CHAPTER 7
Measuring SME competitiveness

Drivers

ITC classifies the drivers of firm competitiveness according to how they affect competitiveness (three pillars) and according to where in the economy they intervene (three levels). The three pillars and levels of competitiveness together form the SME Competitiveness Grid. While it was designed to focus on SME competitiveness, it is independent of scale and can also serve to assess the competitiveness of larger firms.

The main motivation for developing the SME Competitiveness Grid is to bridge a gap in existing composite indicators that focus on macroeconomic drivers of competitiveness rather than microeconomic or local drivers. The importance of macroeconomic drivers is, however, fully recognized and reflected in the competiveness grid.

Figure 44 outlines the two core dimensions of competiveness:

- **The three pillars of competitiveness:** compete, connect and change. These three pillars reflect traditional static and dynamic notions of competitiveness. They also emphasize the importance of connectivity for competitiveness in modern economies. The pillars are in the vertical axis of the grid.

- **The three levels of the economy:** firm capabilities, the immediate business environment and the national environment. These levels are in line with those identified in related work on competitiveness, but put an explicit focus on internal firm capabilities and the external local or sectoral environment of firms (i.e. the immediate business environment). The levels are in the horizontal axis of the grid.

FIGURE 44 The SME Competitiveness Grid

Source: ITC.

The *SME Competitiveness Outlook 2015* provides a more detailed description of the SME Competitiveness Grid and the methodology behind it.

Three levels of SME competitiveness

Firm capabilities: This level assesses whether firms have the capabilities to manage the resources under their control. Thus, this competitiveness level contains indicators to gauge whether firms follow best practices. For example, does the firm have a bank account, use e-mails in day-to-day operations, or have high capacity utilization?

The immediate business environment: This level delivers the resources and competencies that help to shape whether firms are competitive. Therefore, this level covers factors that are external to the firm but still within its micro-environment. Access to power, access to a skilled workforce or the vicinity of a relevant cluster of economic activities are examples of immediate business environment indicators.

The national environment: The third level is the national environment. National factors are important, as they establish the fundamentals for the functioning of markets; government action in particular determines whether or not firm activities are facilitated. This level encompasses all structural factors that exist at the national level, such as policies on entrepreneurship and ease of doing business, trade-related policies, governance, infrastructure and resource endowments.

Three pillars of SME competitiveness

Capacity to compete: The first pillar centres on present operations of firms and their efficiency in terms of cost, time, quality and quantity. This concept also extends to the immediate business and national environment. Capacity to compete refers to the static dimension of competitiveness. Examples of drivers include: use of internationally recognized quality certificates (firm capability), technical infrastructure accessible to firms (immediate business environment), and smooth customs procedures (macro-environment).

Capacity to connect: The second pillar centres on gathering and exploiting information and knowledge. At the firm level, this refers to efforts to gather information flowing into the firm (e.g. consumer profiles, preferences and demand) and efforts to facilitate information flows from the firm (e.g. marketing and advertising). At the immediate business environment level, this includes links to sector associations, chambers of commerce and other TISIs. At the national level, capacity to connect is predominantly about the availability of ICT infrastructure. While capacity to connect is not strictly a time-sensitive phenomenon, information gathering and exploitation are so central to current and future competitiveness that they act as an essential link between the two pillars of static competitiveness and dynamic competitiveness.

Capacity to change: The third pillar centres on the capacity of a firm to execute change in response to, or in anticipation of, dynamic market forces and to innovate through investments in human and financial capital. It incorporates the dynamic dimension of competitiveness. External factors change very rapidly; the only certainty is uncertainty.[201]In this context, adaptation and resilience define competitiveness. Industry phases, breakthrough or disruptive innovations, increased competition and exchange-rate fluctuations are all events that require strategy adaptations. The capacity to change, for example, involves interpreting new market trends, the tactics of rivals, opportunities derived from new infrastructures or technologies, and governmental policies.

SME competitiveness score tracks productivity

The country profiles in Chapter 9 present 39 SME competitiveness indicators per country. Together they can be combined to form an SME competeness score. This score turns out to track firm-level productivity well, representing a credible way to measure firms' capacity to compete in international markets.

Information on average firm-level productivity is difficult to obtain and is only available and comparable for few countries. However, available data reveal that average firm-level productivity increases with countries' GDP per capita.[202]

Plotting the SME competitiveness score against GDP per capita reveals a similar pattern, as illustrated in Figure 45.

As development goes up, the gap between SMEs and large firms goes down

A key message of the 2015 *SME Competitiveness Outlook* was that the productivity gap between SMEs and large firms is wider in developing countries than in developed countries. Several reports support this finding[203] as underlined by data on Latin American and European countries in a 2015 ITC working paper by Gerald A. McDermott and Carlo Pietrobelli.[204]

The pattern is the same when using the SME competitiveness score, which can be generated for a much larger number of countries than comparable productivity data. Figure 46 reveals several trends: As GDP per capita rises, the gap between SMEs and large firms narrows, especially the gap between medium-sized firms and large firms. The slope for large firms is gentler than that for SMEs. This suggests that large firms from poor countries are in a better position to compete with
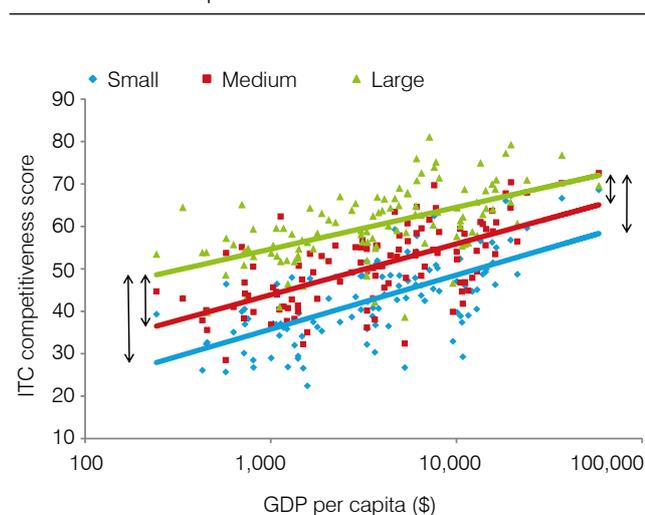
FIGURE 45 Competitiveness score and development level
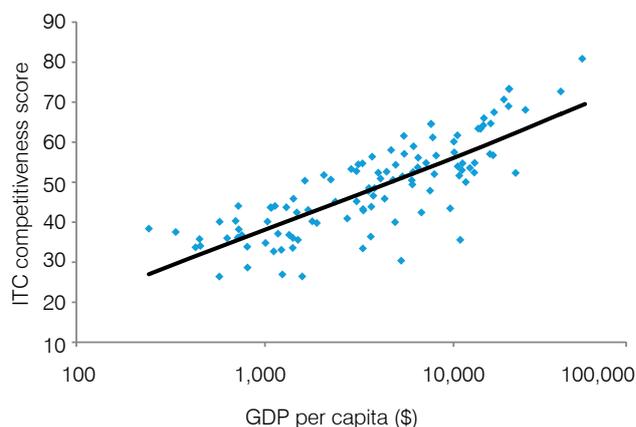
Source: ITC.

TABLE 10: Ghana survey breakdown

Firm size	Definition (number of employees)	Total	Exporters	Manufacturing	Agriculture
Small	<19	124	36	79	45
Medium	20–99	72	32	64	8
Large	>100	4	0	4	0
All		200	68	147	53

Source: ITC.

FIGURE 46 Competitiveness score, firm size and development level

Source: ITC.

large firms from developed countries, while small firms from developing countries are in no position to compete with small firms from developed countries.

Working with TISIs on competitiveness data: Ghana

The country profiles in this and last year's *SME Competitiveness Outlook* use publicly available data sources. However, there are a number of limitations when using public sources of data not specifically designed for the grid. As discussed in the *SME Competitiveness Outlook 2015*, these include variations in country coverage, availability of statistics based on firm size and the ability to break down the SME Competitiveness Grid into 'themes'.

BOX 9: SME Competitiveness Survey in Ghana – the process

In 2015, Ghana was identified as a pilot country for the ITC SME Competitiveness Survey initiative. During the first phase of the pilot, ITC explored interest by the private sector as well as cooperation opportunities with national bodies, such as TISIs, ministries, government agencies, research institutions and industrial organizations. ITC organized multi-stakeholder meetings, presented the proposed methodology and gathered feedback on using this type of survey and aligning with national policies and private sector priorities.

As a result of this first phase, stakeholders nominated the Association of Ghana Industries (AGI) as the lead Ghanaian institution for the initiative. Five other institutions took supporting roles, including government and private sector associations, with the agreement that they would use the findings for their strategic planning and sector support policies.

Consequently, ITC and AGI embarked on a joint effort to deploy the pilot version of the SME Competitiveness Survey in Ghana under the overall sponsorship of the Ministry of Trade and Industry and private sector associations. There were several meetings to validate and adapt the questionnaire and the selected sub-sectors, and a first field test with 40 enterprises before finalizing the questionnaire. ITC trained representatives from AGI to administrate the survey.

The pilot survey was conducted on a randomly selected sample – which included member firms from all five institutions – totalling 200 agriculture and manufacturing companies, based predominantly in the Greater Accra region, Tema and Kumasi. The Ministry of Trade and Industry, the Ghana Export Promotion Authority, the Federation of Associations of Ghanaian Exporters and the Ghana National Chamber of Commerce and Industry assisted in the selection of sectors and firms. AGI compiled survey results, which ITC analysed. Multi-stakeholder consultations to validate the results are ongoing.

ITC therefore is collecting data that are better suited to measure SME competitiveness. This exercise uses a questionnaire that gathers information for the 12 themes in the SME Competitiveness Grid (Figure 47).

One of the first exercises with broad firm-level coverage took place in Ghana. Jointly with the Association of Ghana Industries (AGI; see Box 9), ITC deployed a pilot version of the SME Competitiveness Survey to canvass 200 randomly selected firms, 62% of which were small enterprises (including micro firms). The rest were mostly medium-sized firms, with only four large firms surveyed (Table 10). Given the low number of large firms, analysis of differences by firm size is restricted to SMEs. Approximately one third of those surveyed were exporters. However, only 29% of small firms were exporters compared with 44% of medium-sized firms. Over 73% of surveyed firms were in manufacturing, with this sector accounting for a greater share as firm size rose – 63.7% of small firms compared with 88.8% for medium-sized firms.

Survey results

Figure 48, a colour-coded version of the SME Competitiveness Grid, summarizes the survey results. It shows that Ghanaian firms do best at the level of firm capabilities, with scores of about 70 across all three pillars of competitiveness. Ghana performs worst at the national environment level, with particularly low scores in capacity to compete. The immediate business environment attains scores somewhere between firm capabilities and the national environment.[205] The picture is of competitiveness scores falling as levels move from firm capabilities to the national environment. Although the national environment indicators use a different dataset to the other two levels of competitiveness, this initial analysis finds that the greatest space for improvements to competitiveness lie at the national level.

FIGURE 47 Survey version of the SME Competitiveness Grid

Source: ITC.

FIGURE 48 The SME Competitiveness Grid for Ghana

SME Competitiveness Grid		Pillars		
		Compete	**Connect**	**Change**
Levels	Firm capabilities	63.9	68.0	69.1
	Immediate business environment	44.4	53.1	57.3
	National environment	38.9	53.5	44.4

Note: High scores are better, and scores are out of 100. The colour scale is determined according to minimums and maximums in the grid.

Source: ITC calculations based on SME Competitiveness data collected by AGI.

Figures 49, 50 and 51 break down the results in the SME Competitiveness Grid by firm size and by indicator. For firm capabilities, capturing whether firms follow best practices, small and medium-sized firms attain scores of 63.2 and 78.3, respectively. This is not surprising, as larger firms tend to exhibit many of the features normally associated with competitiveness (e.g. having a business website). For the immediate business environment, which captures how firms rate their local business milieu, SMEs report very similar scores (51.3 for small firms vs 51.1 for medium-sized firms). This indicates that SMEs find their environments equally challenging. The low scores for national environment reflect poor scores in getting electricity, ease of trading, tariff applied, and prevalence of ISO certificates. These are mainly areas for the government to improve.

Uniqueness of offering

To gauge the strength of the competitive advantage of Ghanaian firms, the survey asks firms to judge whether their product was 'common and easily copied' or 'unique and hard to copy'. Firms producing 'unique and hard to copy' products receive a higher rating, but this does not necessarily mean that such firms are more competitive. Small and medium-sized firms give scores of 37.8 and 40, respectively, showing scant difference by firm size. This lack of variation extends to exporter status and sectors. Overall, the scores remain low, suggesting that Ghanaian firms struggle to produce niche or unique products.

Access and reliability of electricity supply

Access and reliability of electricity, transportation networks, and water have a direct impact on the competitiveness of firms. Hence, these indicators belong in capacity to compete. For this set of questions, the survey asks 'to what degree is access to reliable electricity supply / transportation networks / water supply an obstacle to the current operations of this company.' Firms of all sizes rate their access to electricity particularly poorly. This indicator achieves a score of only 31.6, by far the lowest score among immediate business environment indicators.

Medium-sized firms report that unreliable electricity supply hits their firms even harder than small firms. This may be related to the fact that 89% of medium-sized firms in the sample are in manufacturing, compared with 64% of small firms. Further analysis supports this, with manufacturing firms reporting scores that are 14.6 points lower than those of agriculture firms. This suggests that lack of reliable electricity is a major constraint to firm growth.

FIGURE 49 Firm capabilities in Ghana
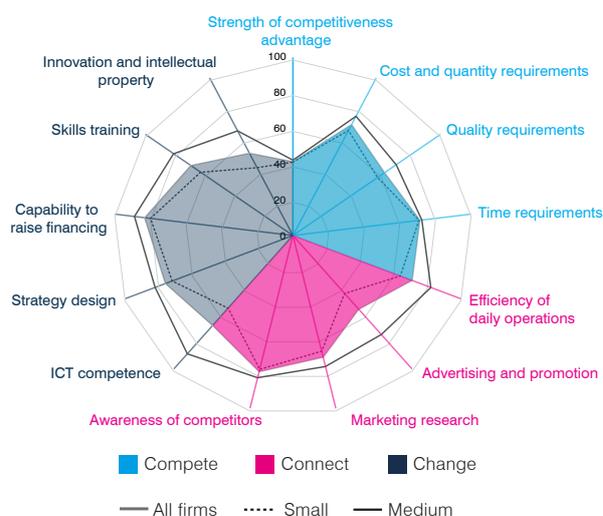
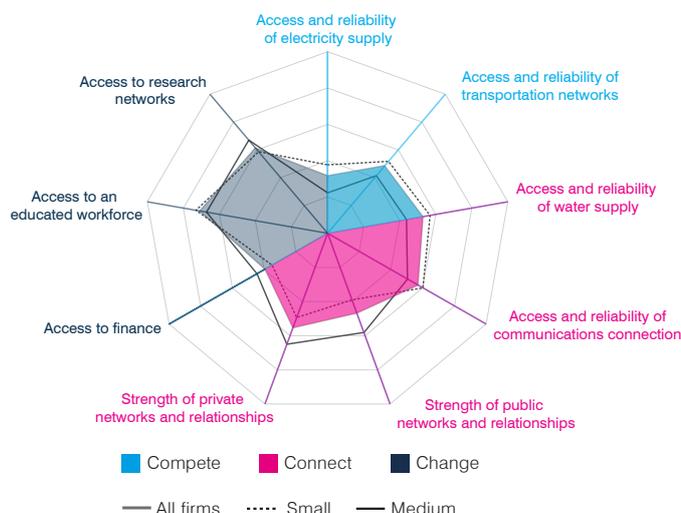**Source:** ITC calculations based on SME Competitiveness data collected by AGI.

Raising finance

Financing is a core part of any business seeking to expand or improve production. For this reason, it is part of the capacity to change pillar. Regarding firm capabilities, small and medium-sized firms provide relatively high ratings for their knowledge of the financial system and ability to produce the documentation needed to apply for a loan, at 79.9 and 88.9, respectively. Of the 64 firms in the sample that had applied for a loan, 54 saw their application approved – a surprisingly high proportion. However, of the 136 firms that had not applied for a loan, only 39 say this was because they had 'no need for a loan'. The firms that did not apply for a loan but wanted one give as the most common reason that 'interest rates were not favourable'. This suggests such firms were aware of the interest rates they would likely be offered and decided not to bother applying.

The positive results at the firm level regarding knowledge of the financial system contrast greatly with ratings at the level of the immediate business environment. Here, the survey asks firms 'to what degree is access to finance an obstacle to the current operations of this company.' Small and medium-sized firms report scores of 35 and 44.6, respectively, despite the high rate of firms receiving a loan when applying.

The low score at the immediate business environment level in access to finance is consistent with a high number of firms (75) who had not tried to apply for a loan, even if they indicated interest in one. These results are consistent with evidence on how firms overcome problems accessing finance through other sources. World Bank enterprise survey data collected in 2013 suggest that the proportion of investments financed internally (by friends and family) is

FIGURE 50 Immediate business environment in Ghana

Source: ITC calculations based on SME Competitiveness data collected by AGI.

FIGURE 51 National environment in Ghana

Source: ITC calculations based on SME Competitiveness data collected by AGI.

80% and 75% for small and medium-sized firms, respectively. Moreover, even the 54 firms in the sample that had received a loan rate access to finance poorly.

Nevertheless, Ghana scores highly at the national level in getting credit. This indicates that the country performs well in strength of legal rights, availability of credit information for banks and credit registry coverage. This confirms that access to information is not a sufficient precondition for accessing to finance if there is no conducive immediate business environment. Moreover, high interest rates are a legitimate concern, as shown by the firms in the sample and confirmed by the 2014 IMF Country Report, which states that 'high interest rates … have begun to weaken private sector activity'.

Quality requirements

The quality requirements indicator is based on whether a firm's main product holds an official domestic certificate, an internationally recognized quality certificate or a voluntary certificate. The sample as a whole attains a fairly good score of 62.1. The results show that 90% of the surveyed SMEs hold an official domestic certificate, 50% hold an internationally recognized quality certificate and 44% hold a voluntary certificate.

As expected, exporters are far more likely to hold an internationally recognized quality certificate (83.8%) compared with non-exporters (33.6%). The differences regarding gender and sector are small. Interestingly, Ghana performs poorly at the national level on the number of ISO certificates issued per million people, attaining an average score of just 25.8. The fact that the survey sample was restricted to the Accra region may explain this
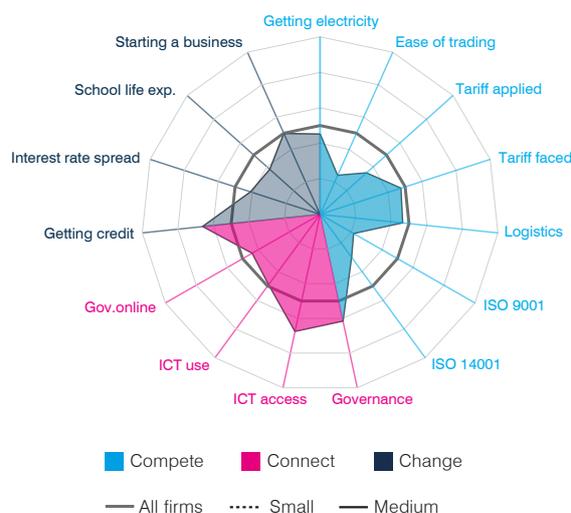
difference, as firms close to the capital are likely to be more internationally minded. Another possible explanation is that few Ghanaian firms hold more than one internationally recognized quality certificate compared to international averages. This would account for the low score observed at the national level.

A second trend is based on firm size. While similar numbers of small and medium-sized firms have a domestic quality certificate, far more medium-sized firms hold an internationally recognized quality certificate (45.5% for small firms versus 59.7% for medium-sized firms). This trend remains even if we remove exporters from the sample. Indeed, 42.5% of medium-sized firms not currently engaged in exporting nevertheless hold such a certificate, compared to only 28.7% of small firms. This suggests that new exporters are more likely to be medium-sized.

ICT requirements, advertising and promotion

The difference in the score of small and medium-sized firms is greatest in ICT competence and advertising and promotion. For ICT competence this gap is driven by a lack of use by small firms of e-mail and the Internet, and the existence of a business website. This is consistent with the results for sub-Saharan Africa as a whole (see Chapter 8), where the same gap is found. Only 30% of small firms engage in some form of advertising vs 76% of medium-sized firms. Furthermore, just 42% of small firms have attended a domestic trade fair in the last three years, compared with 82% of medium-sized firms. Ignoring advertising and promotion techniques represents a lost opportunity to increase sales.

AGI's hopes for the future of Ghanaian SMEs

Seth Twum-Akwaboah

Chief Executive Officer,
Association of Ghana
Industries

*SMEs constitute over
85% of all businesses
in Ghana, yet they are
saddled with a myriad
of challenges that stifle
their growth.*

The Association of Ghana Industries (AGI) speaks for over 1,200 businesses in Ghana. As the leading voice of the private sector, AGI has instigated reforms and led policy initiatives in the interest of our small and medium-sized enterprises (SMEs). Currently, SMEs constitute over 85% of all businesses in Ghana, yet they are saddled with a myriad of challenges that stifle their growth. The SME Competiveness Survey Ghana case study comes as a welcome initiative by ITC to help gain a better understanding of the hurdles that restrain the growth and competitiveness of SMEs in Ghana.

SMEs worldwide face market pressures and must be able to compete if they are to survive in the long term. Available statistics indicate that the vast majority of SMEs fail, underlining the need for local, national and international institutions to help increase the survival rate of start-ups by facilitating product capacity development and enabling local trade relations. SMEs penetrate global markets by exporting through clusters, joining global value chains (GVCs) and exporting directly or indirectly. In that sense, SMEs need to exploit opportunities offered by clusters and GVCs, which represent opportunities for penetrating markets and learning through diffusion of information and knowledge.

Performance of the enterprise depends as much on internal as external factors. Of particular interest are three elements: the type of horizontal and vertical linkages with other enterprises; the enabling environment and governance rules for support institutions; and national and regional policies (including investment, regulations, facilitation and socioeconomic development) and the macroeconomic context.

Sector and SME competitiveness starts with enterprises and the way in which their relations and partnerships are organized. In most developing and emerging economies, SMEs face market volatilities, uncertainty in the policy and regulatory environment, lack of information on options for diversifying markets and products as well as fragmented social structures and institutional support networks. Firms remain competitive and create higher value by acquiring skills, capabilities and functions, among others. Initiatives in Ghana have significantly improved the way SMEs operate, and AGI expects some of these programmes to last long enough to cause the needed impact.

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The key drivers for sector and value chain development include:

- **GVC, clusters and SME competitiveness.** The growth of trade between large groups and within GVCs has increased dramatically over recent decades, accounting for up to 80% of global trade. More and more international organizations are using GVCs as a tool for structuring development interventions.
- **Innovation,** which is a key driver of economic growth and a significant enabler for SMEs in LDCs to integrate better into GVC.
- **Public-private partnerships and governance.** As the multilateral organization mandated to work with SMEs, ITC is itself regarded as a cornerstone of the emerging international architecture of SME competitiveness.

ITC and AGI are working together to highlight the important role that building competitiveness of economies by supporting SMEs can play in promoting sustainable development and growth. Economic development, social inclusion and environmental sustainability are three interconnected pillars, and no one pillar can be addressed by one institution only.

Work carried out through the SME Competitiveness Assessment and the Alliances for Action approach aims to provide data so that multi-stakeholder groups can decide how best to target support and activities. Such activities involve the private and public sectors and include investment and research. They can bolster competitiveness based on the following questions:

- What type of linkages best support SME innovation and competitiveness?
- If developing country SMEs are to maximize the benefits of trade and participation in GVCs through upgrading, what is the role of support institutions and policies?
- How does the interaction between multinational company subsidiaries and local support institutions and innovation systems help or hinder upgrading of SMEs in emerging markets?
- Based on empirical examples, what do we know about the role of the market, government and local support institutions in ensuring conducive processes, governance and support structures for SME competitiveness and in maximizing the benefits of participation in value chains?
- What is the scope of action and opportunities for international organizations involved in trade-related technical assistance?
- Given their mandates, how can ITC and AGI better support SMEs in Ghana to take advantage of the benefits of linking to value chains, institutions and clusters?

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AGI is of the view that when implementing sector development interventions, it will be necessary to consider:

- Learning as a collective process.
- Practical ways in which policy and interventions draw on available knowledge and are linked to decision-making.
- Facilitation of networks that support and enable innovation and SME upgrading.
- Trade facilitation and policies. Facilitation implies more than reducing domestic trade costs. This requires mechanisms to set the policies and regulations implemented by various governmental and technical agencies.
- Importance of networks and linkages between companies and with institutions.

AGI welcomes ITC's increasing engagement and facilitation in multi-stakeholder partnerships and processes at the global, regional, and national levels through the Alliances for Action as well as sector development strategies that enable SMEs to reach their full potential.

CHAPTER 8

Regional snapshots: SME competitiveness and export potential when standards matter

Regional SME competitiveness trends

Competitiveness scores vary greatly both across and within regions. Figure 52 presents an overview of the performance of regions' capacity to compete, connect and change. As the category 'other' is composed mostly of developed countries, this report refers to this category as developed countries. Furthermore, developing countries are split according to geographical location[206]. Thus, when the report refers to the Asia-Pacific region, it concerns developing countries in this geographical area. These groupings depart from the ones used in the 2015 *SME Competitiveness Outlook,* and thus may be responsible for slight variations in the regional statistics between the editions.

In the capacity to compete, Eastern Europe and Central Asia, and Latin America and the Caribbean perform best

among developing country groupings. In the case of Eastern Europe and Central Asia, the drivers are good performance in power reliability and ease of trading across borders. For Latin America and the Caribbean, a strong score in getting electricity and decent scores in extent of marketing and ICT access play much the same role.

In the capacity to connect, Latin America and the Caribbean perform best, closely followed by Eastern Europe and Central Asia (excluding developed countries). Connectivity deficiencies seem to constitute one of the biggest barriers to increased competitiveness for sub-Saharan Africa and Asia-Pacific. As noted in the 2015 *SME Competitiveness Outlook,* sub-Saharan Africa performs particularly poorly in the capacity to connect, even when compared to its scores for the other two pillars of competitiveness. This is also true for Asia-Pacific. The

FIGURE 52 Compete, connect and change scores by region
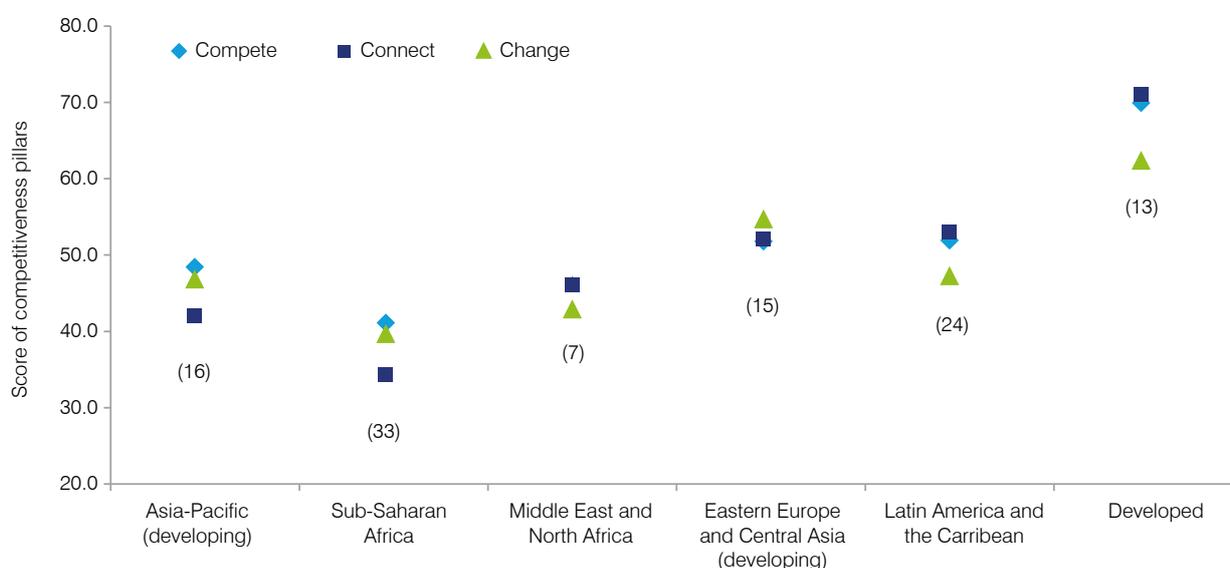
Source: ITC.

situation in sub-Saharan Africa contrasts with that of the northern part of the continent, given that the Middle East and North Africa (MENA) region performs relatively well in the connect pillar.

In the compete pillar, sub-Saharan Africa and Asia-Pacific perform best, representing static competitiveness.[207] In Asia-Pacific, this performance mainly reflects relatively low trade costs, both in terms of tariffs and the implementation of regulatory policies, with managers spending less time on regulations than in other regions.

When it comes to the capacity to change, Eastern and Central Europe outperform other developing regions. Several indicators drive this trend, including starting a business, business licensing and permits, access to an educated workforce and school life expectancy.

The average performance of a region, however, hides significant variances across countries within the same region. Figure 53 shows the lowest, highest, and median ranks for each region. Ranks are derived from the average of indicator scores for each country. Developed countries do best, with the top ranking and a median rank of 7. The top performing countries in the three regions Asia-Pacific, Eastern Europe and Central Asia, and Latin America and the Caribbean, attain rankings within the range found in the developed country group.

Standards affect competitiveness

Standards and regulations matter for SME competitiveness. In ITC's SME competitiveness assessment, standards and regulations enter the analysis at all three levels of the economy. At the firm level, the importance of standards is captured by the 'international quality certificate' indicator, which measures the number of firms with internationally recognized quality certificates (Figure 54).

The region with the highest score is Eastern Europe and Central Asia, followed by Latin America and the Caribbean. The region with the lowest score is Middle East and North Africa. Significantly, the regions with the lowest overall scores also have the widest gaps between small and large firms. Thus, it is the MENA region which has the largest gaps in scores between small, medium-sized firms and large firms. These gaps impact trade. When their products do not meet international quality standards, firms find it very difficult, if not impossible, to find international buyers.

At the immediate business environment level, the SME Competitiveness Grid includes the 'dealing with regulation' indicator. This is based on the following question: 'In a typical week over the last year, what percentage of total senior management's time was spent on dealing with requirements imposed by government regulations?' The variable indicates the administrative effectiveness around the implementation of regulations. In this context,
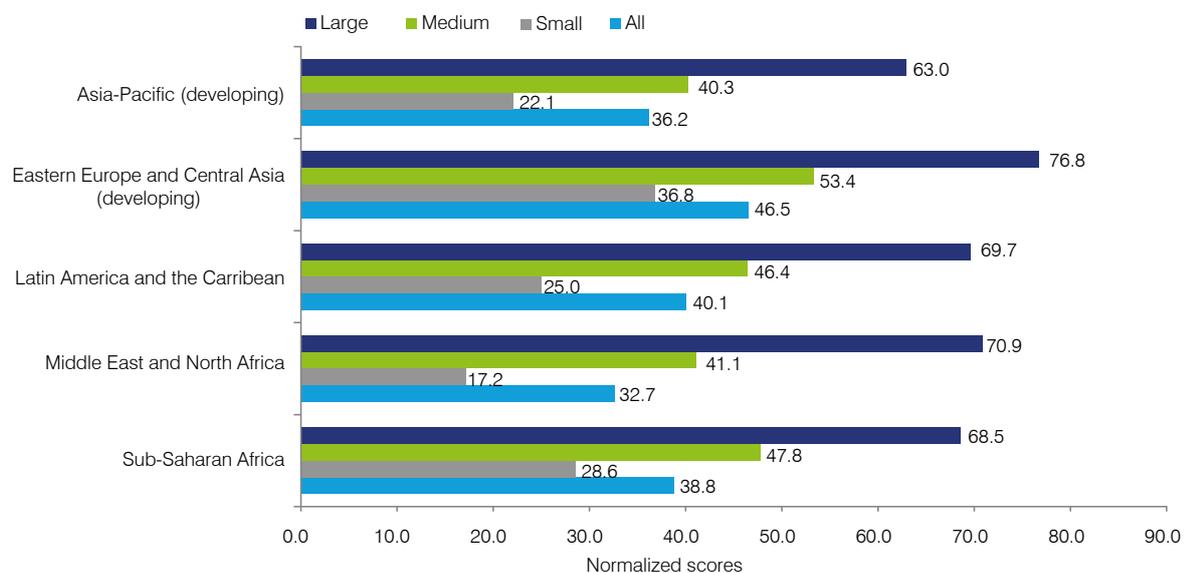
FIGURE 53 Intra-region variation of competitiveness
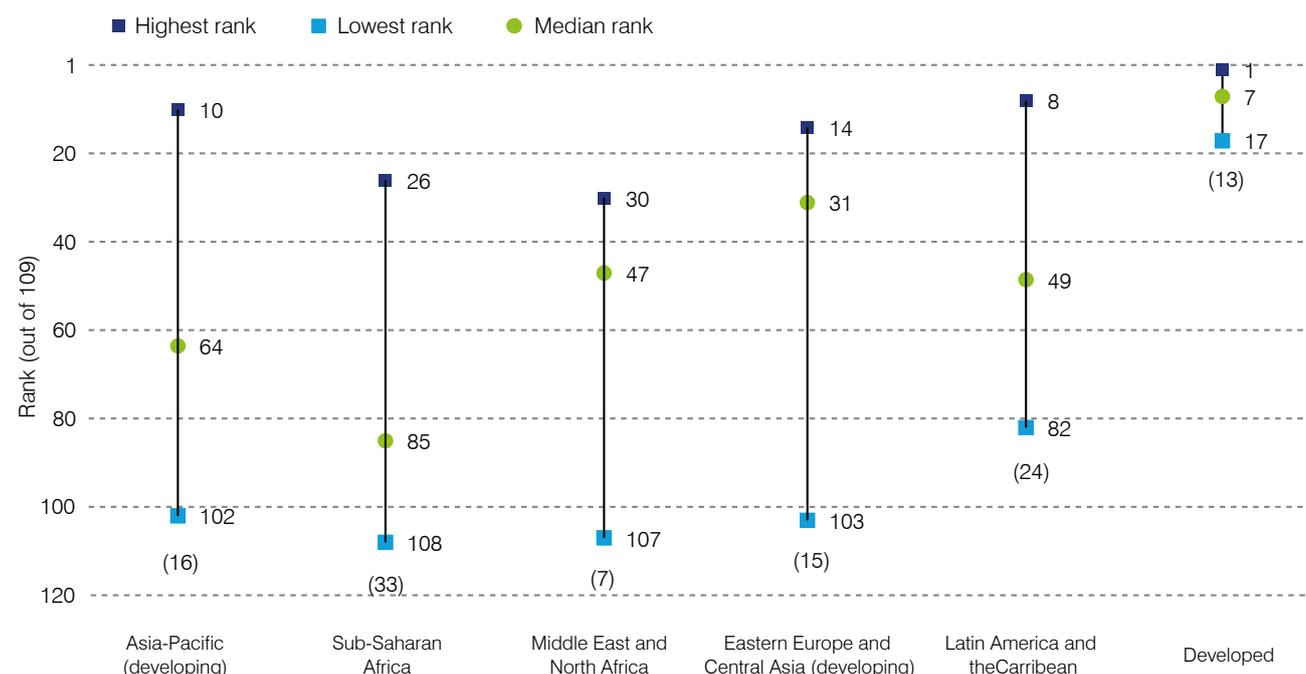
Note: Numbers in brackets represent the number of countries in the group.
Source: ITC.

FIGURE 54 Internationally recognized certificate scores, by firm size and region
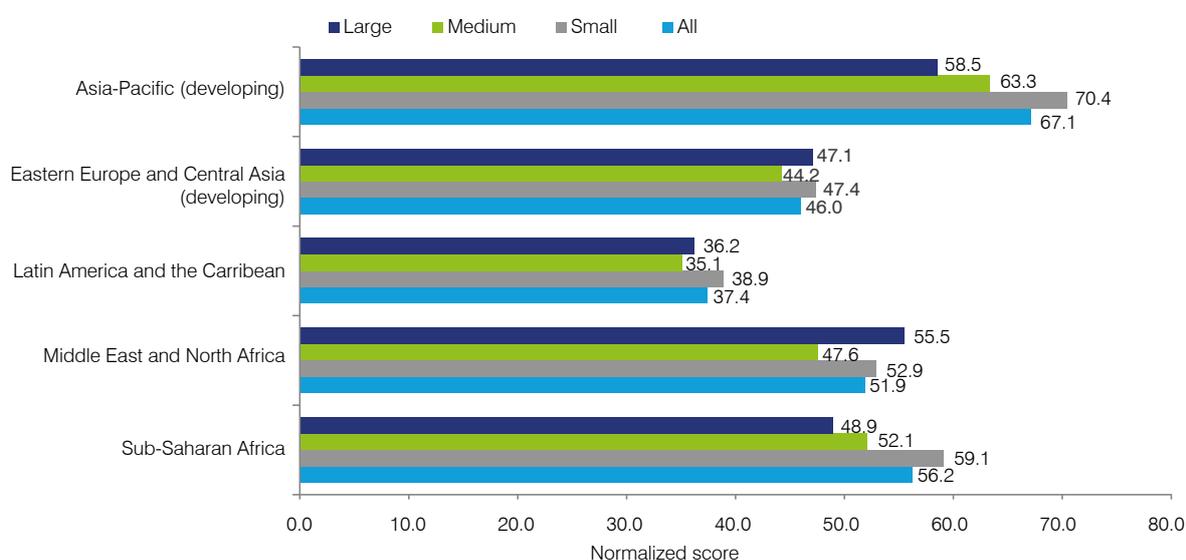

Source: ITC.

'regulation' refers to regulations as defined in this report (i.e. technical regulations), as well as other forms of regulation. To the extent that managers distinguish between standards and regulations, this variable therefore does not necessarily cover standards.

Figure 55 shows the scores for the 'dealing with regulation' indicator by region. What is striking is that small firms do not report spending more time dealing with regulations than large firms. This may be because some types of

regulation are linked to firm size. For instance, in France, many regulations kick in when the size of the firm reaches 50 employees.[208] Small firms may also simply avoid exporting to markets they consider regulation-heavy. Moreover, this variable is perception based, which may introduce a bias.

The firms that appear to suffer most from dealing with regulations are large and medium-sized firms. Averaging their scores across all countries, medium-sized firms score 5.4 points below small firms.
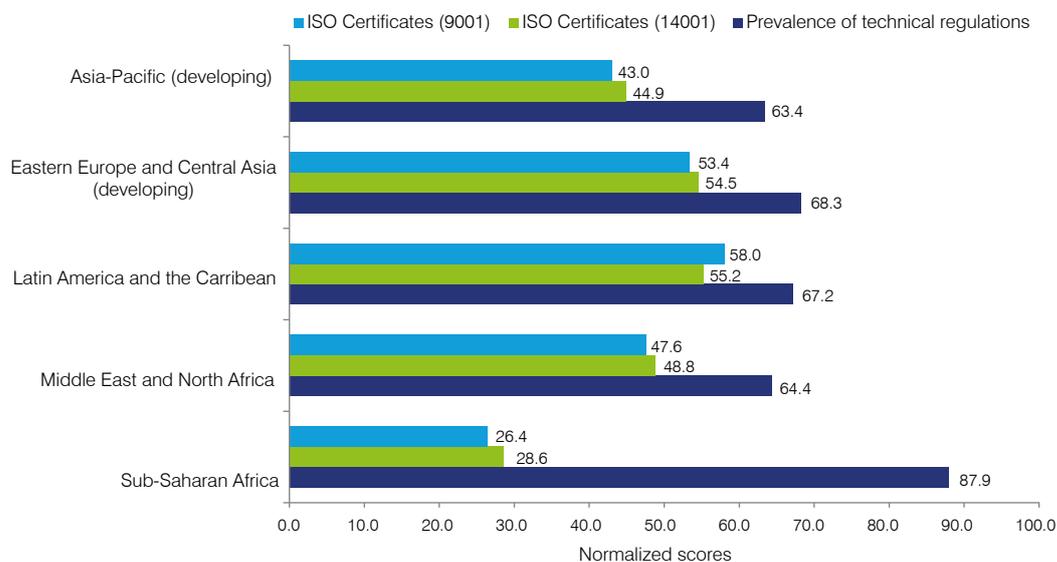
FIGURE 55 Dealing with regulation scores, by firm size and region

Note: Higher scores indicate that less time has been spent dealing with regulations.
Source: ITC.

FIGURE 56 National environment indicators related to standards, regulations

Source: ITC.

Non-exporting, medium-sized firms are believed to be best positioned to enter international markets, having already achieved the scale and productivity needed to compete in such markets. Regulations which disproportionately affect this class of firms will lower the international competitiveness of the country, resulting in fewer exports. Reducing administrative burdens is likely to have a big impact in enabling firms to join international markets and value chains.

Figure 56 shows two standards and regulations related to national environment indicators: prevalence of technical regulations and ISO certificates. This information was collected at the national level and cannot be broken down by firm size.[209] It is therefore used to assess the friendliness of the national environment to international standards. This has limitations, as it would have been useful to examine firm-level variation in the implementation of management standards such as ISO 9001.

Interesting in this context is the performance of sub-Saharan Africa, where relatively few firms have ISO quality certificates (Figure 56). This implies that sub-Saharan countries find it difficult to furnish proof of the quality of their management and environmental standards to other countries in the region, restricting intra-regional trade. In contrast, the findings represented in Figure 54 suggest that firms in the region perform relatively well when it comes to meeting internationally recognized quality certificates.

Sectors most affected by technical regulations

A key conclusion in the first part of this report is that standards and technical regulations are highly sector specific. Consequently, the technical infrastructure needed to comply with these requirements is also sector specific. Given the limited resources available to most developing countries, their governments may have to be selective when investing in technical infrastructure.

The relevance of standards and regulations differs across sectors. Policymakers will want to be able to identify regulation-heavy sectors and assess their economic importance.

Figure 57 presents two indicators: the average number of technical regulations per imported product and the share of trade subject to technical regulation (or coverage ratio), by sector. The coverage ratio is the fraction of imports affected by at least one technical regulation. Combining the indicators helps in understanding the impact of regulations on any given sector.

This figure shows that the fresh food and processed food sectors have the highest average number of regulations. Furthermore, they also have some of the highest coverage ratios. Based on the average of both indicators, the next three most regulated sectors are IT and consumer electronics, chemicals and transportation equipment. Thus, this report pays particular attention to these sectors.

The other side of the story:
Importers see regulations as trade obstacle

Standards and regulations don't just affect exporters – they have an impact on importers, too. Related trade obstacles can have a knock-on effect, especially when imports are part of a value chain.

Since 2010, ITC has been collecting information on how non-tariff measures (NTMs) affect importers and exporters in developing countries. The collected data provide information on developing country imports from the European Union (EU). In a recent data collection exercise, ITC has assessed how EU importers and exporters are affected by NTMs. The two datasets combined provide a unique set of mirror data that make it possible to compare perceptions of importers and exporters in the EU with those of exporters and importers in developing countries.

ITC Business Surveys on NTMs

These surveys provide a diagnostic of the challenges and opportunities countries face when exporting and importing.

Information on exports helps countries to implement policies that improve competitiveness; information on imports allows them to strengthen their position in international value chains, and provides evidence on partners' trade challenges.

Since 2010, ITC has documented the experiences with NTMs and related trade barriers of more than 22,500 trading companies. The resulting database sheds light on the characteristics of exporting and importing businesses in more than 60 countries across all continents and the market access conditions they face in their various partner countries.

Potential obstacles for developing country exporters and importers

ITC Business Surveys on NTMs in developing countries show that importers of goods perceive NTMs as a major obstacle to trade. The smaller the company, the higher the likelihood that it faces challenges in dealing with import regulations.

Entry formalities top the list of problems reported by importers. They cite sanitary and phytosanitary (SPS) measures and technical barriers to trade (TBT) as the second most frequent problem, ahead of taxes and charges.

For instance, an Arab importer of brakes for motor vehicles from the EU reported that 'the testing required by our national standardization organization at the central chemistry lab (ensuring that the pads are asbestos free) takes very long', leading to unpredictable delays with its EU partner and potential loss of business opportunities.

### The smaller the importer, the bigger the challenge from NTMs

The NTM Survey results identify the SPS and TBT measures cited by importers and their trading partners. Developing country imports from the EU, for example, the main import origin of many surveyed countries, are mainly

affected by product certification requirements, inspections and import authorizations. These are measures that aim to prove conformity with technical regulations, not technical requirements themselves (such as on labelling and packaging). Quality and food safety standards matter for developing countries which control goods from any origin including the EU.

Problems, however, arise with conformity assessment procedures in importing countries (which sometimes duplicate those performed in the exporting country). Such procedures depend on local capacities and facilities, which are often perceived as inadequate, inefficient and associated with high fees. For example, an importer of European products into Asia said that 'the national office in charge of the technical inspection is understaffed and imposed informal overtime fees to facilitate the process'.

Potential obstacles for EU exporters and importers

Problems encountered by developing country businesses when importing goods from the EU add to the costs of obstacles experienced by EU exporters at the other side of the transaction. More than a third of EU companies perceive NTMs as an obstacle to their export activity, according to a business survey carried out by ITC in 2015–2016 in collaboration with the European Commission. The survey documents the experiences of 8,100 trading companies, most of them SMEs, across the 28 EU members in 26 sectors, capturing trade flows with over 60 partner countries. The preliminary findings confirm that SPS and TBT measures, and more broadly NTMs, are not just a developing country challenge.

Share of importers affected by regulatory and procedural trade obstacles, by firm size

53% Micro
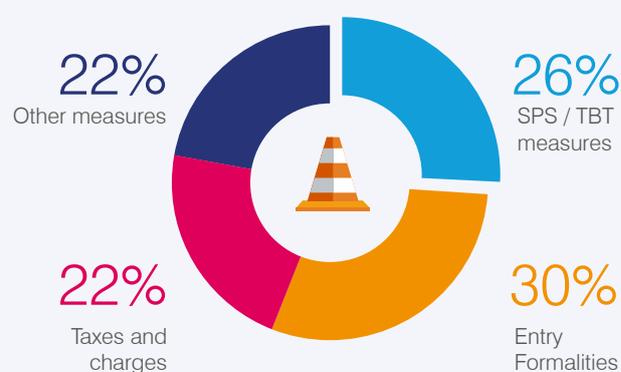
49% Small

47% Medium

43% Large
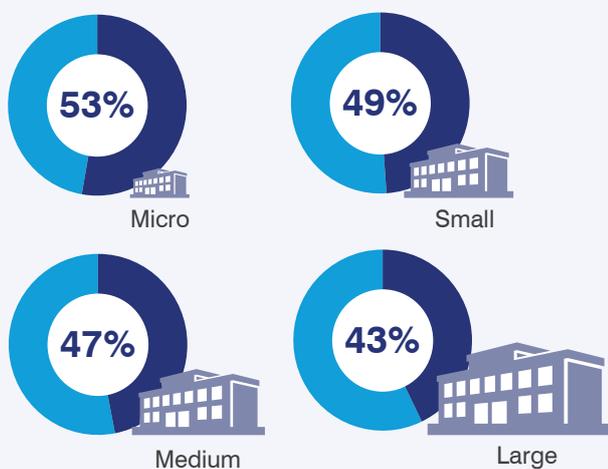
Note: Data based on interviews with 10,787 importers from 29 developing countries. More at: www.ntmsurvey.org.
Source: ITC Business Surveys on NTMs (2010–2016).

Importers rank challenges

22% Other measures

26% SPS / TBT measures

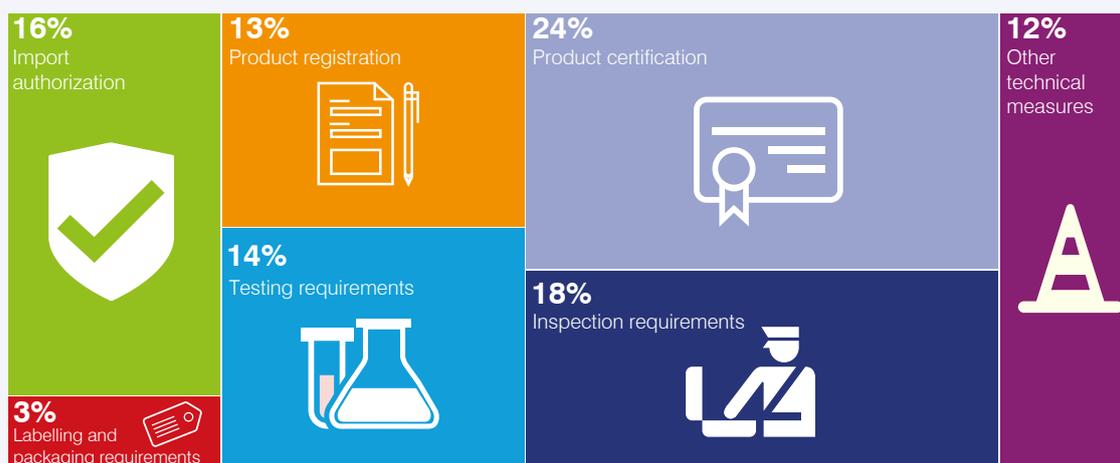**22%** Taxes and charges

30% Entry Formalities

Note: Data based on detailed interviews with 2,953 importers from 29 developing and least developed countries, who shared their experiences on the types of challenges they encounter. More at: www.ntmsurvey.org.
Source: ITC Business Surveys on NTMs (2010–2016).

On the import side, the EU survey mirrors the insights from developing country exporters: the main challenges for sourcing from developing countries are product quality, food safety and conformity with European standards. As an EU importer said, 'enterprises in developing countries must understand the necessity for their products to comply with the exact standards of EU medical device companies, which operate in a very stringent regulatory environment'.

The EU survey results will provide new insights into facilitating trade between developing countries and the EU. Key findings will be released by the end of 2016 and made available at www.ntmsurvey.org/eu.

Challenges for importers that source from the EU

16%
Import authorization

3%
Labelling and packaging requirements

13%
Product registration

14%
Testing requirements

24%
Product certification

18%
Inspection requirements

12%
Other technical measures

Note: Data based on interviews with 1,394 companies from 29 developing and least developed countries, which import from the EU. The figure shows the challenges related to SPS and TBT measures only. More at: www.ntmsurvey.org.
Source: ITC Business Surveys on NTMs (2010–2016).

FIGURE 57 Global regulatory intensity, by sector
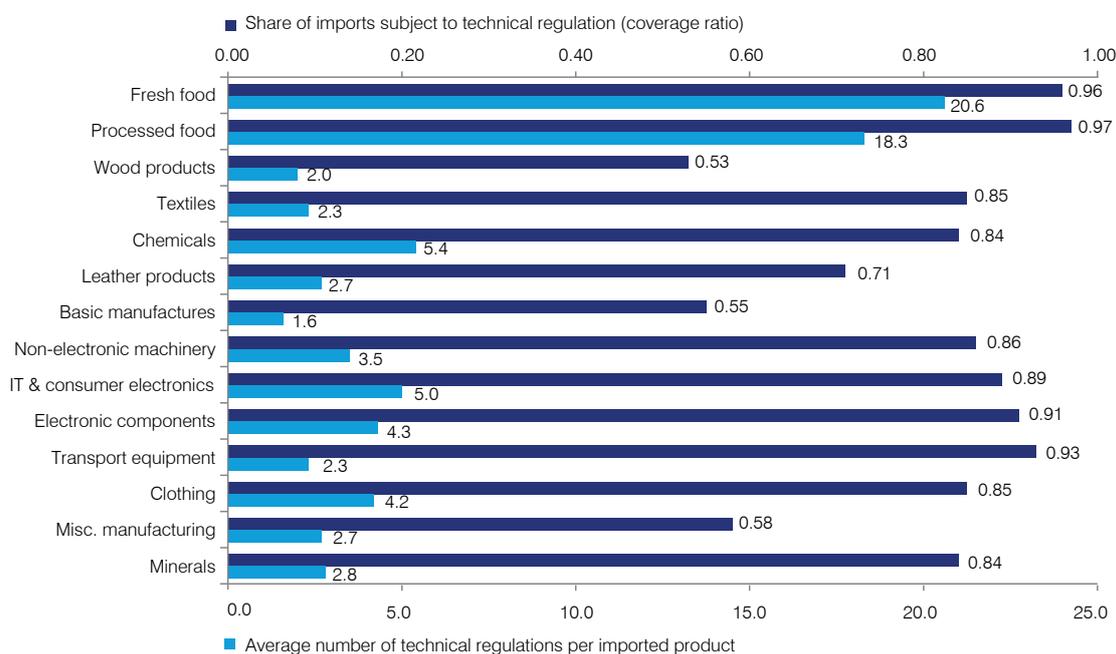
Note: Dark blue bars represent the coverage ratio, while light blue bars represent the average number of technical regulations per imported product.
Source: ITC calculations based on multi-agency regulatory database on NTMs accessed through Market Access Map.

Compliance: A key to exploiting export potential

Fresh food, processed food, IT and consumer electronics, chemicals and transportation equipment have different weights in regional export baskets; the role of each of these sectors varies in driving export expansion or diversification. These relatively regulation-intensive sectors require relevant infrastructure and capacities. Without this base, firms are likely to have bottlenecks in meeting standards, and countries may not achieve their export potential in existing export sectors, or successfully diversify their export offer.

ITC's Export Potential Assessments (EPA) make it possible to evaluate export potential in the five mentioned sectors. EPA includes the Export Potential Index (EPI) and Product Diversification Index (PDI). EPI helps to reveal unexploited export potential in products in which the exporting country has already proven to be internationally competitive. Major existing export products will therefore appear in this assessment with information on the partner regions where unexploited export potential exists.

PDI serves countries that want to diversify, move up value chains and develop new export sectors with promising conditions in new or existing target markets. It identifies products which the country does not yet export competitively but which seem feasible based on the country's current export basket and the export baskets of

similar countries. In ITC's PDI, products have been filtered so as to remove those that are below the median technology level of the country in question.[210]

Detailed descriptions of the EPI and PDI methods can be found in ITC's *Spotting Products with Export Potential*.[211] Chapter 9 of this report provides EPI and PDI results country by country. Because of restrictions in data availability, the EPI and PDI analyses focus on goods and do not include services.

The following section discusses SME competitiveness standards and regulations related indicators, EPI and PDI metrics, and NTM-based metrics for each ITC development region.

Together, the data can help policymakers identify:

- Where export and diversification opportunities lie;

- The sectors in which they could focus efforts to build technical infrastructure and to strengthen firm capacity to meet standards;

- Where to direct reform efforts in technical regulations to boost trade and SME competitiveness.

The presented information is based on quantitative analysis that should ideally be complemented with qualitative country-level or regional information in order to exploit its full potential.

The Middle East and North Africa

The two most heavily regulated sectors in Figure 57 are fresh and processed foods. Globally, both sectors have in excess of 18 technical regulations per imported product and coverage ratios of over 0.96. This is presumably due to the delicate nature of food and the potential harm to human health if products are not produced or stored in sanitary conditions.

Figure 58 shows the regulatory intensity in the fresh and processed food sector by region, with countries in the MENA region imposing the largest number of technical regulations. Although the data do not capture the severity of technical regulations, the findings suggest that regulatory entry burdens in the MENA region are high in the fresh and processed food sectors.

Figure 59 illustrates the unrealized potential to export fresh and processed foods to MENA countries. In terms of value, Asia-Pacific has unrealized export potential of $16.5 billion to the MENA region. Asian-Pacific exporters could thus gain significantly from a less burdensome regulatory environment.

FIGURE 58 Regulatory intensity in fresh and processed food, by region
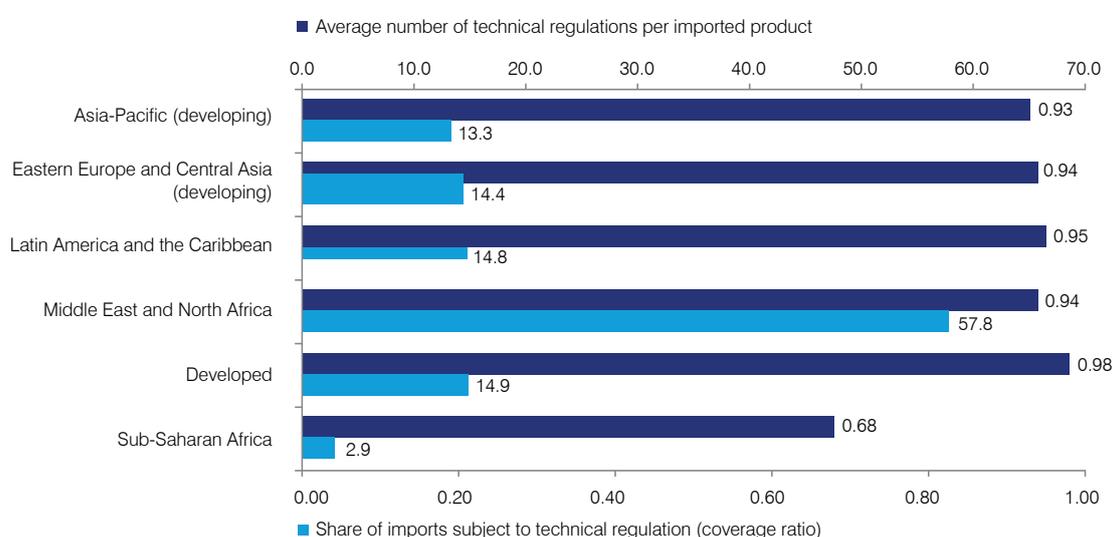
Note: ITC calculations based on multi-agency regulatory database on NTMs accessed through Market Access Map.
Source: Light blue bars represent the coverage ratio, while dark blue bars represent the average number of technical regulations per imported product.
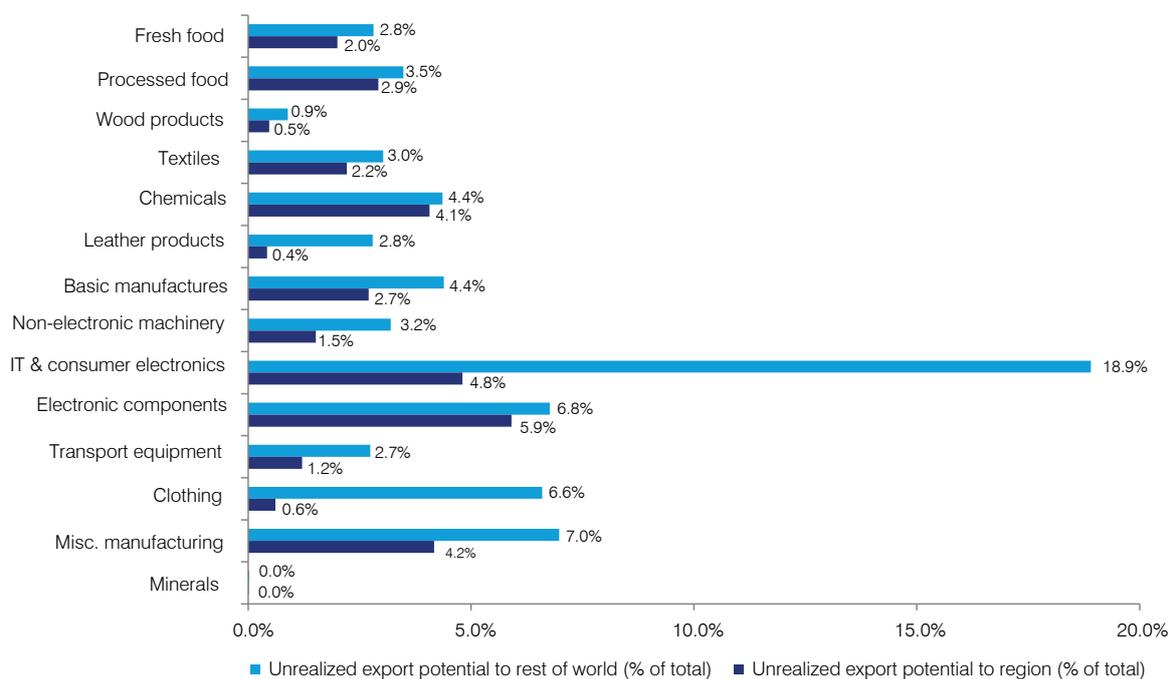
FIGURE 59 Unrealized export potential of regions to the MENA market in the food sector
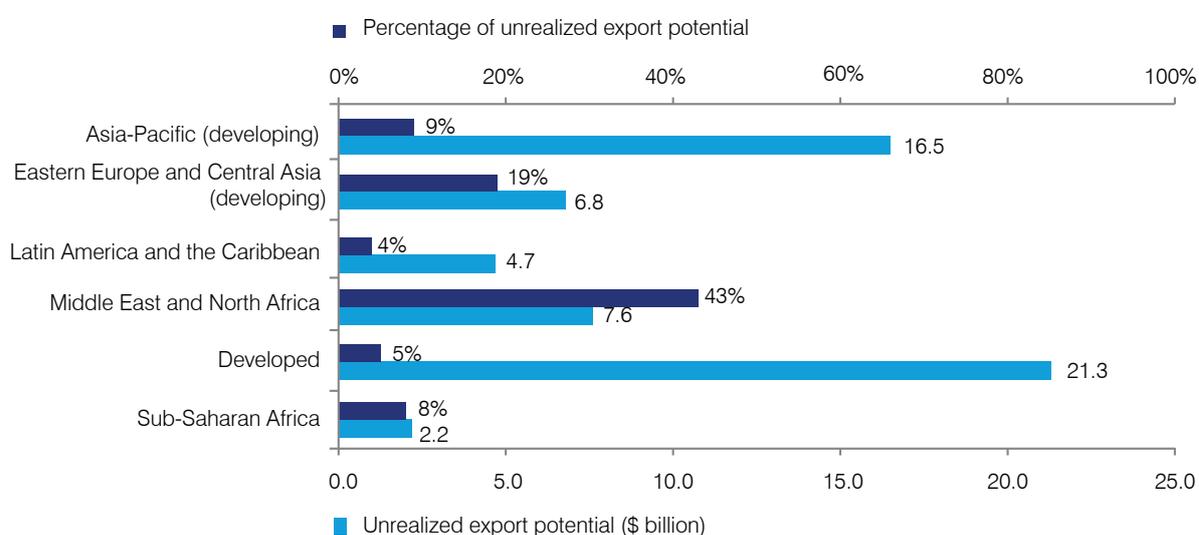
Note: Light blue bars represent the percentage of unrealized export potential, while darkblue bars represent the value of unrealized export potential.
Source: ITC Export Potential Map.

FIGURE 60 Asia-Pacific: Unrealized export potential, by sector

Note: Asia-Pacific's total unrealized export potential is $1710 billion. Percentages from the light blue and dark blue bars add to 100.
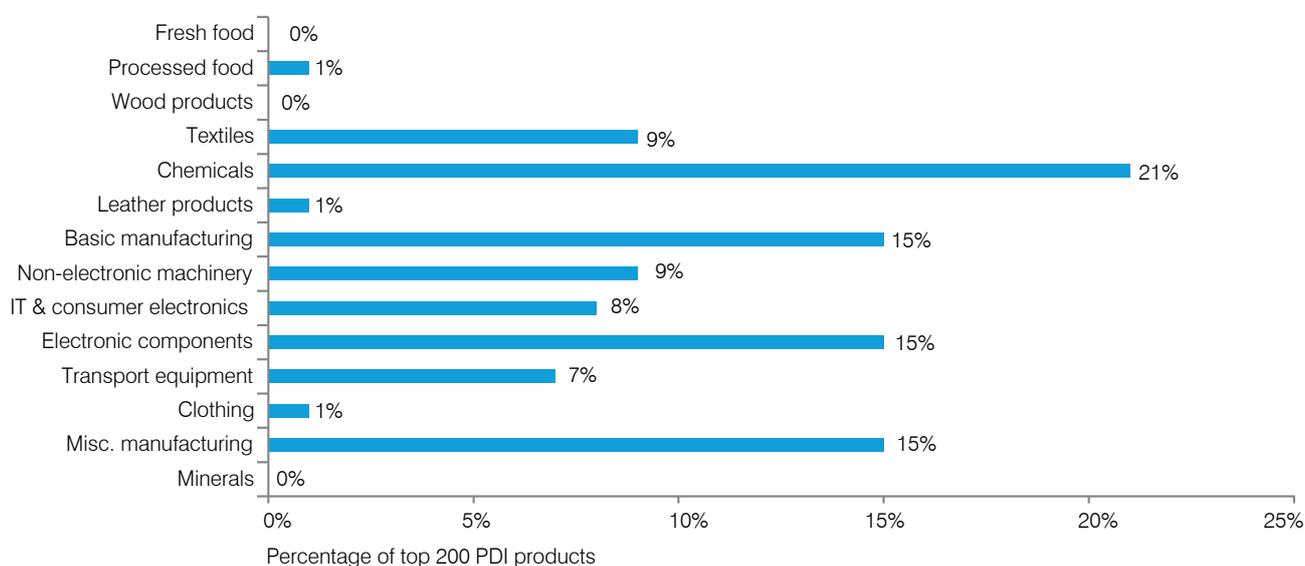**Source:** ITC Export Potential Map.

But the region that could stand to gain most is MENA itself. Of the region's unrealized export potential in the sector, 43% is to other MENA countries, amounting to potential exports of $7.6 billion.

A reform of technical regulations could benefit MENA countries in other ways. Enabling more products to enter domestic markets from other countries in the region or from further afield will help boost competition and in turn drive down prices. Firms can also benefit. Evidence from Tunisia shows that firms importing intermediates have higher productivity levels, and in turn export more.[212]
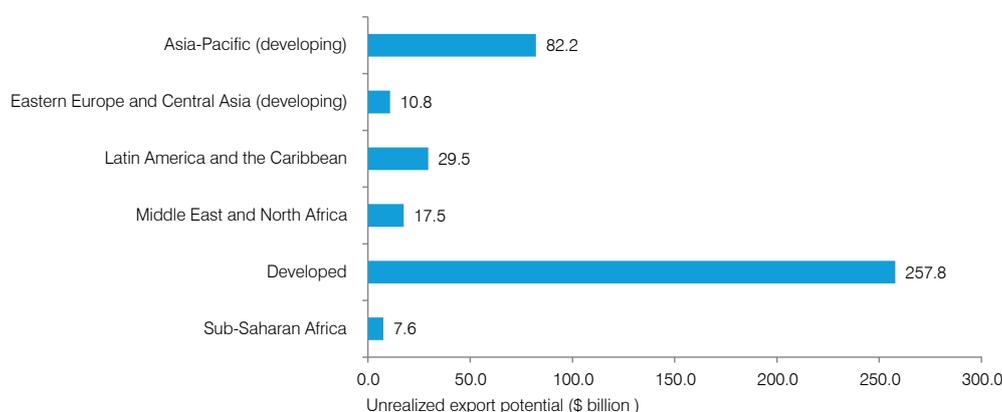
Holding MENA firms back are the low numbers of firms (particularly SMEs) which hold internationally recognized quality certificates. Figure 54 revealed that the MENA

FIGURE 61 Asia-Pacific sectors with product diversification potential

Percentage of top 200 PDI products

Source: ITC Export Potential Map.

FIGURE 62 Asia-Pacific: Unrealized export potential in the IT and consumer electronics sector, by destination region

Destination region	Unrealized export potential ($ billion)
Asia-Pacific (developing)	82.2
Eastern Europe and Central Asia (developing)	10.8
Latin America and the Caribbean	29.5
Middle East and North Africa	17.5
Developed	257.8
Sub-Saharan Africa	7.6

Source: ITC Export Potential Map.

region is the weakest performing region measured by the percentage of firms meeting internationally recognized certificates. This performance is notably driven by the very weak performance of small firms in this determinant.

Simplifying technical regulations in the region and strengthening the technical infrastructure and firm-level capacity to comply with food regulations will help the region meet its export potential.

Asia-Pacific

The Asia-Pacific region performs strongly in exports of IT and consumer electronics. ITC's EPI assessment suggests that the sector is also responsible for 23.7% of the region's unrealized export potential (Figure 60), translating into export opportunities of $405.3 billion.

ITC's PDI identifies the chemicals sector as the most promising for product diversification, with 21% of the top 200 products having potential for diversification (Figure 61).

For the IT and consumer electronics sector, about 64% of Asia-Pacific's unrealized export potential is in developed country markets (Figure 62), which translates to a large export opportunity of $257.8 billion.

Developed countries have an average of 7.3 technical regulations per imported product, which is higher than the global average of five technical regulations. Meeting developed countries standards and regulation in this domain is therefore important for exporters in the Asia-Pacific region.

The Asia-Pacific region has a strong immediate business environment when it comes to standards and regulations (Figure 55). Firms in the region report that less senior management time is spent complying with existing regulations than in other regions, which reflects an effective governance structure.

SMEs in the Asia-Pacific region are on average less likely to hold an internationally recognized quality certificate than most other regions. Also at the national level, the region does not perform well on the implementation of international management standards such as ISO9001 and ISO14001 (Figure 52). These results are, however, likely to be driven by poor small economies in the region. The regional standards analysis is based on unweighted averages. The strong performance in quality certificates and international management standards in large emerging economies like China, India and Indonesia is not well reflected in these averages, but is discussed in detail in the relevant country profiles.
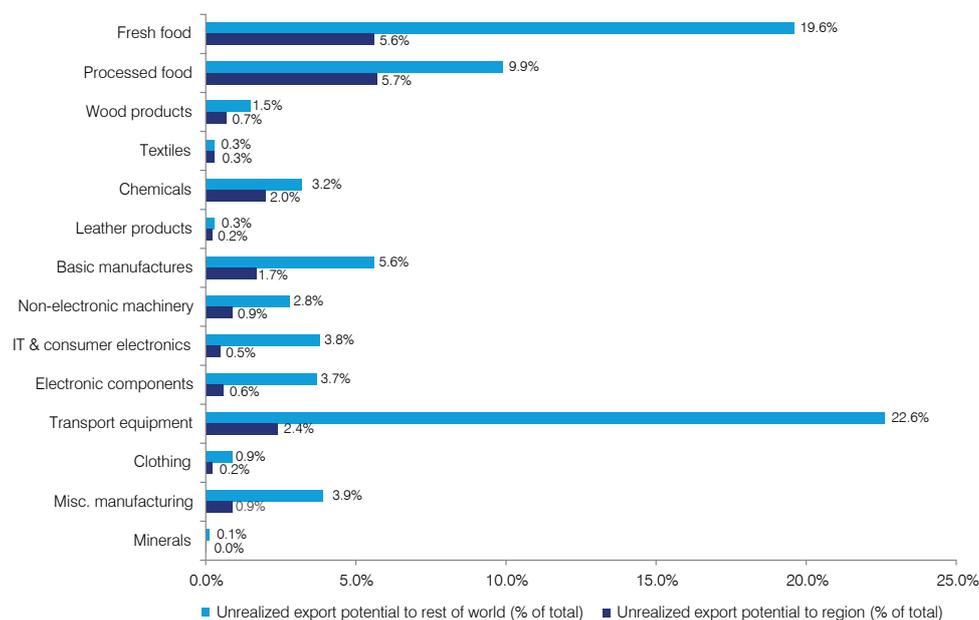
The capacity of small and medium-sized firms to meet quality standards may nevertheless deserve attention, especially in countries wishing to expand into new sectors, such as chemicals. This sector, for instance, is characterized by a predominance of consumer protection regulation, whereas compatibility standards dominate in the IT and consumer electronics sectors.

Latin America and the Caribbean

ITC's EPI identifies the fresh foods and transport equipment as having significant unrealized export potential for Latin American and Caribbean (LAC) countries (Figure 63). The fresh foods sector accounts for 25.2% of the region's unrealized export potential, an export opportunity of $68 billion. Transport equipment is responsible for 25% of the region's unrealized export potential, an export opportunity of $67 billion.

ITC's PDI identifies a wide variety of sectors for diversification in the region, including fresh food, processed food, chemicals, and metal and basic manufacturing (Figure 64). This suggests that LAC economies are highly diversified already.
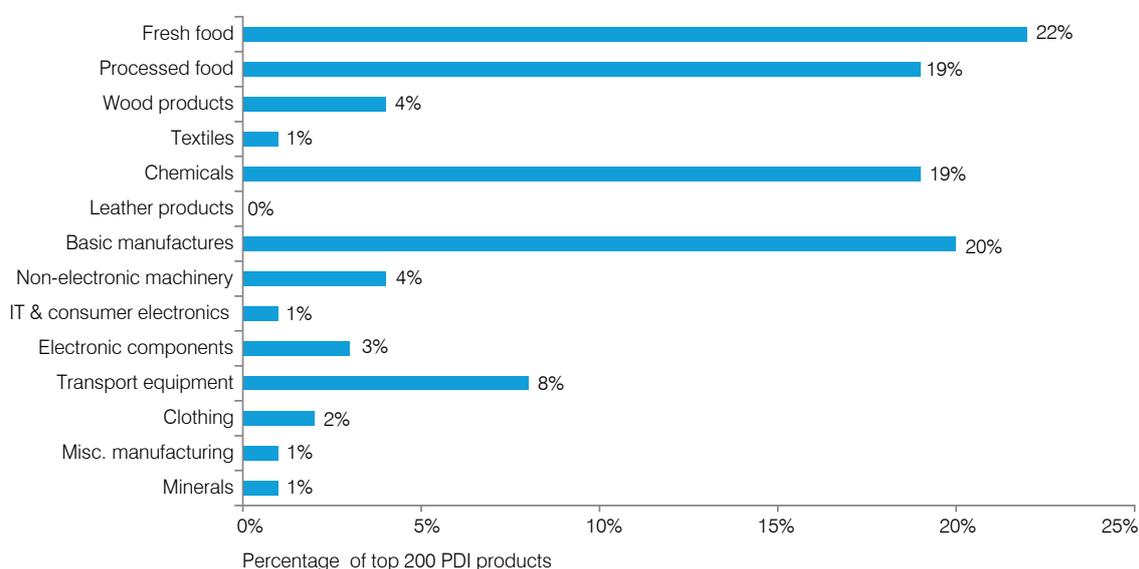
FIGURE 63 LAC: Unrealized export potential, by sector

Fresh food — 19.6% / 5.6%
Processed food — 9.9% / 5.7%
Wood products — 1.5% / 0.7%
Textiles — 0.3% / 0.3%
Chemicals — 3.2% / 2.0%
Leather products — 0.3% / 0.2%
Basic manufactures — 5.6% / 1.7%
Non-electronic machinery — 2.8% / 0.9%
IT & consumer electronics — 3.8% / 0.5%
Electronic components — 3.7% / 0.6%
Transport equipment — 22.6% / 2.4%
Clothing — 0.9% / 0.2%
Misc. manufacturing — 3.9% / 0.9%
Minerals — 0.1% / 0.0%

■ Unrealized export potential to rest of world (% of total) ■ Unrealized export potential to region (% of total)

Note: LAC's total unrealized export potential is $268 billion. Percentages from the light blue and dark blue bars add to 100.
Source: ITC Export Potential Map.

FIGURE 64 LAC sectors with product diversification potential

Fresh food — 22%
Processed food — 19%
Wood products — 4%
Textiles — 1%
Chemicals — 19%
Leather products — 0%
Basic manufactures — 20%
Non-electronic machinery — 4%
IT & consumer electronics — 1%
Electronic components — 3%
Transport equipment — 8%
Clothing — 2%
Misc. manufacturing — 1%
Minerals — 1%

Percentage of top 200 PDI products

Source: ITC Export Potential Map.

Approximately 84% of unrealized export potential in the transport sector lies in developed countries. In these markets, 97% of the sector's products are covered by at least one technical regulation, meaning that LAC countries need to develop robust national technical infrastructure to prove that their products comply with stated requirements. With a prevalence ratio of only 2.8, it should not be difficult

for firms to identify all relevant technical regulations for each product, although it could turn out to be difficult to comply with those regulations.

In the fresh food sector, about 22% (or $15 billion) of the region's unrealized export potential is within the region. However, in stark contrast to processed food, fresh food is heavily regulated, with over 20 regulations per imported

product. This is somewhat surprising, as the prevalence ratios for fresh and processed food are usually similar.

According to SME competitiveness indicators, firms of all sizes report that dealing with regulations is more time-consuming than in any other region. Nevertheless, adoption of management standards such as ISO 9001 and ISO 14001 is fairly strong in the region.

Medium-sized and large companies also perform well when it comes to adopting international quality certificates. As small firms trail somewhat, catching up in this domain could be beneficial for the region.

Overall, the region's performance in standards and regulations is in line with the general picture for SME competitiveness highlighted in the 2015 *SME Competitiveness Outlook*. There appears to be strong entrepreneurship in the region, which contributes to overcoming inefficiencies created in the national policy context. This is particularly true for large and medium-sized firms.
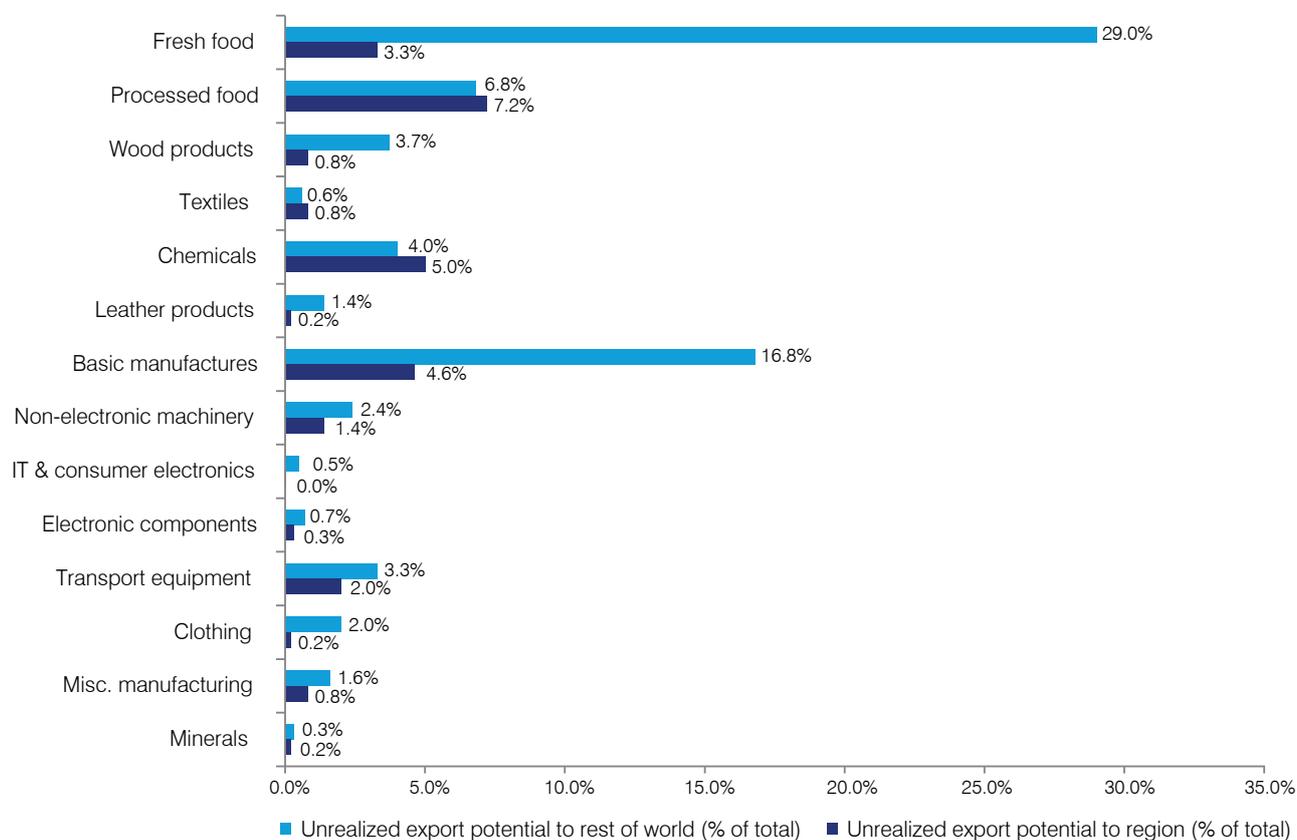
Sub-Saharan Africa

ITC's EPI identifies the fresh food and metal and basic manufacturing sectors as having the highest unrealized export potential in sub-Saharan Africa (Figure 65). The fresh food sector accounts for 32.3% of the region's unrealized export potential, an export opportunity of $18.7 billion. Basic manufacturing (which includes products such as wiring, tubing and glass fibres) is responsible for 21.4% of the region's unrealized export potential, translating into an export opportunity of $12.4 billion. ITC's PDI also identifies metals and basic manufacturing as a sector with diversification opportunities for many products and, to a lesser extent, chemicals (Figure 66).

The vast majority of sub-Saharan Africa's unrealized export potential in fresh food is to destinations outside of the region. Furthermore, over 50% of this potential is in developed countries, which impose an average of 15.3 technical regulations per imported product.
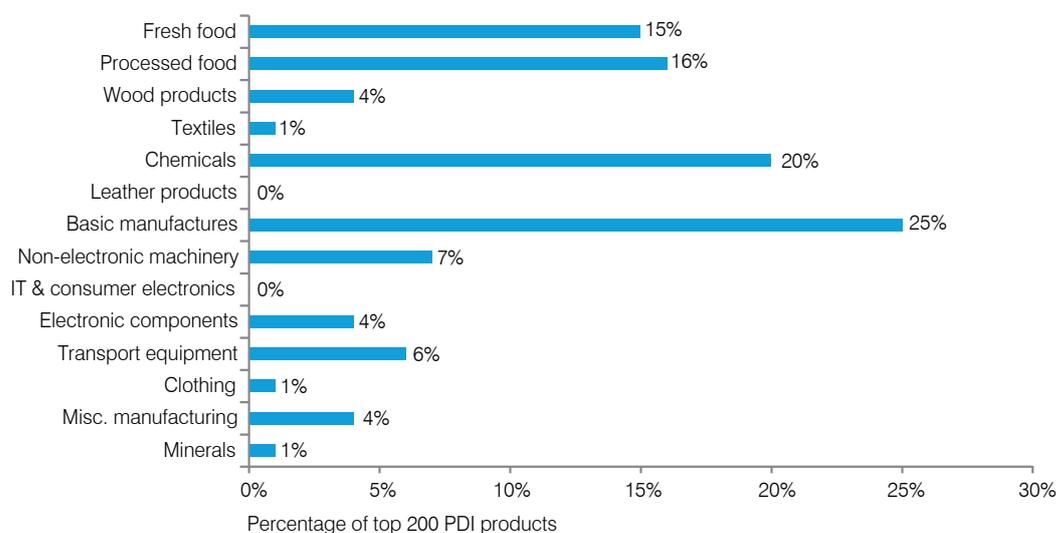
For metals and basic manufacturing, 25% of the region's unrealized export potential is in the Asia-Pacific region,

FIGURE 65 Sub-Saharan Africa: Unrealized export potential, by sector

Fresh food: 29.0% / 3.3%
Processed food: 6.8% / 7.2%
Wood products: 3.7% / 0.8%
Textiles: 0.6% / 0.8%
Chemicals: 4.0% / 5.0%
Leather products: 1.4% / 0.2%
Basic manufactures: 16.8% / 4.6%
Non-electronic machinery: 2.4% / 1.4%
IT & consumer electronics: 0.5% / 0.0%
Electronic components: 0.7% / 0.3%
Transport equipment: 3.3% / 2.0%
Clothing: 2.0% / 0.2%
Misc. manufacturing: 1.6% / 0.8%
Minerals: 0.3% / 0.2%

0.0% 5.0% 10.0% 15.0% 20.0% 25.0% 30.0% 35.0%

■ Unrealized export potential to rest of world (% of total)   ■ Unrealized export potential to region (% of total)

Source: ITC Export Potential Map.

FIGURE 66 Sub-Saharan Africa sectors with product diversification potential

Source: ITC Export Potential Map.

FIGURE 67 Sub-Saharan Africa: Unrealized export potential in metal and basic manufacturing, by destination region
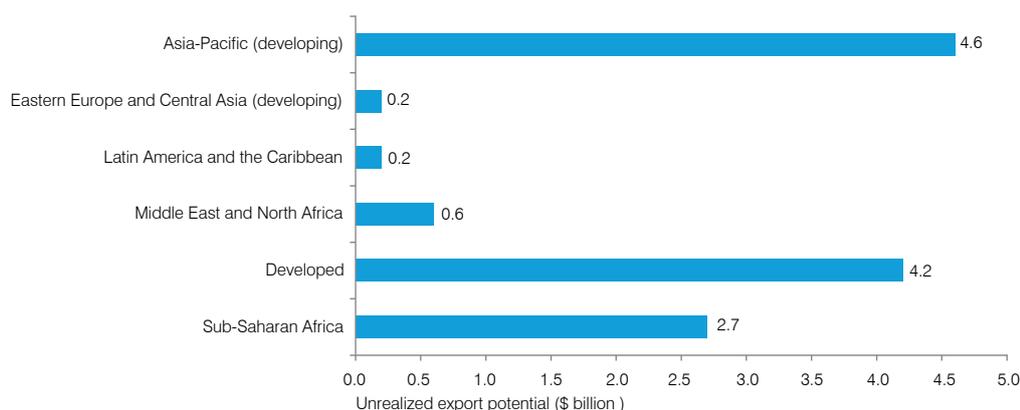
Source: ITC Export Potential Map.

amounting to an export opportunity of $4.6 billion (Figure 67). The Asia-Pacific region applies, on average, 1.8 technical regulations per imported product. This is fewer regulations than developed countries apply, but more than applied within sub-Saharan Africa. However, a prevalence ratio of 1.8 is fairly low, especially when compared to other sectors.

Managers of sub-Saharan companies do not spend significantly more time on regulations than managers in other regions, indicating that the governance structure is not more burdensome than elsewhere. Adoption of international quality certificates is widely spread among medium-sized and large firms. Small firms trail, but the situation is not worse than in other regions. In fact, small firm adoption of international certificates is stronger than in the LAC region.

As a result, it is surprising that international management standards are not widely adopted (Figure 56). Given that these standards are not sector specific, weaknesses in this domain may undermine the region's potential to diversify into new products. Diversification efforts may also suffer from the low connectivity levels in the region that were highlighted in the *SME Competitiveness Outlook 2015*.

Eastern Europe and Central Asia

ITC's EPI identifies metals and basic manufacturing as the sector with the greatest unrealized export potential in Eastern Europe and Central Asia (EECA; Figure 68). The sector, which includes products such as wiring, tubing and glass fibres, is responsible for 28.4% of the region's unrealized export potential, an export opportunity of $40.6 billion. ITC's PDI also identifies metals and basic manufacturing and chemicals as sectors with diversification opportunities for many products (Figure 69).
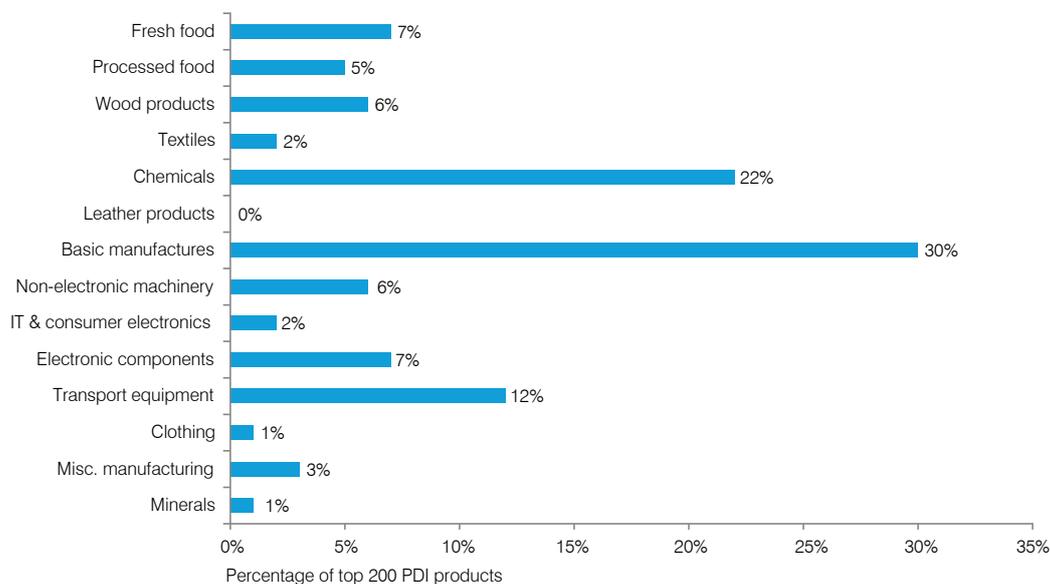
FIGURE 68 EECA: Unrealized export potential, by sector
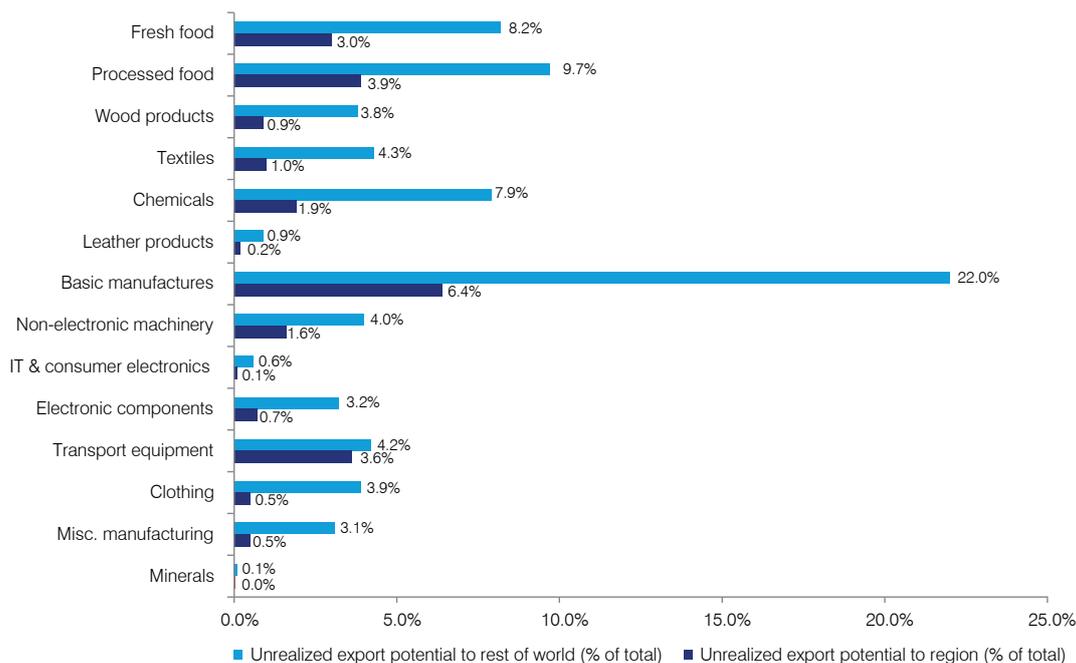
Note: EECA's total unrealized export potential is $143 billion. Percentages from the light blue and dark blue bars add to 100.
Source: ITC Export Potential Map.

FIGURE 69 EECA sectors with product diversification potential
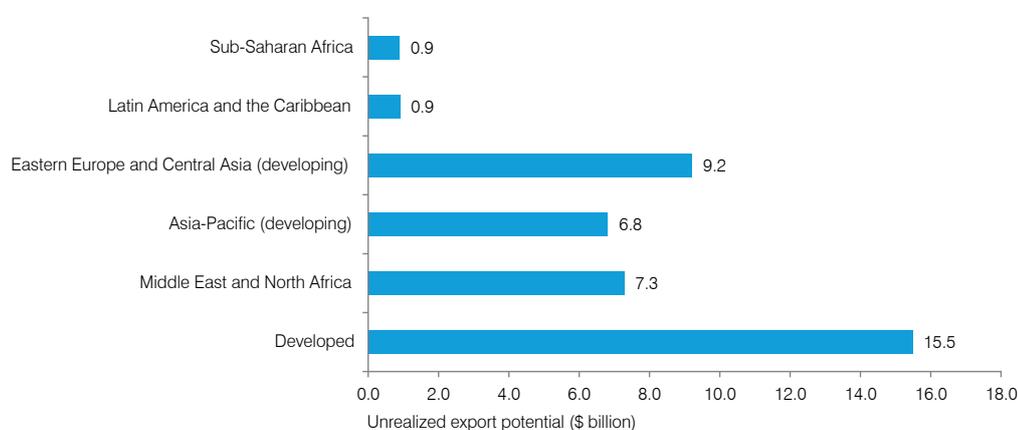

Source: ITC Export Potential Map.

For metals and basic manufacturing, 38% of the region's unrealized export potential is in developed countries, an export opportunity of $15.5 billion (Figure 70). EECA also has significant unrealized export potential for the sector in neighbouring regions (Asia-Pacific and MENA), but very little in regions further away, such as sub-Saharan Africa and LAC.

The EECA region is the wealthiest region in this report's sample, after the group of developed countries. Not surprisingly, therefore, the region performs well along all the criteria presented in Figures 54, 55 and 56. It is also the case that when it comes to meeting internationally recognized quality certificates, the gap between the performance of small and large firms is narrower in the EECA region than elsewhere.

The EECA region nevertheless does not outperform other regions regarding time spent by managers with regulations and the adoption of international management standards. These are areas that could warrant improvement, particularly if the region aims to take advantage of diversification opportunities in sectors such as chemicals.

FIGURE 70 EECA: Unrealized export potential in metal and basic manufacturing, by destination region

Source: ITC Export Potential Map.