in agricultural products and trade in manufactured goods. Trade costs are reported in *ad valorem* equivalent terms as the ratio of international to domestic trade costs and are bilaterally symmetrical. Disaggregation is by country pair, sector and year.

The database is the first attempt to systematically and comprehensively measure the level of trade costs in the developing world. It is freely available through UNESCAP and World Bank servers. It takes a nearly 20-year time horizon to provide scope to analyse changes in the trade costs environment and to relate them back to policy. The next two sections develop data-based insights using the information in the database. In interpreting results, a significant caveat should be kept in mind: because of the structure of the inverse gravity model used, it is not possible to identify international trade costs in the strict sense but only as the ratio of international to intra-national trade costs (the model is discussed further in Arvis et al, 2013). Changes in that ratio therefore need to be interpreted carefully. An increase could indicate that international trade costs are increasing, or it could alternatively mean that domestic trade costs are falling or that both processes are happening simultaneously. Known realities on the ground make it possible to limit the seriousness of this shortcoming in analytical work. The method and its results have been extensively used by other researchers – including by the OECD (2014), which uses trade costs data like these to quantify the reduction in trade costs due to the implementation of the WTO's Trade Facilitation Agreement (TFA).
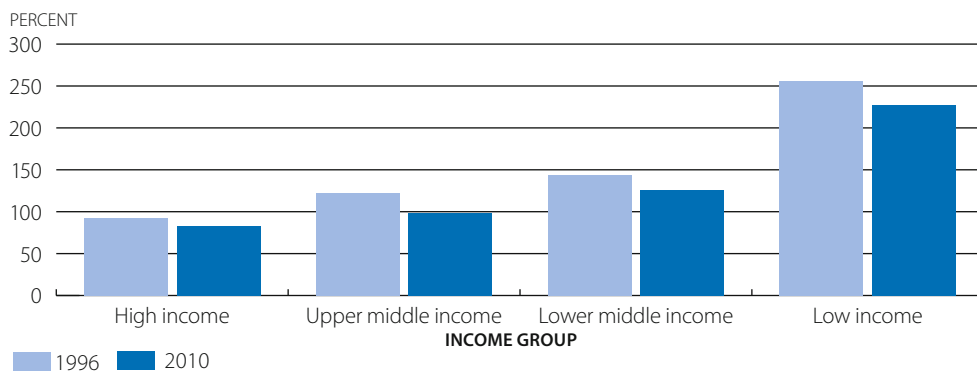
TRADE COSTS ARE HIGHER IN LOWER INCOME COUNTRIES

What does the UNESCAP-World Bank trade costs database say about the most important patterns in trade costs across countries and the key trends through time? The first point that emerges clearly from the data is that trade costs decrease as per capita income increases: trade costs are lowest in high income countries and highest in low income countries. The relationship proceeds steadily from one income group to the next (Figure 2.5). Although developing countries have made great strides in recent years in terms of their integration into the global trading system, there are still many poorer countries that are relatively marginalised because their trade costs are high.

To give an idea of the orders of magnitude involved, we can compare figures for 2010. On average, trade costs in high income countries for the manufacturing sector were 82%, compared with 98% in the upper middle income group, 125% in the lower middle income group and 227% in the low income group. These numbers make clear that it is by far the low income group that is the most marginalised in world trade: on average, trade costs there are close to three times as high as in the most developed countries. The gap is less striking, but still apparent, for the two middle income groups – which is in line with the fact that it is primarily the middle income countries that have been increasing their share of world trade markedly over recent years.

It is also important to analyse the dynamics of Figure 2.6, which shows the change in trade costs in each country group between 1996 and 2010. The upper middle income country group is where the fastest decline in trade costs has taken place: a fall of nearly 20% over the sample period. The difference with the next group, the lower middle income countries, is considerable – trade costs there fell by 13% during the same time. Results for the high and low income countries are very close, with falls of about 11% each.

Figure 2.6 Trade costs in manufacturing, 1996 and 2010, by income group

Source: UNESCAP-World Bank trade costs database

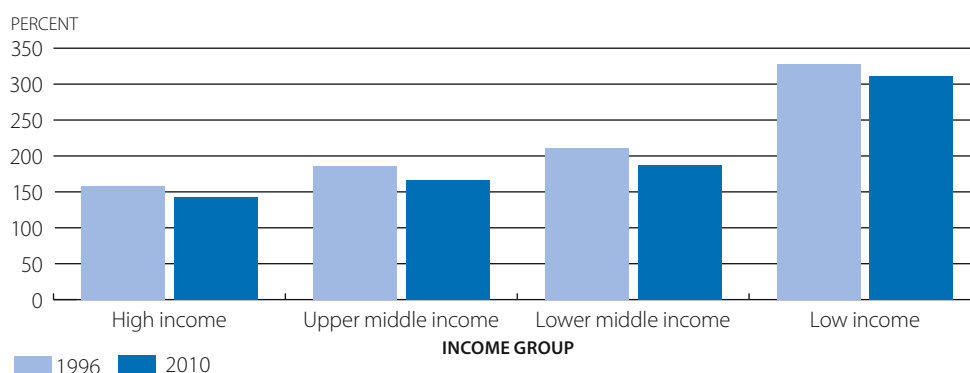StatLink ᠊ᡂ᠍ http://dx.doi.org//10.1787/888933240886

From a policy perspective, these trends have two important implications. First, some middle income countries have been very successful in lowering trade costs in recent years – without a doubt the same countries that have seen their share of world trade increase so impressively, both before and after the Great Trade Collapse. The second implication is less encouraging from a development standpoint: the relative marginalisation of the low income countries, on average, continues unabated. They have drawn no closer to the other groups in relative terms and have even lost ground with respect to other developing countries, despite the fact they have kept pace with changes in the high income countries. In terms of the level and trend of their trade costs, the low income countries are in general in a very worrying position: to boost their competitiveness relative to other developing countries, they need to take significant actions to lower their trade costs. They will, of course, need support from the aid-for-trade community if they are to do that.

Thus far, the discussion has focused on trade costs in manufacturing. Figure 2.7 takes the discussion in a different direction, to agriculture, the other macro-sector in the UNESCAP-World Bank database. The first striking fact about Figure 2.7 is its similarity to Figure 2.6: trade costs in agricultural markets are also higher in poorer countries, and the pattern is consistent across income groups. However, the levels of trade costs involved are starkly different: trade costs in agriculture are much higher than in manufacturing, in all income groups. The gap is starkest in the high income group: although their absolute level of trade costs is lowest, agriculture trade costs are 74% higher than for manufacturing. The difference is less as we move down the income groups: 70% for upper middle income countries, 50% for lower middle income countries and 37% for low income countries. These results have important implications for competitiveness in agriculture, a key development sector. Although manufacturing is crucial for its spillover potential, it is difficult for a country to develop without steady productivity gains in agriculture, which allow labour to be reallocated from farm to factory, at the same time as maintaining or increasing food production.

In terms of dynamics, trade costs in agriculture are falling from their high levels in all income groups. However, the rate of change in all cases is slower than in manufacturing. In this case, the low income countries are becoming even more marginalised from international agricultural markets: in 1996 their trade costs were 108% higher than those of the high income countries, whereas in 2010 the difference was 117%. Trade costs in agriculture are high absolutely and in relative terms. They are falling more slowly than in manufacturing, and the marginalisation of low income countries appears to be worsening, not improving. Effective policies to lower the full range of trade costs that affect agricultural producers and consumers are much needed, as is donor support for successful programmes that help developing country producers deal more effectively with the trade costs they face. An example would be those linked to product standards (including sanitary and phyto-sanitary measures) in developed countries.

Figure 2.7 Trade costs in agriculture, 1996 and 2010, by income group

Source: UNESCAP-World Bank trade costs database.

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## EXPERIENCE DIFFERS SUBSTANTIALLY WITHIN THE DEVELOPING WORLD

The previous section has already made clear that trade costs vary widely across developing countries, particularly between the low and middle income groups. Variation is also regional, however, and is only partly related to different average income levels by region. Geography also plays a role, for instance, whether countries are landlocked or small island developing states makes a difference. It is important to tease out the differences in trade cost performance across developing regions so that the implications for development and aid for trade can be clearly understood.

Figure 2.8 shows trade costs for manufacturing by World Bank region, for 1996 and 2010. East Asia and the Pacific has the lowest trade costs of any developing region in both periods. Although East Asia and the Pacific as a whole performs well, there is heterogeneity within the region, and the Pacific islands face particularly high trade costs compared with East Asia. This finding is unsurprising given the region's reliance on external orientation and its leverage of international trade to serve development objectives. In 2010, trade costs in East Asia and the Pacific were on average 93%, which compares favourably with the high income group's 82%. It is clear that some developing countries have made great strides forward in reducing trade costs over time, and some are now indeed at or near the level of some developed countries – a significant achievement.

Trade costs in the other developing regions are higher. This includes in Europe and Central Asia, Latin America and the Caribbean, South Asia, the Middle East, North Africa and sub-Saharan Africa. The most striking difference is really between the last two regions, and especially between sub-Saharan Africa and the rest: trade costs in Africa were over 50% higher than in East Asia in 2010. This is a very substantial difference in the context of GVCs and companies deciding where to invest and grow their businesses. Clearly, much work remains to be done on trade costs in some developing regions, and there is an important role that aid for trade can play in supporting the infrastructure and institutions that are associated with lower trade costs.

It is also important to take note of the dynamics that are apparent in Figure 2.8. Most developing regions have reduced their trade costs substantially, with the largest relative reductions of around 20% in Europe and Central Asia and East Asia and the Pacific. Performance in South Asia and the Middle East and North Africa is also strong, but the two remaining regions lag behind, with much slower rates of decline in their trade costs. The problem is particularly clear in the case of sub-Saharan Africa, which starts from the highest baseline in 1996 and remains the highest cost region in 2010 – by a considerable distance. As was the case for the income group data, there is evidence from the regional split that some developing countries are reducing their trade costs effectively and becoming more internationally competitive, but others remain marginalised.

Figure 2.8 Trade costs in manufacturing, 1996 and 2010, by region

Source: UNESCAP-World Bank trade costs database.

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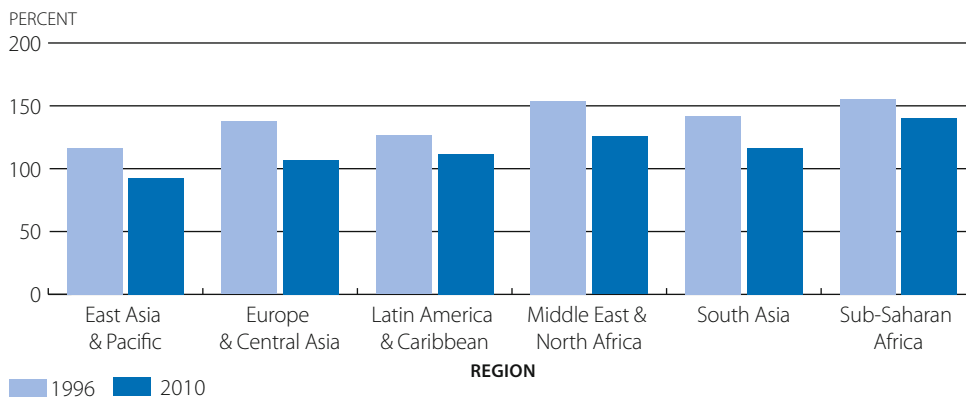
Another important dimension for the trade costs data is intra- versus extra-regional trade. In general, we would expect trade costs on regional routes to be lower than on more distant ones, firstly because of transport costs, but also because of regional integration efforts and institutional similarities among neighbouring countries. Table 2.1 provides some quantitative data that more or less bear out this insight. Each cell in the table shows average trade costs for a combination of regions. The boxes on the diagonal are intra-regional trade costs and all the others are extra-regional. The table is symmetrical because the UNESCAP-World Bank trade costs database uses an average of underlying trade costs in both directions to form its index.

It is clear from Table 2.1 that intra-regional trade is generally a good deal less costly than extra-regional trade. An exception that has been well noted in practice is South Asia: it costs approximately the same to move goods between South Asian locations as it does to move them between South and East Asia. There is indeed a good deal of shipment between South Asian ports that goes via Singapore rather than directly, so this result is expected – albeit indicative of a considerable degree of dysfunction in the intra-regional transport market and trade facilitation arrangements.

Reading across Table 2.1, East Asia and the Pacific again stands out for its relatively low level of trade costs compared with other regions. It is frequently the lowest cost extra-regional destination for developing country exports. This fact is explained by the region's strong performance on transport connectivity: it contains international best practice hubs like Hong Kong, China and Singapore, as well as a large number of maritime ports in other locations. It is also a region that has worked hard on trade facilitation – including through projects funded through aid for trade. The policy lesson is that it is possible to make a region – or a country – a low trade cost environment through concerted policy action. The fruits of such policies are high levels of trade and the potential for sustainable and inclusive growth and poverty reduction. Indeed, the East Asia and the Pacific region has been remarkable for its rate of poverty reduction over recent years, and it appears that international trade has played at least some role.

TABLE 2.1 Regional trade costs matrix for manufacturing, 2010 (Percentage of average trade costs)

	East Asia & Pacific	Europe & Central Asia	Latin America & Caribbean	Middle East & North Africa	South Asia	Sub-Saharan Africa
East Asia & Pacific	84%	143%	148%	166%	116%	161%
Europe & Central Asia	143%	94%	240%	138%	173%	238%
Latin America & Caribbean	148%	240%	113%	206%	184%	232%
Middle East & North Africa	166%	138%	206%	106%	156%	225%
South Asia	116%	173%	184%	156%	117%	166%
Sub-Saharan Africa	161%	238%	232%	225%	166%	120%

Source: UNESCAP-World Bank trade costs database.

One group of developing countries that is known to have very high trade costs is the landlocked countries. Lacking direct access to maritime shipping lanes, landlocked countries are dependent on often long overland routes that pass through third countries. They depend on transit arrangements, the administration of which is often challenging in the developing and transition economy context. Landlocked countries tend to have difficulty trading with distant partners and are highly reliant on immediate neighbours. Being landlocked poses serious problems for externally oriented development policies, although good policy in areas such as backbone services – transport and network services – and trade facilitation can greatly help in reducing the burden of being landlocked.

Figure 2.9 presents average trade costs for landlocked and coastal countries in 1996 and 2010. The difference is stark: in 2010 trade costs for landlocked countries were on average nearly one third higher than in coastal countries, at 163%. Even more serious is the dynamic in action: coastal countries reduced their trade costs on average by nearly one quarter over the sample period, whereas the comparable figure for landlocked countries is only 10%. Figure 2.9 provides strong evidence that landlocked developing countries suffer from particularly high trade costs that effectively marginalise them from the trading system, and that the problem is getting worse, not better, in relative terms. This is because they are reducing trade costs much more slowly than other countries. Aid for trade for landlocked countries, particularly in the areas of infrastructure and trade facilitation, should therefore be a particular priority going forward.

Figure 2.9 Trade costs in manufacturing, 1996 and 2010, by landlocked versus other developing countries

Source: UNESCAP-World Bank trade costs database.

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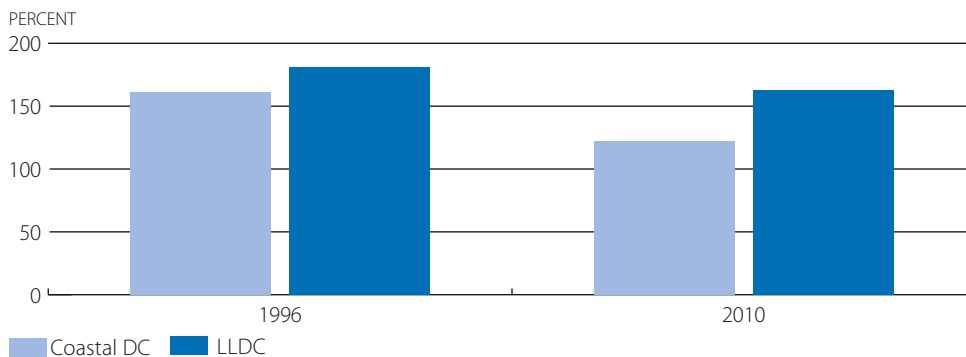
The discussion in this section has made it clear that developing country experiences with trade costs vary greatly on a case-by-case basis. Trade costs are important for all developing countries. Some, such as many countries in the East Asia and the Pacific region, have been very successful in adopting policies to reduce them. Others, such as sub-Saharan Africa and the landlocked countries, have suffered particular difficulties in relation to trade costs and continue to be marginalised from world markets due to the long distances that separate them from trading partners. In general, the direction of change is the right one: trade costs are falling across the board. However, more work is needed – and aid for trade can support it – to help those groups where trade costs remain stubbornly high, both on an intra- and inter-regional basis.

VARIOUS POLICIES ARE AVAILABLE TO REDUCE TRADE COSTS

What can developing country Policy makers do in practice to reduce trade costs, and bring about the economic and development benefits that can potentially result? There are many possible policy levers that can be used, and it is impossible to canvass them in their entirety. Much depends on individual country circumstances, and programmes aimed at reducing trade costs need to be tailored to particular needs and situations, as well as development objectives. What follows in this section is an attempt to show some associations between commonly used policies and trade costs to serve as a backdrop to policy and analytical efforts aimed at identifying what works. Again, it is important to stress that the methodology used here presents correlations, not causal links. However, each of the cases examined has strong economic reasoning and mechanisms behind it, as well as detailed econometric analysis (Arvis et al., 2015).

The first set of policy measures we consider is logistics and trade facilitation. As noted in Chapter 1, trade facilitation can be a broad concept, encompassing a wide range of activities aimed at reducing trade costs. Customs and border procedures – the focus of trade facilitation at the WTO – are just one aspect. A good overall measure of country performance on the broader front is the World Bank's Logistics Performance Index (LPI) (Arvis et al., 2014). The LPI measures country performance along six key dimensions:

- The efficiency of customs and border clearance
- The quality of trade and transport infrastructure
- The ease of arranging competitively priced shipments
- The competence and quality of logistics services
- The ability to track and trace consignments
- The frequency with which shipments reach consignees within scheduled or expected delivery times

Performance is measured through a survey of trade logistics professionals around the world, who rate it on a scale from one to five. The overall LPI – which is the focus of the analysis here – aggregates performance across all six dimensions, with a higher score indicating stronger performance.

Figure 2.10 shows the association between trade facilitation performance as measured by the LPI and trade costs. The line of best fit is strongly downward sloping, which suggests that countries with better logistics and trade facilitation performance tend to have lower levels of trade costs. The correlation emerges very strongly from the data. Based on more rigorous analysis using an econometric model, there is thus good reason to believe that countries can reduce trade costs by moving forward on the six key dimensions of logistics and trade facilitation identified by the LPI. The agenda is a broad one, and it significantly includes the private sector (especially service providers), as well as the public sector. Working together to improve the regulatory environment, enhance market efficiency and upgrade private sector development in the logistics sector can bear fruit in terms of lower trade costs and improved competitiveness.

Figure 2.10 Logistic Performance Index score versus trade costs, 2012
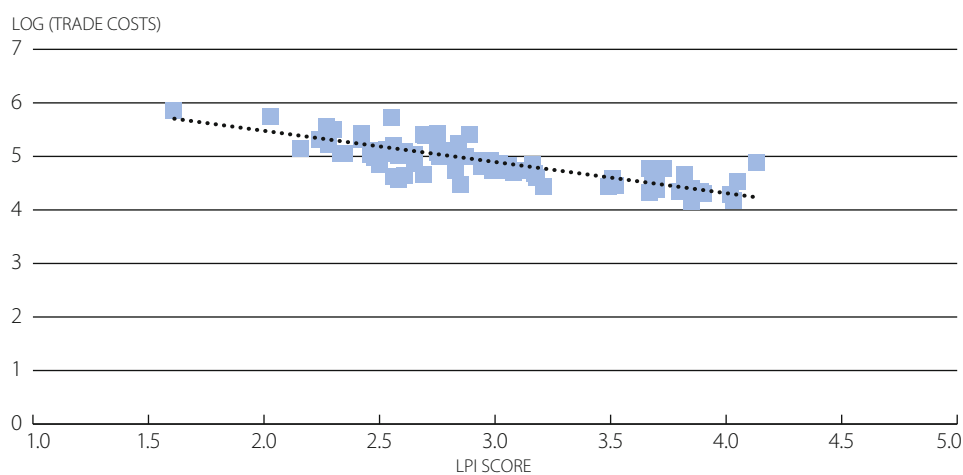
Source: UNESCAP-World Bank trade costs database; World Bank Logistics Performance Index.

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Another issue that is currently increasing in importance on the policy agenda is connectivity. In the Asia-Pacific, ASEAN and APEC, both have major policy documents aimed at boosting regional connectivity in a wide variety of ways. Connectivity can be seen as new-generation trade facilitation: it moves beyond the point-to-point paradigm of the supply chain to deal with the ways in which trade costs affect networked production platforms like GVCs. Based on this analysis, we would expect that improved connectivity would be associated with lower trade costs in the same way as improved logistics and trade facilitation performance.

The Liner Shipping Connectivity Index (LSCI) developed by UNCTAD (United Nations Conference on Trade and Development) is one measure of a country's ability to connect to global transport markets. It compiles data on a number of measures of connectivity performance, such as container ship deployment, carrying capacity, number of shipping companies, services and vessels and average and maximum vessel size. The vast bulk of international trade by volume, and a strong majority by value, travels by sea. Firms depend on maritime connectivity to be able to move goods through global markets. Typically, it is only goods that have a high value to weight ratio that travel by air, so sea lanes remain particularly important for many developing countries.

Figure 2.11 shows the association between the LSCI on the horizontal axis and trade costs on the vertical axis. The line of best fit is again downward sloping, which indicates that stronger maritime connectivity is associated with lower trade costs. As was the case for the LPI, the fit is very tight, which means that the association between the two variables is strong. More detailed analysis based on an econometric model backs up the finding in Figure 2.10: improving connectivity is one important way in which developing countries can reduce trade costs.

Connectivity is, of course, a broad agenda, but the components of the LSCI are suggestive of a number of ways in which countries can helpfully intervene in a policy sense. Moreover, many of these measures are common to other transport modes, such as air. Examples of important policy initiatives include infrastructure development at key gateway facilities such as ports and airports, as well as the roads and rail links that connect them to the rest of the economy. It is also important to get the regulatory stance right: liberalising transport services markets, including through relaxing restrictions on FDI, can promote consolidation and productivity upgrading, as well as the diffusion of global and regional best practices in terms of operating procedures.

**Figure 2.11 Linear Shipping Connectivity Index versus trade costs, 2012**
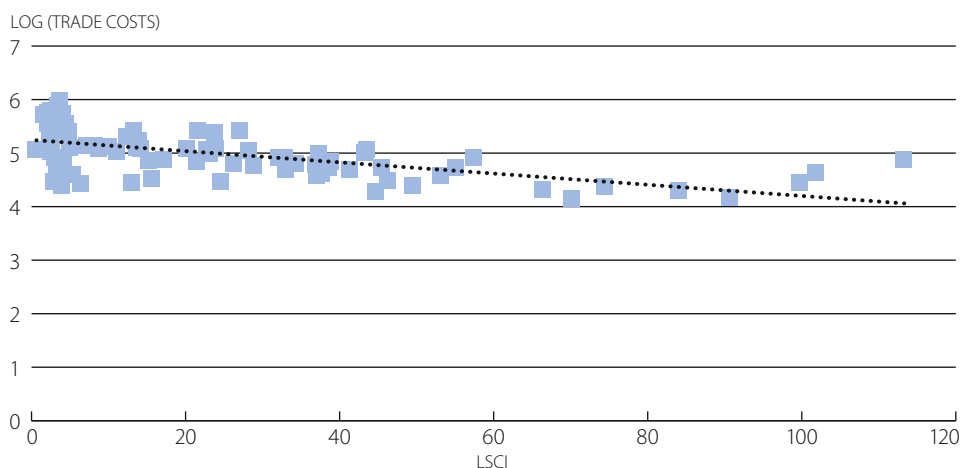
Source: UNESCAP-World Bank trade costs database; UNCTAD Liner Shipping Connectivity Index.

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Thus far, we have focused on policies at and between borders. But behind-the-border measures are also important, as was stressed in Chapter 1. These policies are harder to measure by their very nature, and it is again impossible to be comprehensive here. Instead, we take one representative measure that is a good indicator of a country's business environment and investment climate: the cost of starting a business (market entry). The source is the Doing Business database. In this case, we expect the association with trade costs to go in the other direction: countries where starting a business is costly should have higher trade costs on average than those in which starting a business is relatively inexpensive, all other things being equal. A significant association between the two variables would be evidence consistent with the importance of behind-the-border barriers for trade costs.

Figure 2.12 shows that there is indeed a positive association between the cost of starting a business and trade costs, as evidenced by the upwards-sloping line of best fit. However, the observations in this case are not as tightly bunched around the regression line as in the other figures. Indeed, there is very wide dispersion at the low entry cost end of the graph. One possible implication is that the main policy priority is to avoid very high entry costs, which can contribute to a poor business environment and high trade costs; however, below a certain threshold, the effect of start-up costs becomes harder to divine. In any case, Figure 2.12 clearly suggests that behind-the-border measures are important determinants of trade costs, and need to be addressed as part of any comprehensive package aimed at reducing trade costs. From an Aid for Trade point of view, the implication is that measures to build productive capacity and undertake regulatory reform may be of great importance as part of a broad-based effort to help developing countries reduce trade costs.

**Figure 2.12 Cost of market entry versus trade costs, 2012**
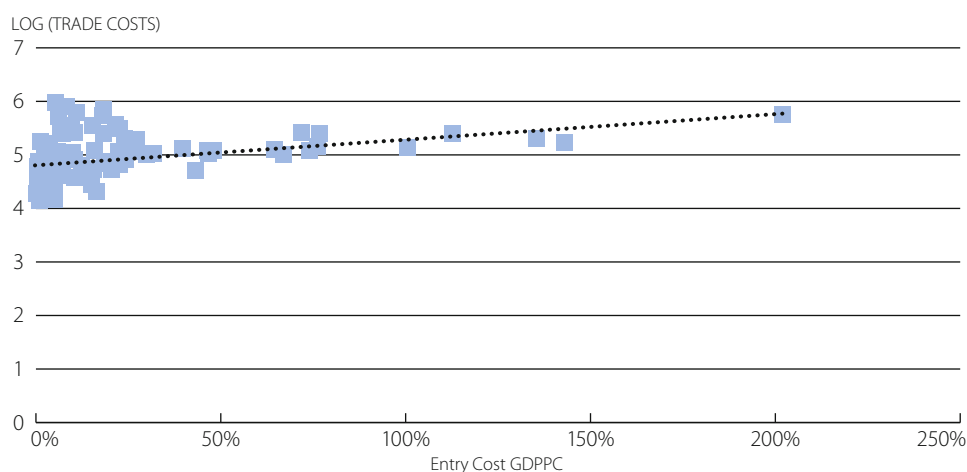
Source: UNESCAP-World Bank trade costs database; Doing Business database.

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A final policy measure that needs to be discussed in the context of reducing trade costs is regional integration. Figure 2.13 shows that trade costs for country pairs not in the same regional trade agreement (RTA) are about twice as high as those for country pairs that are in the same RTA. As noted in Chapter 1, trade costs in some cases have a regional dimension, for example when transit arrangements are involved. In any case, there is scope for countries to move forward collaboratively on trade costs within broader regional frameworks – and many are doing so, with trade facilitation chapters and even chapters on behind-the-border measures, included in new generation RTAs.

Of course, a regional approach to trade costs could give rise to concerns about trade diversion if trade costs are reduced in a discriminatory way. There is as yet no evidence as to whether RTAs that include a trade facilitation component in fact lead to much trade diversion, or whether they aid or hinder broader efforts at multilateral progress. There is reason to believe, however, that the sorts of policy measures being discussed here can be implemented in a regional framework in a way that is reasonably non-discriminatory and therefore highly compatible with the rules based multilateral trading system. Many policies aimed at reducing trade costs in fact have benefits for all trading partners, even if the motivating factor for introducing the policy is a regional agreement. For example, upgrading customs and border procedures is in many cases an MFN (most favoured nation) policy – one that benefits all trading partners, not just RTA partners. There is therefore good reason to be hopeful that measures such as these mean that the there is strong compatibility between regional approaches to trade costs and the core values of the multilateral trading system. Indeed, the evidence for services markets is strongly suggestive of such compatibility (Miroudot and Shepherd, 2014).

Figure 2.13 Trade costs for country pairs not in an RTA versus in the same RTA, 2012

PERCENT
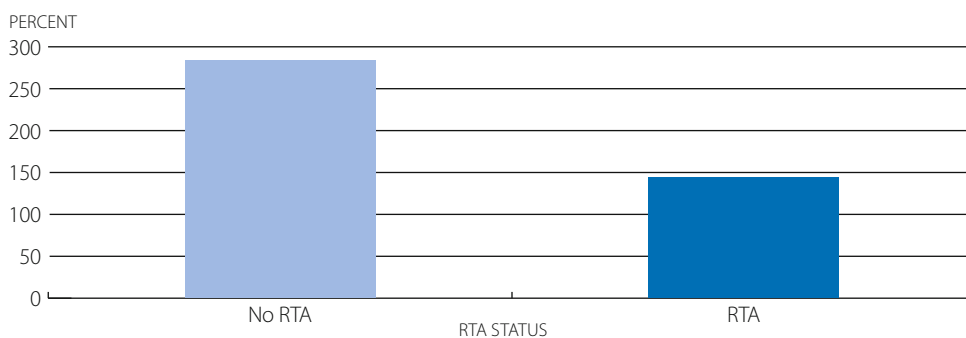
Source: UNESCAP-World Bank trade costs database; De Sousa (forthcoming).

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CONCLUSIONS

The previous section highlighted the fact that although developing countries have serious work to do on the trade costs front, they have a number of policy options available to them that can be effective and, it is hoped, reasonably non-discriminatory. This section looks at how individual countries and projects have adapted these ideas to concrete circumstances so as to successfully reduce trade costs.

Policy makers must begin with an accurate diagnosis of the sources of trade costs for their country. No two countries face identical challenges in lowering trade costs, and as we have seen, performance varies within regions and income groups. The highest priority needs to be given to the greatest drivers of trade costs, particularly given the way in which the weakest links tend to drive costs up along the rest of any given supply chain.

A number of indicators and diagnostic tools are available to help governments identify the most important drivers of trade costs within countries and regions. Cross-country benchmarks include the following:

- The Logistics Performance Index identifies covers customs and border management, transport infrastructure, ease of arranging shipments, logistics services quality, tracking and tracing and timeliness. The index was developed based on an understanding of the key determinants of logistics performance. It has been used by a number of countries as the basis for designing reform programmes.

- The World Bank Doing Business index provides a metric for the ease of processing trades in terms of the number of documents or a notional time involved in importing and exporting a standard 20-foot equivalent container.

Such indicators provide a starting point for strategies to lower trade costs and make international supply chains more efficient. However, country indicators are not diagnostic tools but rather coarse indications of where countries stand in certain policy dimensions. Policies addressing the source of trade costs should be designed on comprehensive assessments and specific facts and data. This effort can be supported by a series of guidelines and toolkits. In the area of trade logistics one popular reference is the Trade and Transport Facilitation Assessment (TTFA) (See Box 2.2).

BOX 2.2 Trade and Transport Facilitation Assessment (TTFA)

The facilitation audit establishes a diagnosis, as comprehensive as possible, of procedural or operational constraints to external trade and international transportation services. The three main areas of focus are: 1) procedures and regulatory requirements for international trade transactions (e.g. customs); 2) efficiency and market structure of transport services and infrastructures; and 3) measurement of costs and delays. This analysis is carried out through a series of interviews of private sector operators and public agencies, according to the methodology published by the World Bank in *Trade and Transport Facilitation Assessment: a Practical Toolkit*, World Bank 2011. It results in a comprehensive analysis of the present situation and a remedial action plan, which would break ground for future trade or transport facilitating projects. The Toolkit has been applied in 50+ countries.


Source: World Bank

Across developing countries, several priorities for policy reform to lower trade costs are clear, even if actions to address them must be designed for the unique circumstances each country faces. Priorities vary according to income level, with some patterns across income groups. Take for instance the three main dimensions in trade logistics reforms:

- Trade facilitation reforms to simplify processes at the border (e.g. customs)

- Trade related infrastructure such as rail or road corridors, ports but also ICT (e.g. broadband)

- Development and quality of logistics services.

The indication from the LPI surveys, confirmed by field work, is that typically core trade facilitation reforms have been more important in low income countries, while the service reforms are critical in more advanced economies with a diversified export composition. (Figure 2.14)

Figure 2.14 Policy dimensions and income levels

PERCENTAGE CHANGE IN LPI COMPONENT AS MEASURED AGAINST THE HIGHEST PERFORMER, 2007-2014
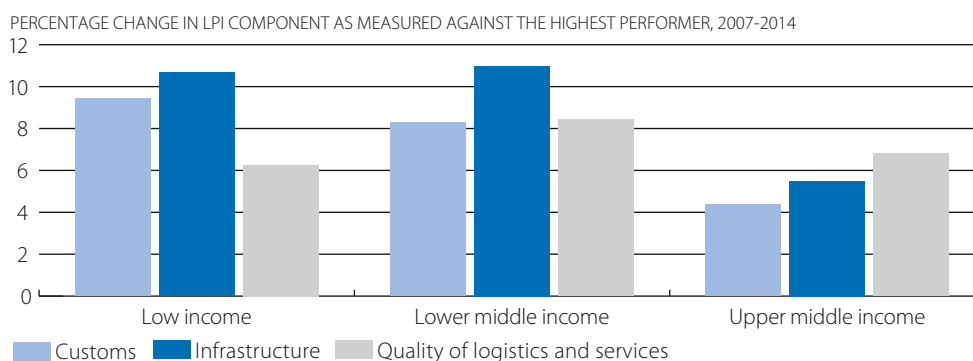
Source: Logistics Performance Index 2007 and 2014

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Policy dimensions are complementary and non-separable in practice. For instance the popularity of trade facilitation programmes don't replace improvements in infrastructure. **Many countries continue to face significant infrastructure gaps that need to be addressed as part of programmes to lower trade costs.** It is true that even the costliest elements of trade facilitation reform programmes (e.g. setting up single-window systems or upgrading border infrastructure) are in general far lower investments than infrastructure projects like port or airport upgrades, or road and rail re-construction. However, in practice these facilitation reforms are better implemented when tied to physical infrastructure. For instance, in Africa some of the most impactful trade facilitation projects have been tied to corridor projects (e.g. Mombassa, Dar es Salam and Douala) project. Linking "hard" and "soft" is likely to bring more sustainable participation from stakeholders and agents. It also provides a good framework for donor co-ordination. Over the last decade, the corridors serving the African Interior from the port of Mombasa, Dar es Salam, Douala, have seen significant performance improvement, in part because the agencies supporting the corridors, such as the World Bank and the African Development Bank, have supported this link.

Trade facilitation needs to be one of the priority areas for action. Inefficient border management is one of the most significant sources of trade costs for developing countries. This makes trade facilitation a highly cost-effective area of reform. Increasingly, trade facilitation reforms target the implementation of comprehensive border management reforms, with participation of the full set of institutions involved in regulating trade. This includes agencies responsible for quarantine, health, security, etc. (in many countries there can be more than ten agencies involved in trade facilitation). The impact of resources invested to improve the efficiency of customs procedures – the traditional focus of trade facilitation reforms – can be diminished if other agencies involved in clearing goods at the border maintain inefficient procedures. Results from the Logistics Performance Index 2014 show this as an ongoing area of weak performance, with respondents identifying more problems with non-customs agencies, including those involved in standards, transport, veterinary issues and health/SPS.

Implementation of the WTO Trade Facilitation Agreement is a key instrument in developing countries' trade facilitation reform programmes – however, countries should not stop with TFA implementation. Current reform programmes in many countries go well beyond the TFA measures, and they should be seen as setting a reform floor that can be built on. In fact, most active reform programmes, supported by international agencies such as the World Bank, in middle income countries and in most low income countries, are already pushing the modernisation of the trade facilitation infrastructure much beyond the provisions of the TFA.

Services must receive greater priority in reform strategies to lower trade costs. The latest World Bank Group Logistics Performance Index results underline the importance of improving the quality of logistics service provision. Private sector firms, rather than governments, are the service providers, but the services sector policy environment is heavily influenced by government decisions. Sectors such as trucking or customs brokerage need to be regulated effectively. Regulations include entry in the business, enforcement of technical regulation and standards of access to market by regional and international operators. Closed markets or lack of enforcement competence in regulatory agencies are quite common and prevent the emergence of quality oriented services that exporters need. In major economies, the most efficient exporters have most logistics services provided by third parties, allowing firms to maximise productivity in their core area of business. This is in contrast to the situation in middle income, and especially low income, countries, where there is little use of third party logistics providers. A classical example is trucking in regions such as West Africa, where the traditional market organisation relies on many small operators with old trucks running a few days per month. This situation is now targeted by several projects (including a policy loan by the World Bank) aiming at the consolidation of the profession.

Non-tariff measures (NTMs) comprise a significant source of trade costs, the importance of which has risen as tariffs have fallen globally. Streamlining NTMs, and harmonising them between trade partners and within regions, can have a significant impact in lowering trade costs. Diagnostics like the World Bank NTM Toolkit can help governments analyse NTMs in a more systematic manner and provide a basis for more objective discussion with different stakeholder groups on NTMs than is often the case.

Aid for trade should also address groups of countries with special needs due to comparatively very high trade costs. **Such is the case of Landlocked Developing Countries (LLDCs) and Small Island Developing States (SIDS)**. Figure 2.15 provides strong evidence that landlocked developing countries or islands states indeed suffer from particularly high trade costs that effectively marginalise them from the trading system. There are indeed at are at an obvious disadvantage given the need to cross a transit country (landlocked countries) or the dependence on trans-shipment (island states) to access international markets.

Figure 2.15 GDP per capita and Aggregate Trade Costs

Source: World Bank 2014

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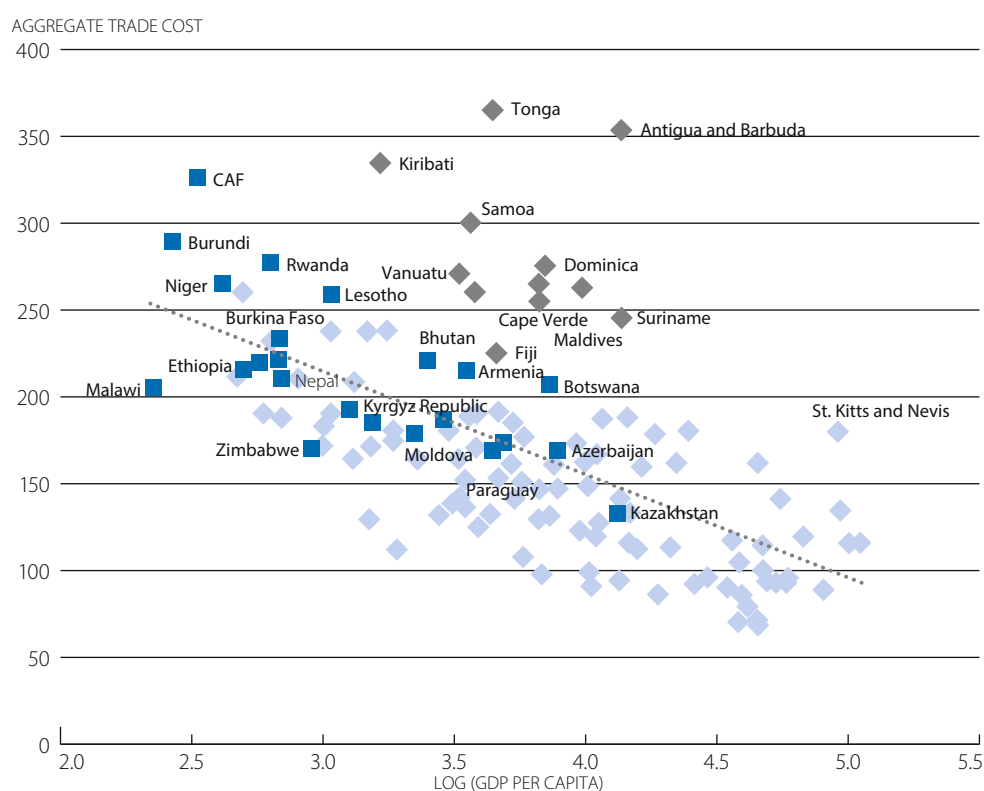
Even more serious is the dynamic. Figure 2.16 presents average trade costs for landlocked and coastal countries in 1996 and 2010. Coastal countries reduced their trade costs on average by nearly one quarter over the sample period, whereas the comparable figure for landlocked countries is only 10%. Thus the difference is stark: in 2010, trade costs for landlocked countries were on average nearly one third higher than in coastal countries, at 163%.

Figure 2.16 Trade costs in manufacturing, 1996 and 2010, by landlocked versus other developing countries.

PERCENT

■ Coastal DC ■ LLDC
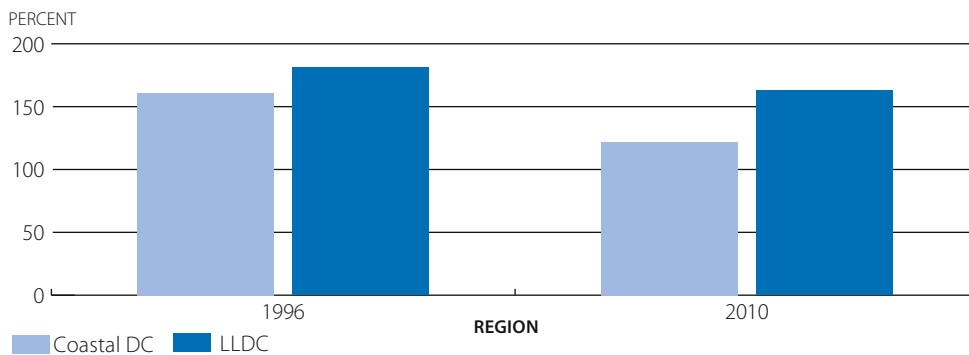
Source: UNESCAP-World Bank 2014Trade Costs Database.

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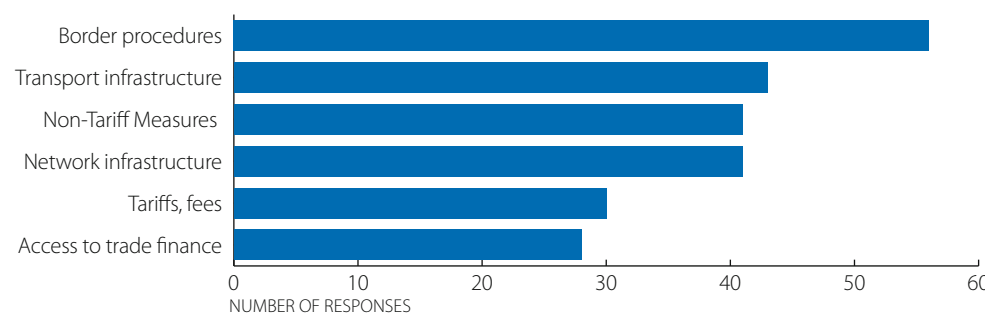
More than the "tyranny of distance", LLDCs are affected by the additional complexity and potential inefficiencies of their supply chain. The main difference with coastal countries is the need for transit system that makes possible the movement of goods in the country of transit to be cleared at the LLDC of destination. Transit systems tend not to be very integrated across transit routes; multiple clearances and controls result in additional costs delays and especially uncertainty.

The UN and other agencies have promoted the Almaty Programme of Actions (2003), expanded by the Vienna Programme of Actions (2014), targeting LLDCs and their transit countries. These programmes identify This programme identifies a series of sectors for aid for trade and co-operation between countries. These include the transit regime, corridor development, regional integration of customs and transport policies. Greater priority should be given to Aid for Trade for landlocked countries, particularly in the areas of transit system and regional integration and transit regimes. Due to the additional challenge of cross-country projects, these should therefore be a particular priority going forward. Unfortunately, reforms in these areas have had lower traction and aid-for-trade support than trade facilitation reforms at the country level or infrastructure support.

The OECD-WTO monitoring exercise 2015 confirms the importance of these policy areas and the intensity of initiatives at the country level. The survey shows that there has been a significant amount of activity in the area of reducing trade costs, using a variety of different methods (Figure 2.17). Two aspects are important. First, there needs to be an overall strategy in place to unify efforts across the distinct and often administratively distinct areas in Figure 2.17. Second, it is important to identify and scale up what works in the context of individual projects in individual countries. On-the-ground experience is key to understanding the steps developing country governments can take to reduce trade costs.

Figure 2.17 Actions undertaken or ongoing in partner countries to reduce trade costs


NUMBER OF RESPONSES

Source: OECD-WTO aid for trade monitoring exercise (2015).

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Many factors go into building successful trade cost reduction programmes. The key for individual governments is in getting the mix right and ensuring the right actions are matched with the right conditions and structures. Again, partner countries speak to this issue in the OECD-WTO aid for trade monitoring exercise (Figure 2.18). They identify sustained engagement at a political level and by the private sector as the two most important keys to success.

Figure 2.18 Key factors in achieving trade cost reductions in partner countries

Source: OECD-WTO aid for trade monitoring exercise (2015).

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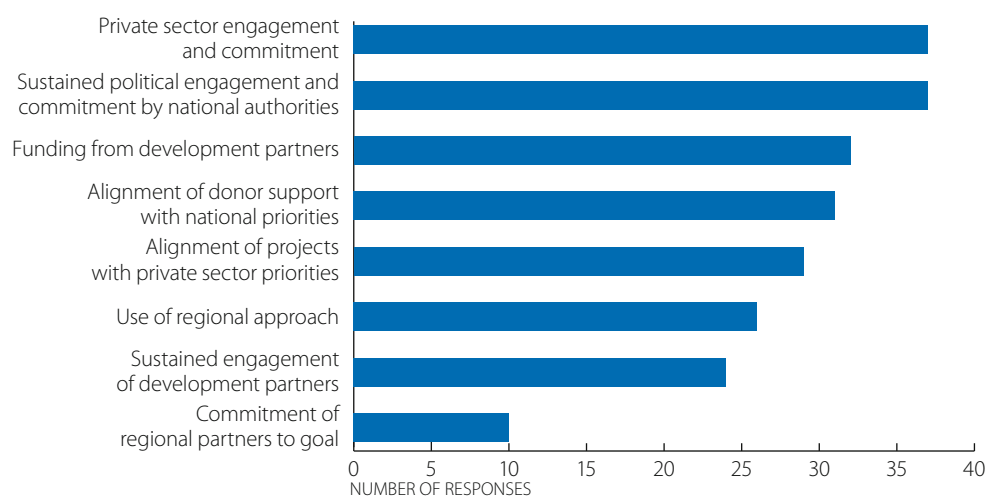
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