

**Standards and Technical Regulations and Firms in Developing Countries:
New Evidence from A World Bank Technical Barriers to Trade Survey**

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Section 1. Approach

The use of standards and technical regulations as instruments of commercial policy in unilateral, regional, and global trade contexts has increased as tariff and quota barriers continue to decline (Maskus and Wilson, 2001). Standards and technical regulations are principally used to mitigate food, animal and plant safety risks, and to provide common norms for product characteristics. However, these technical requirements also can constitute barriers to trade by imposing unnecessary costly and time consuming tests or by laying out various requirements in different markets. These technical requirements are of particular concern to developing countries that are seeking to penetrate industrialized country markets.

The World Bank Technical Barriers to Trade Survey is the first attempt to globally investigate the impacts of technical requirements. The intent of the survey is to solicit input from agricultural, manufacturing, and trade firms in various emerging market countries regarding technical barriers encountered abroad, which impact their ability to successfully export products.

The data collected covers 689 firms in over twenty industries in 17 developing countries. One of the main goals of this survey project is the evaluation of the impact of standards and technical barriers to trade at the firm level. This paper will provide a comprehensive description of the World Bank Technical Barriers to Trade Survey dataset. This paper also will provide an overview of domestic and foreign technical regulations, international standards, and other various impediments to business and export surrounding the firms in developing countries as well as their response to the situation. The comparison is made across countries and industries regarding standards and regulations, and their impacts on firms' production and conformance activities. Information on technical regulations specific to five major export markets also enables us to compare the stringency and importance of technical regulations by export markets such as the EU, the US, Japan, Canada, and Australia.

The paper is organized as follows: Section 1 explains survey methods and sample selection for the World Bank Technical Barriers to Trade Survey, Sections 2 provides an overview of the characteristics of firms and export orientation of the surveyed firms. Section 3 provides an overview of mandatory technical regulations and conformity assessments that the surveyed firms have faced. Section 4 provides an overview of firms' reaction to selected international standards. Section 5 provides an overview of firms' reaction to mutual recognition agreements (MRAs). Section 6 provides a summary and implications.

1.1 Related Work and The World Bank Technical Barriers to Trade Survey

There have been survey efforts to identify factors affecting the private business environment. Those include World Business Environment Survey (WBES) and Investment Climate Assessments (ICAs) of the World Bank and the survey on technical regulations conducted by OECD.

WBES collected a set of enterprise data, based on a survey of more than 10,000 firms in 80 countries conducted between late 1999 and mid 2000. Basic econometric analysis of these data indicates that taxes and regulations, financing, governance and other business constraints are significant factors in explaining a firm's performance and behavior.

ICAs, a part of the World Bank Group's Public Sector Development strategy, is an initiative to examine conditions for private investment and enterprise growth in countries all around the world. The purpose of this survey is to understand conditions in the local investment climate and how they impact firm-level productivity.

OECD (2000) conducted a survey of 55 firms in three different sectors of the U.S., Japan, the U.K and Germany on the costs associated with technical standards and conformity assessment procedures in order to assess the extent to which technical standards and conformity assessment procedures hinder trade. The sectors studied were terminal telecommunications equipment, dairy products, and automotive components..

The World Bank Technical Barriers to Trade Survey was designed to support an in-depth analysis of the impact of standards and technical regulations. Particular attention was paid to address the importance and costs of various types of standards and technical regulations that firms in developing countries confront in exporting to the major developed country markets. The data were collected to cover a wide range of industries from raw agricultural products to electronics, and a wide range of geographic regions. A cross-country and cross-industry analysis will be supported by a sufficient number of samples.

1.2 Survey Methods and Questionnaire

The data collection in the field was contracted to local consulting companies by Harris Interactive. Harris Interactive used its member network of research suppliers in order to undertake data collection in the global regions.

Questionnaire preparation

Research materials were prepared in English and translated into appropriate languages for each of the countries where the survey was conducted.

Interviewer Briefing

Supervisors conducted briefings with all interviewers before they began working on the survey project, making sure that the interviewers were clear about the qualifications and administration of the screener and main questionnaire, discussing specific interviewing techniques required for each project, and conducting a “round robin” role-playing exercise with all interviewers.

Pilot and Full Field Interviews

Three pilot interviews with each local consulting firms were conducted in order to validate the data collection process and ensure effectiveness before full field interviews. A total of 24 pilot interviews were conducted. According to the experience from pilot interviews, questionnaires were improved in terms of efficiency in capturing desirable forms of responses.

1.3 Sample Selection

Country Selection

The countries included cover a range of economic development and export experience yet have sufficiently deep agricultural and industrial structures to permit sectoral comparisons. The following countries have been selected for study:

Eastern Europe: Bulgaria, The Czech Republic, Poland

Latin America and Caribbean: Argentina, Chile, Honduras, Panama

Middle East: Iran, Jordan

South Asia: India, Pakistan

Sub-Saharan Africa: Kenya, Mozambique, Nigeria, Senegal, South Africa, Uganda

Selection of Firms to be Interviewed

The interviewed firms are selected according to the following criteria: (1) current or potential involvement in export, (2) experience of technical regulations, (3) firm size, and (4) industry composition.

(1) Current or Potential Involvement in Export

The survey includes firms that are currently exporting some of their products as well as firms that wish to export but that are not able to due to various impediments, as well as. The majority of firms in the world supply goods and services only for the domestic market. They are either not interested in export or they are willing to export but do not have the ability to overcome tariffs, foreign technical regulations, transportation costs, and other business impediments. It is important to investigate the reasons for firms not exporting.

(2) Experience of Technical Regulations

The survey was designed to include a sufficient number of surveyed firms face standards and regulations, mainly in the EU, the United States, Canada, Japan, and Australia, but not exclusively. The EU countries include France, Germany, United Kingdom, Austria, Belgium, Denmark, Finland, Greece, Ireland, Italy, the Netherlands, Luxembourg,

Portugal, Spain, and Sweden. The firms surveyed shall be ones subject to mandatory technical regulations in export markets in which they are active.

(3) Firm Size

The survey was designed to include various size of firms are included. The surveys mainly cover small and medium enterprises, but also include large enterprises, which make the comparison of firms' characteristics and behavior feasible.

(4) Industry Composition

The survey was designed to include various industries are covered. The industrial sectors chosen for study are those of actual and potential comparative advantage for developing countries, as well as those in which technical regulations are important for market access. Table 1.3 presents the number of firms in each industry.

1.4 Question Categories

Questions in the survey were designed so that question categories could be linked across different types of regulatory requirements and types of responses. It makes the analysis more structural. Table 1.4 depicts the matrix of question categories.

1.5 Profile of the Countries

The selected 17 countries are diverse in income levels. According to the World Bank classification, they are categorized as:

Low income: India, Pakistan, Kenya, Mozambique, Uganda, Nigeria, and Senegal.¹

Lower-middle: Honduras, Bulgaria, Iran, Jordan, and South Africa.

Upper-middle: Argentina, Chile, Panama, The Czech Republic, and Poland.

Export profile

According to the United Nations Comtrade data, all countries export to the EU, and the share of export to the EU is the greatest among the exporting partners in all the 17 countries except Jordan and Panama. At the same time, the share of export to the US is also large in most of the 17 countries, except Iran and Mozambique. The rest of export destinations tend to be countries within their regions. In addition to the EU and the US partnership excluding regional countries, Japan and China lead East Asia as export partners, and Australia and Canada are partners even though Honduras exports to Canada due to their bilateral relationship. Australia does not have a free trade agreement except with New Zealand.

¹ Economies are divided according to 2001 GNI per capita, calculated using the World Bank Atlas method. The groups are: low income, \$745 or less; lower middle income, \$746 - \$2,975; and upper middle income, \$2,976 - \$9,205.

Commodity

Principal export products vary by country, region, and country size. However, their export products are concentrated mainly in agricultural and manufactured products. Latin America, in particular, has a strong tendency to export primary products such as bananas, shrimp, and processed food, however, commodities of economically more matured countries such as Argentina and Chile are more diversified.

Exports of Eastern Europe consists mostly of machinery. The structure of exports to the advanced market economies was initially biased towards raw materials and basic products (EIU). South Asian countries mainly export textile goods. Their textile-related products account for more than half of their export earnings. African countries export not only agricultural products but also mining commodities.

Table 1.2 Completed Surveys by Country

Region	Country	Count
East Europe	Bulgaria	39
	Czech Republic	41
	Poland	42
<i>East Europe Total</i>		<i>122</i>
Lat.Amer.&Caribbean	Argentina	35
	Chile	30
	Honduras	12
	Panama	30
<i>Lat.Amer.&Caribbean Total</i>		<i>107</i>
Middle East	Iran	28
	Jordan	30
<i>Middle East Total</i>		<i>58</i>
South Asia	India	190
	Pakistan	30
<i>South Asia Total</i>		<i>220</i>
Sub-Sah.Africa	Kenya	20
	Mozambique	10
	Nigeria	50
	Senegal	13
	South Africa	70
	Uganda	20
<i>Sub-Sah.Africa Total</i>		<i>183</i>
17 Country Total		689

Table 1.3. Industry Composition in the Survey

Aggregate Industry	Industry	Number of Firms
Raw food	Raw agricultural product	84
	Meat and fish product	25
Processed food, tobacco, drug and liquor	Processed food and tobacco	82
	Drug and liquor	11
Equipment	Electrical and electrical equipment	35
	Industrial machinery and equipment	17
	Telecommunications and terminal equipment	6
	Transportation equipment and automotive parts, and dealers	34
Textile and material	Fabricated metal	23
	Primary metal and metallic ores	12
	Petroleum and other nonmetallic minerals	14
	Rubber and plastic products	28
	Material	4
	Leather and leather products	23
	Lumber, wood and furniture	14
	Industrial or agricultural chemical	43
	Textiles and apparel	169
	Miscellaneous manufactured commodities	39
	Instruments and photographic and optical goods, watches and clocks	4
	Paper and allied products	5
	Printing and publishing products	3
Other	Other	14
Total		689

Table 1.4 Question Categories in the Survey

	Home Regulations	Importer Regulations	Importer Conformity Assessment	MRAs or Harmonization
Types of requirements	Identification of regulations	Identification of countries and regulations	Describe requirements and operation	Identification of agreements
Consistency	National or regional consistency	Consistency across markets	Consistency across markets	Consistency across MRAs
Impact on quality	Impact on quality	Impact on quality	Investments in quality control	Preferences for MRAs or harmonization agreements
Costs	Costs of compliance	Costs of compliance	Costs of compliance	Impacts on costs
Market	Home sales vs. exports	Differences by export market	Differences by export market	Differences by MRA
Input use	Input use	Input use	Internal vs. external resources	Compliance costs
Investment and R&D	Investment and R&D	Investment and R&D		

Section 2. Characteristics and Export Orientation of the Surveyed Firms

2.1 Firm Characteristics

The survey includes firms with various characteristics. They differ in terms of form of ownership, the amount of sales, the size of employment, and export patterns. Firm characteristics may account to some degree for firms' response to standards and technical barriers to trade as they can promote or constrain its ability and willingness to comply with these technical requirements. This subsection presents observations of firm characteristics.

Ownership form

Table 2.1 shows the form of firm ownership in terms of private or public, headquarters or subsidiary, degree of joint venture with foreign enterprises, and others. In all the five regions, 56 percent of firms can be categorized as the headquarters location of a privately held, non-listed company. Latin America and Caribbean has a largest share of firms in this category (81 percent). Chile is the country that has the highest percentage (93 percent) of firms in this category. On the other hand, 15 percent of the firms belong to the ownership category listed as the headquarters of a publicly traded or listed company. In fact, 70 percent of Pakistan firms are listed under this category. On the contrary, India has only 15 percent of its firms with this form of ownership.

Firm sales and employment size

There are a large variation in firm sales and employment size among the firms in the sample. The high standard deviation relative to the mean in Table 2.2 and Table 2.3 implies a high variation in sales and employment size. Iran exhibits the highest average sales, followed by Poland (\$29 million). The high average sales in Iran reflects the presence of large chemical producers in the sample. On the contrary, the average sales are smallest in Nigeria (\$ 0.5 million). Nigerian firms have the lowest level of employment on average with the total number being 28. This results from the dominant presence of small food producers in the sample from Nigeria

As Table 2.3 shows the average number of full- or part-time- workers among the 17 countries is 284. The average number of workers is the greatest in the Sub-Saharan African firms, but the high standard deviation implies a high variation in the firm size. Pakistan has the highest average (742 people), resulting from the dominance of large textiles firms in the sample from Pakistan. Latin America and Caribbean is at the bottom of the list for average employment size.

Financial Structure

Table 2.4 presents the average level of factors of production and investment along with the average sales. It gives an idea of the costs of the firms. In the Middle-Eastern region

we identified Iran as the country with the highest sales. However, when we look at different components for costs, Iranian firms appear to have very high cost levels as well. For example, Iranian firms spend \$20 million on raw materials, \$30 million on fixed assets, and \$15 million on R&D investment. Senegal, which has the highest amount of average sales among all the countries in our sample, also has very high cost elements—on average, raw materials cost \$22 million and intermediate inputs cost \$18 million. On the other hand, firms in Nigeria that have very low average sales (\$544 thousands) also incur very low costs.

This table also contains information about profit margin of the firms in each country. Sales value indicates the revenue of the firms whereas raw materials, intermediate inputs, and salary are variable cost components. Firms in Mozambique and Senegal have cost elements—raw materials, intermediate inputs, and salary adding up to \$3.4 million in Mozambique and \$40 million in Senegal on average. However, the sales in Mozambique amount to only \$2 million and Senegal has an average sales of \$34 million. Clearly, the firms in Mozambique and Senegal are incurring losses on average. Overall in Sub-Saharan Africa firms have a very low profit margin of only \$570,000. Czech Republic firms also have the same story with costs amounting to \$8.6 million and sales of only \$7.2 million. Panama also incurs a loss in the amount of \$118,000. However, all the regions retain some profit with the Middle East having the highest level of profit amounting to \$5.8 million.

2.2 Industry Composition

Table 2.5 indicates the percentage share of each of 25 industries. In our sample of 689 firms within these 25 industries, 169 firms produce textiles and apparel followed by raw agricultural products (with 84 total firms) and 82 processed food and tobacco firms. Overall, the food industry (including tobacco and drug), when put together, is dominant in the sample, constituting 28 percent of the sample.

The pattern found in the sample largely follows the observation of the general trade patterns. The food industry is particularly dominant in Latin America and Caribbean and Sub-Saharan Africa. This is consistent with the trade statistics. In Kenya 75 percent of the firms are raw agricultural products, whereas 50 percent in Nigeria and 40 percent in Chile are raw agricultural products. Textile firms are dominant in India and Pakistan with 51 percent in India and 47 percent in Pakistan. Eastern Europe has a higher share of manufactured goods such as textiles and apparel, electrical equipment, lumber, wood and furniture, and transportation equipment and automotive parts, in contrast to its low agricultural products.

2.3 Exports

The majority of the firms in the sample export at least some of their products. Due to the nature of the purpose of the survey, the sample consists of firms that are either currently

exporting or willing to export. The number of firms that are currently exporting is 628 (91 percent). The number of firms that are clearly not exporting is 47 (6.8 percent).

Export Orientation

Table 2.6 shows the percentage share of a firm's exports in its total sales. The export share of the firms in South Asia are the highest among the regions. The firms in Sub-Saharan Africa also exhibit a high export share on average. Among those, export share is particularly high in Kenya, Uganda, and Mozambique. On the other hand, the share of exports is less than 50 percent on average in Eastern Europe, Latin American and Caribbean, and the Middle East. Among those, Bulgaria, Chile, and Honduras exhibit a relatively high export share, whereas Poland, Argentina, Panama, and Iran exhibit relatively low export share.

Export Destination

Table 2.7 shows the share of a firm's exports by destination. The EU is the largest destination market for all the regions except Latin America and Caribbean. The firms in Eastern Europe particularly export a large share to the EU, reflecting their country's bilateral trade arrangement with the EU. Among other destinations, the firms in the Middle East diversify the export destinations with the US and other countries in the Middle East. Jordan, in particular, has a large export share with the US due to the FTA between the two. The firms in Sub-Saharan Africa also export mainly to the EU due to the proximity and former colonial ties to the European countries, but they export a significant share to the US as well. Intra-regional exports also constitute one-fifth of the exports in Sub-Saharan Africa.

For the firms in South Asia, the EU and the US are almost equally important. the EU and the US are both net importers of textiles and clothing which are the major exports from India and Pakistan. This accounts for the dominance of these markets for the exports from the firms in South Asia. The US in particular, is the top buyer for cotton fabrics from Pakistan, and is the fifth largest buyer for cotton yarn after East Asian countries in 2001-2002 (Export Promotion Bureau Pakistan, 2001). According to India's official statistics, the EU, the US, and Canada are the top, second, and third largest export market for India's cotton textiles, respectively. In contrast to their high dependency on the western markets, their intra-regional exports are very small despite the two major regional trade arrangements Economic Cooperation Organization (ECO) and the South Asian Associate for Regional Cooperation (SAARC). The sample does not reflect the fact that India and Pakistan are leading trading partner for each other perhaps because a large portion of the sample consists of textiles and clothing which are not traded between these countries.

The firms in Latin America differ from those in the other regions in the respect that within-region markets are the most important, whereas the export shares to the EU and the US are not high on average. When countries within the region are compared, the firms in Argentina and Panama are more actively involved in intra-regional export.

Argentina is a member of MERCOSOR and exports almost half of its export to Brazil. Due to the bilateral free trade agreements with other Central American countries, Panama also exports its large share to those countries. For the firms in Honduras and Panama, the US is the most important export market.

Growth in Exports

The growth in exports of the firms in the past 3 years is 19 percent on average according to Table 2.8. The average growth is the greatest in the Middle East (29 percent) and Sub-Saharan Africa (24 percent), possibly reflecting the rapidly growing industries in the region. Among all the countries, the highest export growth is observed in Mozambique (42 percent). On the contrary, the firms in South Asia exhibit a slower growth (14 percent), possibly reflecting the stagnating growth in world price of textiles and clothing.

Table 2.1 Ownership Form of Firm (Percentage)

	East Europe			East Europe Total	Lat.Amer.&Caribbean				Lat.Amer.&Caribbean Total	Middle East		Middle East Total	South Asia		South Asia Total	Sub-Sah.Africa						Sub-Sah.Africa Total	Grand Total
	Bulgaria	Czech Republic	Poland		Argentina	Chile	Honduras	Panama		Iran	Jordan		Pakistan	India		Kenya	Nigeria	South Africa	Uganda	Mozambique	Senegal		
Headquarter location of a privately held, non-listed company	56	66	38	53	71	93	92	76	81	61	55	58	23	51	47	60	79	68	20	40	38	61	58
Headquarter location of a publicly traded or listed company	6	24	8	13	3	3	0	10	5	32	34	33	70	15	22	0	4	13	15	20	0	9	15
Subsidiary/division of a domestic enterprise	0	0	0	0	0	3	8	7	4	0	0	0	3	1	1	5	0	3	0	0	0	2	1
Subsidiary/division of a multinational firm	0	5	10	5	14	0	0	0	5	0	3	2	0	1	0	0	0	10	5	0	25	6	3
Joint venture of a domestic enterprise	0	0	8	3	9	0	0	3	4	0	0	0	0	0	0	30	11	0	10	0	0	7	3
Joint venture of a multinational firm	3	2	15	7	3	0	0	0	1	0	3	2	0	0	0	5	4	3	10	30	0	6	3
Completely or partially State owned company	14	0	8	7	0	0	0	0	0	0	3	2	0	1	0	0	0	0	5	10	13	2	2
Cooperative/collective	6	2	8	5	0	0	0	0	0	0	0	0	0	1	0	0	2	0	5	0	0	1	1
Other	17	0	8	8	0	0	0	3	1	7	0	4	3	32	29	0	0	3	30	0	25	6	13
Grand Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table 2.2 Gross Annual Sales (in US\$ 1,000)

region	country	Mean	Std. Dev.	Min	Max
East Europe	Bulgaria	3,434	5,450	32.0	29,821
	Czech Republic	7,200	11,358	8.3	54,236
	Poland	29,369	61,702	13.7	326,720
East Europe Total		12,701	36,372	8.3	326,720
Lat.Amer.&Caribbea	Argentina	17,543	35,044	53.7	182,388
	Chile	6,063	7,802	58.3	30,501
	Honduras	5,013	6,880	49.4	20,000
	Panama	8,449	15,456	33.0	68,276
Lat.Amer.&Caribbean Total		10,914	23,820	33.0	182,388
Middle East	Iran	40,738	49,357	303.2	163,205
	Jordan	13,524	49,529	70.5	270,041
Middle East Total		25,847	50,847	70.5	270,041
South Asia	Pakistan	18,216	25,264	9.9	88,797
	India	7,749	26,912	8.7	226,372
South Asia Total		8,977	26,880	8.7	226,372
Sub-Sah.Africa	Kenya	7,054	12,529	10.2	51,870
	Nigeria	544	1,969	9.6	13,116
	South Africa	19,205	58,145	12.9	336,216
	Uganda	8,117	15,081	8.6	59,447
	Mozambique	2,049	2,397	252.00	6,890
	Senegal	33,677	87,471	929.0	320,888
Sub-Sah.Africa Total		11,933	44,630	8.57	336,216
Grand Total		12,101	36,305	8.27	336,216

Note: The value of sales is measured in the 2001 US dollar.

Table 2.3 Total Number of Full- and Part-time Worker

region	country	Mean	Std. Dev.	Min	Max
East Europe	Bulgaria	190	240	0.00	1,150
	Czech Republic	243	357	0.00	1,510
	Poland	265	501	0.00	2,000
East Europe Total		232	374	0.00	2,000
Lat.Amer.&Caribbea	Argentina	205	377	0.00	1,530
	Chile	135	262	0.00	1,300
	Honduras	338	392	60.00	1,206
	Panama	130	127	4	550
Lat.Amer.&Caribbean Total		183	309	0.00	1,530
Middle East	Iran	484	559	16.00	1,500
	Jordan	131	127	0.00	510
Middle East Total		291	423	0.00	1,500
South Asia	Pakistan	742	1,077	0.00	4,100
	India	220	808	1.00	8,500
South Asia Total		282	858	0.00	8,500
Sub-Sah.Africa	Kenya	62	72	0.00	225
	Nigeria	28	40	0.00	200
	South Africa	676	1,692	0.00	9,500
	Uganda	566	1,197	0.00	4,000
	Mozambique	231	340	0.00	857
	Senegal	266	197	33.00	680
Sub-Sah.Africa Total		369	1,162	0.00	9,500
Grand Total		284	817	0.00	9,500

Table 2.4 Financial Structure (Sales and Costs in \$1,000)

region	country	Sales	Raw materials	Intermediate Inputs	Salary	Fixed assets	Investment	R&D investment
East Europe	Bulgaria	3,434	1,192	266	265	6,703	169	16
	Czech Republic	7,200	3,360	3,906	1,350	4,293	662	96
	Poland	29,369	12,499	6,191	5,983	7,445	1,378	762
East Europe Total		12,701	5,152	3,478	2,437	6,088	713	324
Lat.Amer.&Caribb	Argentina	17,543	9,433	2,295	802	14,066	811	171
	Chile	6,063	3,147	927	772	4,812	148	17
	Honduras	5,013	3,077	634	975	4,158	285	21
	Panama	8,449	7,275	629	663	2,005	151	92
Lat.Amer.&Caribbean Total		10,914	6,475	1,472	778	7,734	429	90
Middle East	Iran	40,738	19,506	5,439	5,162	29,550	8,690	14,817
	Jordan	13,524	4,949	4,725	2,219	25,063	505	20
Middle East Total		25,847	11,541	4,997	3,551	27,037	3,846	6,091
South Asia	Pakistan	18,216	9,971	3,866	563	9,762	634	388
	India	7,749	4,312	862	367	3,566	218	40
South Asia Total		8,977	4,977	1,177	397	4,297	267	66
Sub-Sah.Africa	Kenya	7,054	4,852	503	137	958	67	16
	Nigeria	544	393	82	46	880	50	7
	South Africa	19,205	10,054	2,886	4,216	18,190	1,124	295
	Uganda	8,117	5,046	512	409	3,079	547	29
	Mozambique	2,049	2,122	979	269	1,003	392	
	Senegal	33,677	21,594	17,544	1,031	5,472	1,375	134
Sub-Sah.Africa Total		11,933	6,872	2,675	1,816	8,368	683	151
Grand Total		12,101	6,273	2,235	1,557	7,992	765	609

Table 2.5 Industry Composition by Country

industry	East Europe			East Europe Total	Lat.Amer.&Caribbean				Lat.Amer.&Caribbean Total	Middle East		Middle East Total	South Asia		South Asia Total	Sub-Sah.Africa						Sub-Sah.Africa Total	Grand Total
	Bulgaria	Czech Republic	Poland		Argentina	Chile	Honduras	Panama		Iran	Jordan		India	Pakistan		Kenya	Mozambique	Nigeria	Senegal	South Africa	Uganda		
Raw agricultural products	5	2	5	4	6	40	33	3	18	0	7	3	3	3	3	75	30	50	0	1	40	28	12
Fish and fish products, livestock	3	2	0	2	9	3	8	24	11	0	0	0	0	3	0	0	40	6	0	1	10	5	4
Processed food and tobacco	13	10	10	11	23	10	25	31	22	14	30	22	6	0	5	20	10	6	23	10	20	12	12
Drug, liquor	0	2	0	1	3	10	0	7	6	0	0	0	0	0	0	0	0	0	0	4	5	2	2
Textiles and apparel	36	10	20	21	6	3	17	7	7	18	30	24	51	47	50	0	0	4	8	13	0	7	25
Lumber, wood and furniture	8	17	24	17	3	0	0	0	1	4	0	2	5	7	5	0	0	0	0	1	5	1	5
Paper and allied products	0	0	0	0	6	0	0	0	2	0	0	0	0	0	0	0	0	2	0	3	0	2	1
Fabricated metal	8	0	2	3	3	0	0	0	1	0	3	2	3	3	3	0	0	4	0	11	0	5	3
Primary metal and metallic ores	0	0	2	1	3	0	0	0	1	0	7	3	0	0	0	0	10	2	0	7	5	4	2
Petroleum and other nonmetallic minerals	0	0	0	0	0	0	0	0	0	11	10	10	0	0	0	0	0	6	15	3	5	4	2
Industrial or agricultural chemical	10	17	20	16	6	7	0	10	7	21	3	12	1	3	1	0	0	0	23	7	0	4	6
Electrical and electrical equipment	8	17	24	17	3	0	0	0	1	4	0	2	5	7	5	0	0	0	0	1	5	1	5
Industrial machinery and equipment	5	0	0	2	3	3	0	0	2	0	0	0	4	0	4	0	0	2	0	6	0	3	2
Instruments and photographic and optical goods; watches and clocks	0	2	0	1	0	3	0	0	1	0	0	0	1	3	1	0	0	0	0	0	0	0	1
Leather and leather products	5	0	0	2	0	0	0	0	0	4	0	2	8	7	8	0	0	2	0	0	5	1	3
Printing and publishing products	0	0	0	0	3	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	1	0
Rubber and plastic products	0	0	0	0	14	7	0	10	9	11	10	10	1	7	1	0	0	4	8	8	0	5	4
Telecommunications and terminal equipment	0	10	0	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	1
Transportation equipment and automotive parts, and dealers	3	17	17	12	11	0	0	0	4	4	0	2	3	3	3	0	10	2	0	8	0	4	5
Construction and construction related services	0	0	0	0	3	0	0	0	1	0	0	0	1	0	0	0	0	0	0	3	0	1	1
Material	5	0	0	2	0	3	0	0	1	0	0	0	0	3	0	0	0	0	0	0	0	0	1
Miscellaneous manufactured commodities	0	0	0	0	0	0	0	0	0	7	0	3	15	7	14	5	0	0	15	6	0	4	6
Transportation and mailing service	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	1	0	1	0
Other services	0	0	0	0	0	3	0	3	2	0	0	0	0	0	0	0	0	2	0	1	0	1	1
Other	0	0	0	0	0	0	0	0	0	4	0	2	0	0	0	0	0	0	0	1	5	1	0
Grand Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table 2.6 Share of Exports in Total Sales

region	country	Mean	StdDev	Min	Max
East Europe	Bulgaria	62.4	27.0	9.0	100.0
	Czech Republic	46.7	33.5	2.0	100.0
	Poland	35.4	29.8	1.3	99.0
East Europe Total		47.7	32.0	1.3	100.0
Lat.Amer.&Caribbean	Argentina	33.3	27.2	0.0	99.0
	Chile	70.4	33.6	1.0	100.0
	Honduras	69.9	31.6	25.0	100.0
	Panama	35.7	36.8	0.0	99.0
Lat.Amer.&Caribbean Total		49.6	36.4	0.0	100.0
Middle East	Iran	38.9	33.2	0.0	100.0
	Jordan	42.3	30.2	7.0	100.0
Middle East Total		40.4	31.6	0.0	100.0
South Asia	Pakistan	67.8	35.1	0.0	100.0
	India	72.1	34.6	0.0	100.0
South Asia Total		71.6	34.6	0.0	100.0
Sub-Sah.Africa	Kenya	97.2	7.5	70.0	100.0
	Nigeria	59.7	28.6	4.0	100.0
	South Africa	32.7	32.0	1.0	100.0
	Uganda	77.3	26.7	5.0	100.0
	Mozambique	69.0	43.1	1.6	100.0
	Senegal	46.3	29.6	16.0	100.0
Sub-Sah.Africa Total		53.9	36.4	1.0	100.0
Grand Total		56.9	36.3	0.0	100.0

Table 2.7 Export Destination

region	country	EU	USA	CAN	JPN	AUS	Latin America	Africa	Middle East	South Asia	E. Asia & Pacific
East Europe	Bulgaria	72	14	21	23	30	0	1	5	0	0
	Czech Republic	70	18	7	3	24	1	1	2	0	1
	Poland	60	6	4	4	3	0	0	0	0	3
East Europe Total		67	14	13	8	12	0	1	2	0	1
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Lat.Amer.&Caribbean	Argentina	38	21	6	16	3	53	1	1	0	1
	Chile	35	33	6	17	14	35	0	1	1	5
	Honduras	37	53	10	20		34	0	0	0	0
	Panama	33	56		27		53	0	0	0	2
Lat.Amer.&Caribbean Total		36	38	6	18	12	46	0	1	0	2
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Middle East	Iran	57	12	14	5	10	0	3	20	5	0
	Jordan	33	33	3		27	0	10	32	0	5
Middle East Total		48	28	13	5	19	0	7	26	2	3
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South Asia	Pakistan	40	27	6	9	9	0	3	12	3	7
	India	47	42	13	18	11	4	7	9	3	6
South Asia Total		46	40	12	16	11	4	6	9	3	6
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Sub-Sah.Africa	Kenya	51	30	3	11	5	0	24	10	6	0
	Nigeria	76	39	16	30	18	3	4	0	1	0
	South Africa	42	38	7	12	15	3	27	2	3	6
	Uganda	70	15	12	10	25	1	17	5	1	1
	Mozambique	87					0	38	0	10	0
	Senegal	32	26				3	61	0	0	7
Sub-Sah.Africa Total		58	35	9	16	14	2	21	2	3	3
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Grand Total		53	35	11	15	13	9	8	6	2	3

Table 2.8 Export Growth in the Past 3 Years

region	country	Mean	StdDev	Min	Max
East Europe	Bulgaria	17.0	19.2	-12.0	70.0
	Czech Republic	20.0	22.1	-2.0	100.0
	Poland	25.3	46.9	-10.0	250.0
East Europe Total		20.8	31.3	-12.0	250.0
Lat.Amer.&Caribbean	Argentina	17.5	20.2	0.0	100.0
	Chile	19.0	22.6	-10.0	100.0
	Honduras	34.3	69.7	-31.1	232.0
	Panama	4.3	21.3	-60.0	75.0
Lat.Amer.&Caribbean Total		16.2	31.1	-60.0	232.0
Middle East	Iran	34.8	32.6	0.0	100.0
	Jordan	23.5	27.0	-15.0	100.0
Middle East Total		29.3	30.2	-15.0	100.0
South Asia	Pakistan	12.5	14.1	0.0	50.0
	India	14.5	20.1	-20.0	200.0
South Asia Total		14.2	19.4	-20.0	200.0
Sub-Sah.Africa	Kenya	16.9	20.3	-10.0	60.0
	Nigeria	17.7	18.1	1.0	75.0
	South Africa	27.9	45.0	0.0	300.0
	Uganda	37.3	67.0	0.0	300.0
	Mozambique	42.2	8.4	33.0	50.0
	Senegal	8.1	6.8	-3.0	15.0
Sub-Sah.Africa Total		24.2	39.0	-10.0	300.0
Grand Total		19.4	30.4	-60.0	300.0

Section 3. Technical Regulations and Conformity Assessments

Technical regulations and mandatory standards set by importing countries, and conformity assessments required by importing countries, such as testing and certification, can affect a firm's ability to export and its decisions on resource reallocation to comply with the requirements. Furthermore firms are not always informed of the standards and technical regulations required to sell their products in their home country market and in foreign markets. Firms make input allocation decisions between traditional production activities and efforts that are devoted to comply with the technical requirements. These technical requirements include the need to satisfy specific safety, quality, and performance standards, and firms are often required to perform a conformity assessment.

These technical requirements are perceived to hinder trade due to the compliance costs born by the exporting firms. In the empirical literature, however, there is not yet a consensus as to whether standards set by importing countries can promote trade or impede trade. Swann, Temple and Shurmer (1996) supports that country-specific standards pose barriers to trade. Blind and Jungmittag (1999) and Moenius (2000) do not support nor dispute this relationship.

This section starts with an investigation of the general leading factors that affect firms' business operation, followed by an investigation of factors that impede or promote export. It then discusses the various types of mandatory standards that are present and firms' perception of and reactions to these standards. It finally discusses firms' approaches to conformance testing and certification, and their effect on their operation.

3.1 General Impediments to Business Operations

Table 3.1 shows the importance of different factors on a firm's ability to expand domestic sales. In the survey the factors considered to affect a firm's ability to expand domestic sales include low demand in the market, taxes on labor, supply of skilled labor, access to credits, taxes on capital, and distribution problems. The greatest number of firms consider **low demand** to be important among the six factors to be considered. In our sample of 689 firms 54 percent think low demand is an important (on a scale of somewhat important, important, and very important) factor that affects a firm's ability to expand domestic sales. This contrasts to the low 12 percent share of firms that consider low demand to be not at all important. Fifty-two percent of the firms consider **access to credit** to be important. In the other categories, the share of the firms that consider the factor to be important is dominant.

We can look at the same table from a different angle and try to study the importance of the factors for each country and region. In **Eastern Europe** all the factors turn out to be "important" by a very high percentage of firms. **Low demand** is the factor that is considered "important" by more than 50 percent of the firms in all the regions except for South Asia. However, the importance of low demand varies among different countries. In Latin America, for example, 80 percent of the firms in Argentina consider low demand

to be “important,” whereas in Honduras only 42 percent firms think low demand is “important.” Similarly, in Sub-Saharan Africa, 65 percent of South African firms consider low demand to be important as opposed to only 15 percent in Kenya. Another important factor, “access to credit,” also has varied importance across regions. It is considered “important” by 71 percent firms in Eastern Europe, however only 35 percent firms in South Asia consider it to be important.

3.2 Factors Impeding and Promoting Export

Tables 3.2a and 3.2b show the importance of different factors in restraining a firm’s ability to penetrate major destination markets like the EU, the US, Australia, Canada, and Japan. These factors include low demand, cost of designing, testing/certification costs, inability to meet shipping schedule, costs of transporting goods, tariffs or quotas, marketing and other distribution costs, and lack of information from the home country’s export promotion offices. In these tables, the percentage share of the firms that respond as ‘important’ or ‘not important’ to each category is computed against the total of the firms that are not currently exporting.

Table 3.2a shows the response with respect to the five export destinations. Overall, it indicates that the selected factors are impediments to a majority of the firms throughout the export destinations. These factors appear to be particularly impeding the firms to export to the EU market. Consider the EU market: eighty-three percent of firms who are not exporting to the EU attribute it to **marketing and other distribution costs**, 82 percent to **lack of information from the home country’s export promotion offices**, and 81 percent to **low demand and cost of transporting goods**. The factors that play important roles as restraining factors for the US are **costs of transporting goods** (80 percent of firms say it is important), **low demand and marketing and other distribution costs** (79 percent say they are important).

Table 3.2b reorganizes the responses by country. The two most important factors, when we disregard destination, are **low demand** and **marketing and other distribution costs**—78 percent of the non exporters consider these factors to be important. In Eastern Europe, all the factors are considered to be important by at least 80 percent of the firms. Low demand is considered important by 93 percent of non-exporting firms in Eastern Europe as opposed to only 66 percent in Sub-Saharan Africa. Also, the importance varies among countries in the same region. In Nigeria 100 percent of firms consider low demand to be important whereas only 60 percent in Senegal and 61 percent in South Africa do. Importance of marketing and other distribution costs also varies across regions and countries. In Eastern Europe 97 percent of firms say it is important as compared to only 68 percent in the Middle East, where there is a huge variation between firms in Iran (93 percent) and Jordan (45 percent). In Sub-Saharan Africa, 100 percent of Nigerian firms consider marketing and other distribution costs to be important, while not a single firm in Senegal thinks it is.

Table 3.3 shows the importance of different factors on a firm's ability to expand exports. **Product quality** appears to be the **most important** factor affecting this. Seventy-nine percent of the firms say **product quality** and 77 percent say **low demand** are important (ranging from somewhat to –very important) factors for a firm's ability to expand exports. The other factors are all important as well.

This question can also be studied from the perspective of different countries. Product quality is considered important by 90 percent of firms in South Asia, but by only 52 percent in the Middle East. The Middle East has very different responses from two of its countries—Iran and Jordan. In Iran 93 percent of firms consider product quality to be important as compared to a low percentage of 13 in Jordan. Low demand also has varied importance across countries. In Sub-Saharan Africa, 90 percent of the firms in Mozambique consider low demand to be important, whereas 50 percent consider it important in Uganda.

3.3 Domestic and Foreign Technical Regulations

3.3.1 The Presence of Mandatory Domestic and Foreign Technical Regulations

Table 3.4 shows the percentage share of firms that face or do not face technical regulations to sell their products in both home and export markets. Overall, the majority of the firms face technical regulations. The share of firms that face **domestic** technical regulations is particularly high in **Eastern Europe and the Middle East**. The share of firms facing domestic regulations is the lowest in Kenya (15 percent) and the highest in the Czech Republic (93 percent). Apparently there is no similarity in terms of the share between countries in a given region, but the share facing domestic technical regulations is the highest in **Eastern Europe** (83 percent) on average. It is also interesting to note that in the South Asian region, Pakistan and India exhibit a sharp difference in their answers. Seventy percent of firms in Pakistan face domestic technical regulations, whereas in India only 18 do.

There seems to be a positive correlation between the share of firms that face domestic technical regulation and those which face technical regulations in the export market. The share of firms that face **foreign** technical regulations is also high in **Eastern Europe and the Middle East**. But many more firms in Sub-Saharan Africa face foreign technical regulations than domestic technical regulations. The lowest share is found in Kenya (50 percent), and the highest share is found in Mozambique (100 percent).

When compared between home and export markets, 70 percent of the firms in the total sample face technical regulations in an **export market**, which is 21 percent **higher** than the share of the firms that face technical regulations in the **domestic market**. All the countries in the sample except for Bulgaria and the Czech Republic exhibit higher shares of firms that face foreign technical regulations than those which face domestic technical regulations.

3.3.2 Importance of Domestic and Foreign Technical Regulations

Table 3.5 shows the share of firms that consider technical regulations in home and export markets to be ‘important’ or ‘not important’ for the expansion of sales. All the countries in the sample exhibit **equal or higher** shares of firms that consider **foreign** technical regulations to be **important** than those which consider **domestic** technical regulations to be important. Sixty-six percent of the total firms in the sample consider technical regulations in export markets to be important, and this share is 21 percent greater than the share of firms that consider technical regulations in home markets to be important.

Among the regions, **Eastern Europe** and **Latin America and Caribbean** exhibit relatively large shares of firms that consider technical regulations to be **important** both in home and export markets. Iran and Jordan in the Middle East region exhibit differences in importance of regulations for sales expansion both in the home and export market. In Iran 71 percent of firms consider technical regulations to be important for domestic sales as compared to 17 percent in Jordan. Similarly for exports, 86 percent of firms in Iran think technical regulation is important as opposed to 17 percent in Jordan.

3.3.3 Importance of Technical Regulations

Table 3.6 shows relative cost to comply with domestic technical regulations compared to foreign ones. It is useful as it provides objective comparison of the impact of the regulations between home and export markets. The technical regulations to be considered include performance standards, product quality standards, certification requirement, consumer safety standards, labeling requirement, and health/environmental standards. Although not a dominant factor, the largest share of firms responded that the **compliance costs are about the same** between domestic and foreign technical regulations throughout the categories. There is no significant difference in the share of firms which respond that domestic regulations are more costly to comply with than foreign regulation and those which respond that foreign regulations are more costly than domestic regulations. In all the categories with the exception of ‘product quality,’ more firms respond that **foreign regulations are more costly** but only by a slight difference. There are no notable patterns of response across countries.

Now we shall focus on the technical regulations in the export market. The importance of the technical regulations can be compared across destination markets and across exporting countries. Table 3.7a compares the importance by the five leading export markets for each category of foreign technical regulations. Table 3.7b organizes the response by country instead of export markets. The technical regulations in the EU market are considered to be important by the largest share of firms in the sample. The share varies from 48 percent for ‘health/environmental standards’ to 61 percent for ‘product quality standards.’ The US regulations are also considered important by a large share of the firms, varying from 27 to 37 percent. The technical regulations in Australia, Canada and Japan seem not to be widely perceived as ‘important.’

Among the regulation categories, **'product quality standards'** are most widely perceived to be important. **'Performance standards'** and **'testing/certification requirement'** are also widely perceived to be important by an almost equal share of the firms.

Table 3.7b indicates that the share of firms that consider these technical regulations to be important is the highest in South Asia. These requirements are much less relevant to the Middle East. There is a **high correlation** between the responses to the **regulation categories** for a given country or region, where the shares to respond 'important' are collectively high or low. This implies that, for a country or region to which the performance standards are important, other regulations such as product quality standards are also important.

Comparison between Table 3.4 with Table 3.7b shows that, in overall, most of the firms that confront foreign technical regulations perceive these regulations to be important.

In summary, **foreign technical regulations are applied to a wider range of firms than domestic technical regulations, and also their importance is perceived by a wider range of firms.** The regional variation seems to be quite high reflecting the differing conditions in terms of domestic and foreign technical regulations across exporting countries. Part of the cause of the regional difference in the existence and the importance of foreign technical regulations is simply the different export shares by destination markets as Table 2.8 indicates. For example, the EU, whose market is generally perceived as most important, is the major export market for both Eastern Europe and the Middle East, and so the perceived importance of the foreign technical regulations is heavily weighted by the EU market.

The regional difference may also be associated with the discriminatory treatment of their exports by the importing countries, say with different degrees of enforcement of the regulations.

3.3.4 Information Availability by Export Markets

In the real world, firms usually confront constraints to obtain information about foreign regulations. The lack of information about foreign regulations crucially limits a firm's ability to forecast the likelihood of rejection of their exports in the destination markets due to technical regulations. Thus, firms tend to stay away from new export markets in which information on regulations are scarce, and to stay in the market whose regulations are familiar to them.

Table 3.8 indicates the share of firms that have difficulty obtaining information about regulations in the major five export markets, along with those that do not have difficulty. It is surprising that the **majority of the firms do not consider obtaining information to be difficult.**

3.3.5 Compliance Costs of Technical Regulations

Firms react to domestic and foreign technical regulations in various manners. When firms decide to comply with these requirements, they typically employ additional resources to make an improvement in product quality. As shown in Table 3.9a, the surveyed firms invest in additional plant or equipment, one-time product redesign, product redesign for each export market, additional labor for production, additional labor for testing and certification, or lay off workers instead of making these types of investment in order to keep the costs from increasing. Table 3.9a indicates that the majority of the firms do not make any investment or lay off workers to comply with the technical requirements. This implies that, in most cases, **compliance can be met within the existing plant, equipment, workers and technology**. Among the firms that take any action, investment in **additional plant or equipment** is **most common** (38 percent). **Product re-design** and **additional employment** are also common types of compliance efforts. Thirty-one percent of the firms invest in one-time product re-design, and thirty percent of the firms hire additional workers to comply with the technical regulations.

Table 3.9b shows the costs of compliance as a share of investment costs by regulation categories. The cost share is most concentrated in the lowest **range between 1 and 10 percent**, and the majority of firms that responded fall under the range below 25 percent. **Product re-design** and **additional employment** are particularly concentrated in the lowest-cost range. These perhaps require smaller amount of installation costs, making them attractive to financially-constrained firms.

While Table 3.9 does not suggest significant cost effects, actual production costs and the amount of new investment can be compared by those who confront foreign technical regulations and those who do not. Figure 3.1 shows that, on average, variable costs, new investment, and fixed assets are higher for firms who confront foreign technical regulations. While this comparison is not statistically founded, it suggests that technical regulations possibly reduce production costs including investment costs, and also reduce fixed assets needed to comply with foreign technical regulations.

3.3.6 The Impact of Technical Regulations on Export

Figure 3.2 shows that, on average, export share in total sales is slightly higher for those who do not confront foreign technical regulations. The exception is the EU market. The higher share is found for those who confront foreign technical regulations. It possibly suggests that the EU standards and technical regulations have a net trade promoting effect. While this comparison also lacks statistical foundation, it suggests that technical regulations possibly reduce export. The obligation to meet these requirements may discourage export while it is found earlier that the majority of those who responded perceive technical regulations to be important for entering an export market.

Tables 3.10a and 3.10b show the total investment cost in technical regulations as a share in value of sales, summarized by country and industry, respectively.

3.4 Conformity Assessment

Table 3.11 shows whether the products exported are tested for conformity with foreign technical regulations before they are shipped to foreign markets. The highest percentage (51 percent) of products tested for conformity assessment are those shipped to the EU. On the other hand, only 3 percent of the firms carry out conformity assessment for products shipped to **Australia**. If we look at individual countries, **Bulgarian** firms are on top of the list where 72 percent of the firms are tested for conformity assessment before they are shipped to the EU, followed by Iran (68 percent). There are several countries that do not carry out conformity assessment at all for their products shipped to Australia, Canada, Japan, and the US. Among all the regions, **Eastern Europe** has the highest level (65 percent) of conformity assessment test carried out for their products shipped to the EU. For shipment to the US, Latin America and Caribbean perform the maximum conformity assessment test (47 percent). It is interesting to note that countries like Honduras and Mozambique that perform a high level of conformity assessment test for the EU and the US (for Honduras only) do not carry out any testing for their shipments to some other countries. Seventy five percent of firms in Honduras do testing for shipment to the US and 50 percent for EU shipment, whereas for Australia there is no testing done. Similarly in Mozambique, 60 percent firms carry out conformity assessment for products shipped to the EU, however no other conformity assessment is done for any other destination market.

Table 3.12 shows whether the testing is done within the firm, by a private testing facility, or by an agency of the government. Overall, **36 percent of** the testing is done **within the firm**, 33 percent by a private testing facility, and 22 percent by an agency of the government. In Eastern Europe, Latin America and Caribbean, the Middle East, and Sub-Saharan Africa, testing within the firm reaches the maximum percentage: 56 percent being for Latin America and Caribbean and 48 percent being for Europe. However, for South Asia, a private testing facility does the testing for 40 percent of the firms, which is the highest in the region. The method of testing varies between firms from different countries, even if they belong to the same region. In Sub-Saharan Africa 80 percent of firms carry out testing within their own firms whereas the same testing procedure is carried out by only 20 percent of firms in Kenya. Similarly, in the same region 70 percent of firms in Mozambique get their testing done through a government agency as compared to only 13 percent in South Africa.

Table 3.13 shows the comparison of cost of product testing (as a percentage of total production cost) within the firm and outside the firm, i.e., by a private testing facility or by a government agency. The cost of product testing **within the firm is higher than outside the firm** for all the regions. Overall, the cost within the firm is 6.2 percent as compared to 3.1 percent for outside the firm. Among all the regions, in **Eastern Europe** the cost within the firm is the **highest**, i.e. 8.3 percent. When we look at the countries, in Sub-Saharan Africa region, Uganda and Senegal have costs for testing done within the firms as 19 percent and 10 percent respectively. However, in the same region Kenya has 0.3 percent.

Table 3.14 presents the effort of duplication of testing procedures to meet foreign requirements once domestic requirements have been met. The table shows that **44 percent** of the firms have to carry out **significant duplication** as opposed to **7 percent** that do not have to perform **any duplication** to meet foreign requirements. A maximum effort in duplication is observed in South Asia where 50 percent of firms carry out significant duplication, 36 percent complete duplication, and 7 percent only minor duplication. In Senegal 63 percent of the firms carry out complete duplication to meet foreign requirements and 70 percent in Mozambique have to perform significant duplication. Overall, the firms have to carry out some duplication as opposed to no duplication. However, in Iran and Pakistan a much higher percentage of firms do not have to perform duplication. In Iran the percentage for no duplication is 39 as opposed to 7 percent for Jordan belonging to the same region. For Pakistan the percentage is 30 as compared to 1 percent for India in the same region.

Table 3.1 Impediments to Business Operations

		East Europe			Lat.Amer.&Caribbean				Middle East			South Asia		Sub-Sah.Africa						Grand Total				
factor	resp_agg	Bulgaria	Czech Republic	Poland	East Europe Total	Argentina	Chile	Honduras	Panama	Lat.Amer.&Caribbean Total	Iran	Jordan	Middle East Total	Pakistan	India	South Asia Total	Kenya	Nigeria	South Africa	Uganda	Mozambique	Senegal	Sub-Sah.Africa Total	Grand Total
Low demand	Not Important	8	15	7	10	6	20	0	7	9	14	33	24	10	9	10	15	2	25	10	0	8	14	12
	Important	77	80	83	80	80	67	42	62	67	75	37	55	43	34	35	15	42	65	55	60	54	51	54
	NA	15	5	10	10	14	13	58	31	24	11	30	21	47	57	55	70	56	10	35	40	38	35	34
Low demand Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Taxes on labor	Not Important	18	20	10	16	6	17	8	0	8	7	40	24	17	11	12	10	18	38	35	20	23	27	17
	Important	72	76	80	76	80	70	8	55	62	75	27	50	37	25	26	25	26	52	35	0	38	36	45
	NA	10	5	10	8	14	13	83	45	30	18	33	26	47	64	62	65	56	10	30	80	38	36	38
Taxes on labor Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Supply of skilled labor	Not Important	33	12	10	18	23	23	8	0	15	7	40	24	17	16	16	10	10	25	20	20	15	18	18
	Important	54	85	80	74	63	60	17	59	56	82	27	53	37	27	29	25	34	68	55	30	46	49	48
	NA	13	2	10	8	14	17	75	41	29	11	33	22	47	57	55	65	56	7	25	50	38	33	34
Supply of skilled labor Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Taxes on capital	Not Important	13	15	10	12	3	20	17	7	10	7	13	10	10	10	10	0	8	34	40	10	15	21	14
	Important	72	78	78	76	83	67	17	45	60	71	53	62	43	28	30	35	34	58	35	20	46	43	49
	NA	15	7	12	12	14	13	67	48	29	21	33	28	47	62	60	65	58	8	25	70	38	35	37
Taxes on capital Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Access to credit	Not Important	15	22	17	18	3	17	0	3	7	7	23	16	17	9	10	5	8	34	15	0	8	18	13
	Important	72	73	68	71	83	70	42	52	66	82	47	64	37	35	35	30	36	58	60	40	54	48	52
	NA	13	5	15	11	14	13	58	45	27	11	30	21	47	57	55	65	56	8	25	60	38	34	35
Access to credit Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Distribution problems	Not Important	26	24	15	21	40	23	8	10	24	25	30	28	23	13	14	0	8	35	30	0	8	20	19
	Important	56	66	73	65	46	63	0	34	42	64	40	52	30	31	31	35	34	58	40	60	54	47	45
	NA	18	10	12	13	14	13	92	55	34	11	30	21	47	57	55	65	58	7	30	40	38	34	36
Distribution problems Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table 3.2a Reasons for Not Exporting (Percentage Share in the Total Non-Exporting Firms by Export Destination)

Factor	Reponse	Australia	Canada	EU	Japan	USA
Low demand	Not Important	21	23	19	24	21
	Important	79	77	81	76	79
Low demand Total		100	100	100	100	100
Costs of designing	Not Important	32	34	30	32	29
	Important	68	66	70	68	71
Costs of designing Total		100	100	100	100	100
Testing/certification costs	Not Important	34	34	27	33	29
	Important	66	66	73	67	71
Testing/certification costs Total		100	100	100	100	100
Inability to meet shipping schedule	Not Important	35	36	33	37	30
	Important	65	64	67	63	70
Inability to meet shipping schedule Total		100	100	100	100	100
Costs of transporting goods	Not Important	26	26	19	26	20
	Important	74	74	81	74	80
Costs of transporting goods Total		100	100	100	100	100
Tariffs or quotas	Not Important	30	31	26	30	28
	Important	70	69	74	70	72
Tariffs or quotas Total		100	100	100	100	100
Marketing & other distribution costs	Not Important	25	23	17	23	21
	Important	75	77	83	77	79
Marketing & other distribution costs Total		100	100	100	100	100
Lack of info. fr. home country's export promotion office	Not Important	28	27	18	27	24
	Important	72	73	82	73	76
Lack of export promotion info. Total		100	100	100	100	100

Table 3.2b Reasons for Not Exporting (Percentage Share in the Non-Exporting Firms by Country)

Factor	Reponse	East Europe			Lat.Amer.&Caribbean				Lat.Amer.&Caribbean Total		Middle East		Middle East Total		South Asia		South Asia Total					Sub-Sah.Africa					Sub-Sah.Africa Total		Grand Total	
		Bulgaria	Czech Republic	Poland	East Europe Total	Argentina	Chile	Honduras	Panama	Lat.Amer.&Caribbean Total	Iran	Jordan	Middle East Total	Pakistan	India	South Asia Total	Kenya	Nigeria	South Africa	Uganda	Senegal	Sub-Sah.Africa Total	Sub-Sah.Africa Total	Grand Total						
Low demand	Not Important	8	6	6	7	17	28	40	8	24	8	35	22	7	24	21	23	0	39	37	40	34	22							
	Important	92	94	94	93	83	72	60	92	76	92	65	78	93	76	79	77	100	61	63	60	66	78							
Low demand Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100							
Costs of designning	Not Important	9	27	3	10	22	46	43	11	33	9	52	31	16	39	35	38	18	50	26	80	42	32							
	Important	91	73	97	90	78	54	57	89	67	91	48	69	84	61	65	63	82	50	74	20	58	68							
Costs of designning Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100							
Testing/certification costs	Not Important	9	13	7	9	8	43	56	10	27	2	67	36	0	44	36	51	0	54	13	0	41	32							
	Important	91	87	93	91	92	57	44	90	73	98	33	64	100	56	64	49	100	46	87	100	59	68							
Testing/certification costs Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100							
Inability to meet shipping schedule	Not Important	4	38	7	13	15	35	62	0	28	16	74	45	20	41	37	41	0	59	0	0	40	34							
	Important	96	63	93	87	85	65	38	100	72	84	26	55	80	59	63	59	100	41	100	100	60	66							
Inability to meet schedule Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100							
Costs of transporting goods	Not Important	7	13	0	5	6	18	32	0	14	17	28	23	1	40	34	18	0	42	5	0	27	24							
	Important	93	88	100	95	94	82	68	100	86	83	72	77	99	60	66	82	100	58	95	100	73	76							
Costs of transport Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100							
Tariffs or quotas	Not Important	22	13	0	9	0	31	30	9	17	23	61	44	20	37	34	19	0	43	13	100	31	29							
	Important	78	87	100	91	100	69	70	91	83	77	39	56	80	63	66	81	100	57	87	0	69	71							
Tariffs or quotas Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100							
Marketing & other distribution costs	Not Important	0	13	0	3	10	33	16	0	19	7	55	32	20	26	25	18	0	35	5	100	25	22							
	Important	100	88	100	97	90	67	84	100	81	93	45	68	80	74	75	82	100	65	95	0	75	78							
Marketing & other distribution costs Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100							
Lack of info. fr. home country's export promotion office	Not Important	24	27	6	16	24	33	33	0	27	14	19	16	32	32	32	18	0	38	8	0	26	26							
	Important	76	73	94	84	76	67	67	100	73	86	81	84	68	68	68	82	100	62	92	100	74	74							
Lack of export promotion info. Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100							

Table 3.3 Importance of Factors to Expand Export (Percentage)

factor	resp_agg	East Europe				Lat.Amer.&Caribbean				Middle East		South Asia		Sub-Sah.Africa						Sub-Sah.Africa Total	Grand Total			
		Bulgaria	Czech Republic	Poland	East Europe Total	Argentina	Chile	Honduras	Panama	Lat.Amer.&Caribbean Total	Iran	Jordan	Middle East Total	Pakistan	India	South Asia Total	Kenya	Nigeria	South Africa			Uganda	Mozambique	Senegal
1. Low demand	Not Important	18	0	10	9	11	7	25	3	9	0	20	10	0	12	10	5	4	30	25	10	0	16	11
	Important	67	85	85	79	74	90	58	72	76	96	57	76	83	83	83	80	70	65	50	90	54	67	77
	NA	15	15	5	12	14	3	17	24	14	4	23	14	17	5	7	15	26	6	25	0	46	17	12
1. Low demand Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
2. taxes on labor	Not Important	15	17	12	15	9	10	17	0	8	21	40	31	27	19	20	15	10	42	50	30	31	30	21
	Important	69	73	83	75	77	87	17	55	67	64	10	36	53	55	55	70	62	49	25	20	31	49	57
	NA	15	10	5	10	14	3	67	45	25	14	50	33	20	25	24	15	28	8	25	50	38	21	22
2. taxes on labor Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
3. supply of skilled labor	Not Important	28	5	15	16	23	10	17	3	13	11	47	29	17	35	32	20	8	31	20	20	15	21	23
	Important	56	93	78	76	63	87	25	45	60	86	20	52	63	61	61	55	66	63	60	60	46	61	63
	NA	15	2	7	8	14	3	58	52	26	4	33	19	20	5	7	25	26	6	20	20	38	18	14
3. supply of skilled labor Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
4. taxes on capital	Not Important	15	10	24	17	9	13	25	3	10	21	40	31	10	16	15	10	8	38	30	40	23	25	19
	Important	67	80	68	72	77	87	25	52	67	61	20	40	73	60	62	75	62	55	50	20	38	55	61
	NA	18	10	7	12	14	0	50	45	23	18	40	29	17	24	23	15	30	7	20	40	38	20	21
4. taxes on capital Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
5. access to credit	Not Important	10	17	24	17	3	7	0	3	4	7	27	17	17	17	17	15	4	35	5	10	8	18	15
	Important	74	78	66	73	83	93	75	59	78	89	40	64	67	78	76	70	68	59	70	60	54	64	72
	NA	15	5	10	10	14	0	25	38	18	4	33	19	17	5	6	15	28	6	25	30	38	18	13
5. access to credit Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
6. import tariffs and charges	Not Important	15	20	15	17	11	10	0	0	7	11	13	12	17	30	28	20	2	17	10	20	23	13	17
	Important	72	71	78	74	74	90	33	59	70	86	63	74	63	62	62	50	48	79	65	50	31	61	66
	NA	13	10	7	10	14	0	67	41	24	4	23	14	20	8	10	30	50	4	25	30	46	26	17
6. import tariffs and charges Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
7. port charges and delays	Not Important	15	37	20	24	9	13	33	0	10	0	33	17	10	17	16	20	2	8	15	0	23	9	15
	Important	69	51	68	63	77	87	42	62	72	96	43	69	73	78	77	55	72	86	65	80	38	73	72
	NA	15	12	12	13	14	0	25	38	18	4	23	14	17	5	6	25	26	6	20	20	38	18	13
7. port charges and delays Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
8. product quality	Not Important	8	0	7	5	23	10	17	10	15	0	60	31	0	4	4	5	4	13	5	10	8	8	9
	Important	77	98	88	88	60	87	25	62	64	93	13	52	83	92	90	75	70	85	75	90	54	77	79
	NA	15	2	5	7	17	3	58	28	21	7	27	17	17	4	6	20	26	3	20	0	38	15	12
8. product quality Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

9. foreign marketing costs	Not Important	13	20	12	15	23	23	17	0	16	4	27	16	13	12	12	15	12	15	15	10	0	13	14
	Important	69	80	80	77	63	73	42	59	62	89	50	69	70	83	81	70	58	82	65	50	54	68	73
	NA	18	0	7	8	14	3	42	41	22	7	23	16	17	5	6	15	30	3	20	40	46	18	13
9. foreign marketing costs Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
10. tariffs or quotas in export markets	Not Important	18	29	15	21	20	20	17	0	14	32	27	29	7	26	24	10	4	23	25	20	0	15	20
	Important	51	63	78	64	66	80	33	69	67	61	50	55	77	68	69	75	66	70	50	30	46	64	65
	NA	31	7	7	15	14	0	50	31	19	7	23	16	17	6	7	15	30	7	25	50	54	22	15
10. tariffs or quotas in export		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
11. freight charges	Not Important	15	10	7	11	3	10	8	7	7	4	27	16	13	24	22	10	2	4	15	20	0	6	13
	Important	72	85	85	81	83	90	50	69	77	93	47	69	70	72	71	75	72	93	65	60	62	78	76
	NA	13	5	7	8	14	0	42	24	16	4	27	16	17	5	6	15	26	3	20	20	38	16	11
11. freight charges Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table 3.4 Existence of Technical Regulations to Sell Products

		East Europe			Lat.Amer.&Caribbean				Lat.Amer.&Caribbean Total			Middle East		Middle East Total		South Asia		South Asia Total						Sub-Sah.Africa		Sub-Sah.Africa Total		Grand Total	
Market	response	Bulgaria	Czech Republic	Poland	East Europe Total	Argentina	Chile	Honduras	Panama	Lat.Amer.&Caribbean Total	Iran	Jordan	Middle East Total	Pakistan	India	South Asia Total	Kenya	Nigeria	South Africa	Uganda	Mozambique	Senegal	Sub-Sah.Africa Total	Grand Total					
Home Market	Yes	85	93	73	83	57	60	33	66	58	86	70	78	70	18	25	15	44	45	35	60	38	41	49					
	No	5	7	15	9	29	40	33	17	29	4	7	5	13	77	69	65	8	52	45	0	23	36	38					
	NA	10	0	12	7	14	0	33	17	13	11	23	17	17	4	6	20	48	3	20	40	38	23	13					
Home Market Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100				
Export Market	Yes	82	93	76	83	66	90	67	79	76	89	77	83	77	53	56	50	72	70	70	100	62	70	70					
	No	5	7	20	11	20	10	33	3	14	4	0	2	7	43	38	35	2	27	10	0	0	16	21					
	NA	13	0	5	6	14	0	0	17	9	7	23	16	17	4	6	15	26	3	20	0	38	15	10					
Export Market Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100					

Table 3.5 Importance of Technical Regulations to Expand Sales

		East Europe			Lat.Amer.&Caribbean				Lat.Amer.&Caribbean Total			Middle East		Middle East Total		South Asia		South Asia Total						Sub-Sah.Africa		Sub-Sah.Africa Total		Grand Total	
Market	Response	Bulgaria	Czech Republic	Poland	East Europe Total	Argentina	Chile	Honduras	Panama	Lat.Amer.&Caribbean Total	Iran	Jordan	Middle East Total	Pakistan	India	South Asia Total	Kenya	Nigeria	South Africa	Uganda	Mozambique	Senegal	Sub-Sah.Africa Total	Grand Total					
Domestic Sales	Not Important	10	12	15	12	20	17	8	7	14	14	50	33	10	45	40	10	6	34	25	10	15	20	25					
	Important	77	85	61	74	66	63	33	69	62	71	17	43	40	19	22	15	40	55	45	50	31	43	45					
	NA	13	2	24	13	14	20	58	24	24	14	33	24	50	36	38	75	54	11	30	40	54	36	30					
Domestic Sales Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100					
Exports	Not Important	3	12	17	11	17	7	8	3	9	7	53	31	10	39	35	20	4	21	5	0	8	13	20					
	Important	87	85	66	79	69	80	83	76	75	86	17	50	67	56	57	50	70	72	75	100	46	69	66					
	NA	10	2	17	10	14	13	8	21	15	7	30	19	23	5	8	30	26	7	20	0	46	18	13					
Exports Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100					

Table 3.6 Relative Cost to Comply with Foreign Regulations Compared to Domestic Regulations

		East Europe			East Europe Total	Lat.Amer.&Caribbean				Lat.Amer.&Caribbean Total	Middle East		Middle East Total	South Asia		South Asia Total	Sub-Sah.Africa						Sub-Sah.Africa Total	Grand Total
Regulations	Foreign Regulations are	Bulgaria	Czech Republic	Poland		Argentina	Chile	Honduras	Panama		Iran	Jordan		Pakistan	India		Kenya	Nigeria	South Africa	Uganda	Mozambique	Senegal		
performance	More Expensive	31	20	5	18	3	23	0	10	10	71	7	38	17	22	21	25	24	23	25	30	23	24	21
	About the Same	41	56	54	50	49	47	25	28	40	4	40	22	27	18	19	10	24	27	30	50	23	26	30
	Less Expensive	10	15	17	14	14	13	17	38	21	11	27	19	30	13	15	15	16	18	15	20	8	16	17
	NA	18	10	24	17	34	17	58	24	29	14	27	21	27	47	44	50	36	32	30	0	46	34	33
performance Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
product quality	More Expensive	26	17	5	16	9	30	8	7	14	57	3	29	13	16	15	15	20	18	20	10	23	18	17
	About the Same	44	49	56	50	34	37	25	31	33	18	67	43	27	21	22	10	32	34	15	30	15	27	32
	Less Expensive	13	24	15	17	23	20	25	34	25	7	7	7	33	16	18	25	12	15	35	60	15	20	19
	NA	18	10	24	17	34	13	42	28	27	18	23	21	27	47	44	50	36	32	30	0	46	34	32
product quality Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
certification	More Expensive	44	27	5	25	11	30	8	3	14	61	7	33	27	21	22	15	24	23	25	10	31	22	22
	About the Same	28	37	46	37	26	33	25	21	26	11	63	38	23	17	18	15	26	25	30	40	23	26	26
	Less Expensive	13	27	24	21	26	23	25	41	29	14	7	10	23	15	16	20	14	18	15	50	0	17	19
	NA	15	10	24	17	37	13	42	34	30	14	23	19	27	47	44	50	36	34	30	0	46	35	33
testing and certification Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
consumer safety	More Expensive	26	12	5	14	17	23	8	10	16	57	7	31	23	20	20	25	20	21	15	10	15	20	19
	About the Same	56	61	56	58	31	43	17	34	34	7	60	34	30	20	22	10	24	35	30	40	38	29	33
	Less Expensive	3	17	15	12	17	20	17	21	19	7	10	9	20	13	14	15	20	11	25	50	0	17	14
	NA	15	10	24	17	34	13	58	34	31	29	23	26	27	47	44	50	36	32	30	0	46	34	33
consumer safety Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
labelling	More Expensive	44	15	5	21	20	27	8	10	18	57	3	29	40	21	24	5	34	25	20	20	15	24	23
	About the Same	26	56	39	40	29	37	17	21	27	11	63	38	27	21	22	15	22	30	45	50	38	29	29
	Less Expensive	15	20	32	22	17	20	17	41	25	14	10	12	7	10	10	30	8	13	5	30	0	13	15
	NA	15	10	24	17	34	17	58	28	30	18	23	21	27	47	44	50	36	32	30	0	46	34	33
labelling Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
health/environment	More Expensive	28	7	5	13	11	20	17	14	15	68	3	34	23	23	23	20	28	23	15	20	15	22	21
	About the Same	51	63	51	55	40	47	33	21	36	7	63	36	20	19	19	5	16	30	40	40	38	26	31
	Less Expensive	5	20	20	15	14	17	8	38	21	7	10	9	30	12	14	25	18	13	15	40	0	16	15
	NA	15	10	24	17	34	17	42	28	28	18	23	21	27	47	44	50	38	35	30	0	46	36	33
health/environment Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table 3.7a Importance of Technical Regulations by Type and Export Market

Factor	Response	Australia	Canada	EU	Japan	USA
1.Performance	Not Important	1	0	4	1	2
	Important	14	16	59	14	35
	NA	85	84	37	86	62
1.Performance Total		100	100	100	100	100
2.Product quality	Not Important	1	1	3	0	2
	Important	14	16	61	14	37
	NA	85	84	36	85	61
2.Product quality Total		100	100	100	100	100
3.Testing/certification	Not Important	2	1	6	1	4
	Important	12	16	57	14	35
	NA	85	84	36	85	61
3.Testing/certification Total		100	100	100	100	100
4.Consumer Safety	Not Important	3	2	9	1	5
	Important	11	13	50	12	30
	NA	86	84	41	86	65
4.Consumer Safety Total		100	100	100	100	100
5.Labeling	Not Important	4	2	10	2	8
	Important	10	13	49	11	27
	NA	86	84	41	87	66
5.Labeling Total		100	100	100	100	100
6.Health/Environment	Not Important	4	3	10	2	7
	Important	10	12	48	11	28
	NA	86	85	42	87	66
6.Health/Environment Total		100	100	100	100	100

Table 3.7b Importance of Technical Regulations by Type and Country

Factor	Response	East Europe			East Europe Total	Lat.Amer.&Caribbean				Lat.Amer.&Caribbean Total	Middle East		Middle East Total	South Asia		South Asia Total	Sub-Sah.Africa						Sub-Sah.Africa Total	Grand Total
		Bulgaria	Czech Republic	Poland		Argentina	Chile	Honduras	Panama		Iran	Jordan		Pakistan	India		Kenya	Nigeria	South Africa	Uganda	Mozambique	Senegal		
Performance	Not Important	0	0	0	0	2	2	3	0	2	6	14	10	0	1	1	0	1	2	1	0	0	1	2
	Important	23	25	22	23	19	41	12	7	21	24	5	14	49	36	38	25	21	34	24	12	12	26	28
	NA	77	74	78	76	79	57	85	93	77	70	81	76	51	63	61	75	78	64	75	88	88	73	71
Performance Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Product quality	Not Important	0	1	0	0	5	3	0	0	2	0	15	8	0	0	0	1	0	2	0	0	0	1	1
	Important	23	26	22	24	17	42	25	7	22	27	4	15	49	38	39	24	24	34	25	12	12	26	28
	NA	77	73	78	76	78	55	75	93	75	73	81	77	51	62	61	75	76	64	75	88	88	73	70
Product quality Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Testing/certification	Not Important	1	0	0	0	2	0	0	1	1	0	16	8	0	4	4	14	0	3	1	0	3	3	3
	Important	24	26	22	24	19	45	25	7	24	28	3	15	49	33	35	16	24	31	24	12	9	24	27
	NA	75	74	78	76	78	55	75	92	75	72	81	77	51	63	61	70	76	66	75	88	88	73	70
Testing/certification Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Consumer Safety	Not Important	1	1	1	1	5	3	0	1	3	1	17	9	0	8	7	5	0	5	0	0	0	2	4
	Important	22	24	21	22	17	41	15	7	21	24	3	13	49	24	27	25	22	30	25	12	12	24	23
	NA	78	75	78	77	78	57	85	92	77	76	81	78	51	68	66	70	78	66	75	88	88	73	72
Consumer Safety Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Labeling	Not Important	1	0	2	1	4	5	0	1	3	2	17	10	13	7	8	8	2	7	1	0	0	4	5
	Important	23	26	20	23	18	37	12	6	19	23	2	12	35	24	25	22	20	27	23	10	12	22	22
	NA	76	74	78	76	78	58	88	92	78	75	81	78	51	69	67	70	78	65	76	90	88	73	73
Labeling Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Health/Environment	Not Important	1	1	3	1	7	1	0	1	3	1	17	9	7	8	8	5	0	7	0	0	0	3	5
	Important	21	26	20	22	15	42	22	7	21	24	3	13	42	21	24	20	22	26	24	12	12	22	22
	NA	79	73	78	77	78	57	78	92	76	76	81	78	51	70	68	75	78	67	76	88	88	74	73
Health/Environment Total		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table 3.8 Difficulty in Obtaining Information about Regulations (Percent)

	Yes	No	Not answered	Grand Total
1. EU	14	56	30	100
2. USA	10	39	51	100
3. CAN	5	22	73	100
4. JPN	5	20	75	100
5. AUS	5	21	74	100
Grand Total	8	31	61	100

Table 3.9a Investment to Comply with Technical Requirements

	response			Grand Total
	Yes	No	Not answered	
1.additional plant or equipment	38	52	9	100
2.one-time product redesign	31	60	10	100
3.product redesign for each export market	26	65	10	100
4.additional labor for production	30	60	10	100
5.additional labor for testing and certification	18	72	10	100
6.laid of workers because of higher costs	11	80	10	100

Table 3.9b Investment Costs to Comply with Technical Requirements

Count of code investment	response							not answered	Grand Total
	1-10%	11-25%	26-50%	51-75%	76-100%	>100%			
1.additional plant or equipment	18.3	10	5	2	1	1	63	100	
2.one-time product redesign	21	6	2	1	1	0	70	100	
3.product redesign for each export market	18	4	2	1	0	0	74	100	
4.additional labor for production	21	6	2	1	0	0	71	100	
5.additional labor for testing and certification	13	3	1	0	0	0	83	100	
6.laid of workers because of higher costs	7	2	1	0	0	0	90	100	

Table 3.10a Total Investment Costs to Comply with Technical Requirements as a Share in Sales by Country (Percentage)

region	country	Mean	StdDev	Min	Max
East Europe	Bulgaria	2.15	2.52	0.13	9.68
	Czech Republic	5.71	9.12	0.05	31.88
	Poland	3.48	10.99	0.03	55.65
East Europe Total		3.74	8.26	0.03	55.65
Lat.Amer.&Caribbean	Argentina	2.17	2.43	0.15	9.50
	Chile	2.64	3.22	0.10	10.90
	Honduras	1.50	2.81	0.01	7.82
	Panama	4.16	5.01	0.04	13.36
	Lat.Amer.&Caribbean Total		2.56	3.28	0.01
Middle East	Iran	9.38	13.58	0.12	44.10
	Jordan	2.08	4.79	0.04	15.54
Middle East Total		6.67	11.59	0.04	44.10
South Asia	Pakistan	0.77	0.91	0.04	2.68
	India	2.04	3.33	0.02	15.75
South Asia Total		1.79	3.04	0.02	15.75
Sub-Sah.Africa	Kenya	10.06	34.25	0.00	124.00
	Nigeria	2.01	2.12	0.21	5.08
	South Africa	4.22	14.29	0.08	87.25
	Uganda	10.50	14.50	0.03	41.96
	Mozambique	45.51	66.74	0.06	122.14
	Senegal	3.20	5.03	0.23	10.71
Sub-Sah.Africa Total		7.65	23.12	0.00	124.00
Grand Total		4.44	13.25	0.00	124.00

Table 3.10b Total Investment Costs to Comply with Technical Requirements as a Share in Sales by Industry (Percentage)

Industry	Mean	StdDev	Min	Max
01 Raw Agricultural Products	6.18	22.28	0.00	122.14
02 Meat Products	3.43	4.82	0.06	13.36
03 Electrical and electrical equipment	2.40	4.28	0.03	19.32
04 Fabricated metal	11.21	25.66	0.15	87.25
05 Industrial machinery and equipment	1.81	2.14	0.24	4.81
06 Industrial or agricultural chemical	3.17	4.01	0.12	14.36
07 Instruments, photographic, optical, w atches	0.26		0.26	0.26
08 Leather and leather products	1.98	2.49	0.09	5.50
09 Paper and allied products	1.28	1.60	0.15	2.42
10 Printing and publishing products	0.29		0.29	0.29
11 Processed food and tobacco	4.61	10.61	0.01	55.65
12 Rubber and plastic products	5.20	6.18	0.52	17.72
13 Telecommunications and terminal equipment	1.57	1.96	0.07	4.73
14 Textiles and apparel	2.73	6.80	0.01	44.10
15 Transportation equipment, auto parts, dealers	4.18	8.27	0.25	31.88
16 Lumber, w ood and furniture	0.45	0.27	0.14	0.73
17 Construction and construction related services	1.43	1.09	0.66	2.20
18 Primary metal and metallic ores	11.27	20.48	0.17	41.96
19 Petroleum and other nonmetallic minerals	9.83	11.50	0.17	23.73
20 Miscellaneous manufactured commodities	20.89	50.51	0.02	124.00
21 Drug and liquor	3.67	3.82	0.38	9.50
22 Material	1.99	1.12	0.70	2.66
23 Transportation and mailing service				
24 Other services	0.26	0.33	0.04	0.63
25 Other	4.60		4.60	4.60
Grand Total	4.44	13.25	0	124

Table 3.11 Testing Requirement (Private/Government)

region	country	AUS	CAN	EU	JPN	USA
East Europe	Bulgaria	3	13	72	5	23
	Czech Republic	2	5	61	10	24
	Poland	2	2	61	2	12
East Europe Total		3	7	65	6	20
Lat.Amer.&Caribbean	Argentina	3	9	43	9	37
	Chile	10	33	63	30	67
	Honduras	0	8	50	17	75
	Panama	0	0	17	3	28
Lat.Amer.&Caribbean Total		4	13	43	14	47
Middle East	Iran	11	21	68	18	11
	Jordan	13	3	27	0	30
Middle East Total		12	12	47	9	21
South Asia	Pakistan	33	33	57	23	47
	India	11	15	49	11	33
South Asia Total		14	17	50	13	35
Sub-Sah.Africa	Kenya	10	10	40	15	25
	Nigeria	4	6	64	10	28
	South Africa	23	16	41	11	25
	Uganda	5	5	55	20	20
	Mozambique	0	0	60	0	0
	Senegal	0	0	23	0	0
Sub-Sah.Africa Total		11	9	48	11	22
Grand Total		9	12	51	11	30

Table 3.12 Testing Facility

region	country	Own	Private facility	Government
East Europe	Bulgaria	62	31	33
	Czech Republic	32	17	32
	Poland	51	15	34
East Europe Total		48	21	33
<hr/>				
Lat.Amer.&Caribbean	Argentina	57	17	20
	Chile	53	77	30
	Honduras	42	50	25
	Panama	62	24	17
Lat.Amer.&Caribbean Total		56	40	23
<hr/>				
Middle East	Iran	61	21	36
	Jordan	10	27	30
Middle East Total		34	24	33
<hr/>				
South Asia	Pakistan	57	40	10
	India	18	40	13
South Asia Total		23	40	12
<hr/>				
Sub-Sah.Africa	Kenya	20	45	25
	Nigeria	24	34	34
	South Africa	37	27	13
	Uganda	30	20	35
	Mozambique	80	20	70
	Senegal	33	33	0
Sub-Sah.Africa Total		33	30	25
<hr/>				
Grand Total		36	33	22

Table 3.13 Comparison of Costs of In-house and Outside Testing

region	country	In-house	Outside
East Europe	Bulgaria	8.9	5.6
	Czech Republic	9.3	2.7
	Poland	7.1	2.0
East Europe Total		8.3	3.5
Lat.Amer.&Caribbean			
Lat.Amer.&Caribbean	Argentina	5.5	2.5
	Chile	5.4	6.1
	Honduras	2.3	0.8
	Panama	9.9	0.0
Lat.Amer.&Caribbean Total		6.4	4.0
Middle East			
Middle East	Iran	4.6	2.2
	Jordan	0.6	2.0
Middle East Total		3.9	2.1
South Asia			
South Asia	Pakistan	2.5	2.9
	India	4.0	2.3
South Asia Total		3.5	2.4
Sub-Sah.Africa			
Sub-Sah.Africa	Kenya	0.3	3.8
	Nigeria	4.8	3.6
	South Africa	5.9	4.3
	Uganda	19.0	3.8
	Mozambique	6.5	3.2
	Senegal	10.0	
Sub-Sah.Africa Total		6.9	3.8
Grand Total		6.2	3.1

Table 3.14 Effort of Duplication of Testing Procedures to Meet Foreign Requirements Once Domestic Requirements Have Been Met (percent of Country Total)

g94str	East Europe			East Europe Total	Lat.Amer.&Caribbean				Lat.Amer.&Caribbean Total	Middle East		Middle East Total	South Asia		South Asia Total	Sub-Sah.Africa						Sub-Sah.Africa Total	Grand Total
	Bulgaria	Czech Republic	Poland		Argentina	Chile	Honduras	Panama		Iran	Jordan		Pakistan	India		Kenya	Nigeria	South Africa	Uganda	Mozambique	Senegal		
1. No duplication (A single test works for both)	3	10	3	5	3	10	8	0	5	39	7	23	30	1	5	15	2	6	15	20	0	7	7
2. Minor duplication	17	20	18	18	26	17	8	10	17	11	17	14	10	6	7	10	17	16	25	0	13	16	13
3. Significant duplication	56	27	48	43	32	60	50	48	47	18	38	28	20	55	50	40	55	29	30	70	25	40	44
4. Complete duplication (Two tests are required)	6	32	25	21	29	3	17	38	23	18	31	25	33	37	36	25	23	45	30	0	63	33	30
5. Not answered	19	12	8	13	9	10	17	3	9	14	7	11	7	2	2	10	2	4	0	10	0	4	6
Grand Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Figure 3.1 Impact of the Technical Regulations on the Firm Cost and Investment

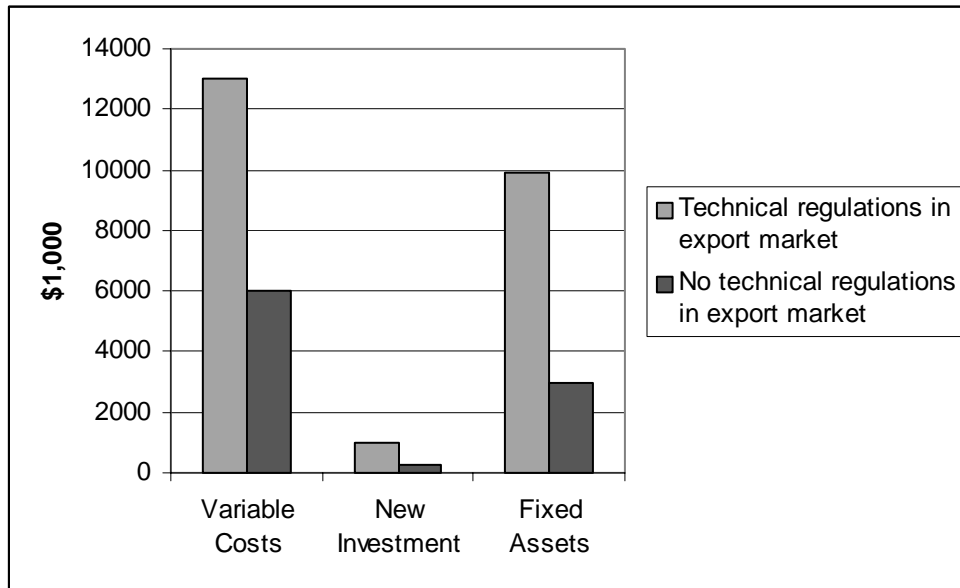
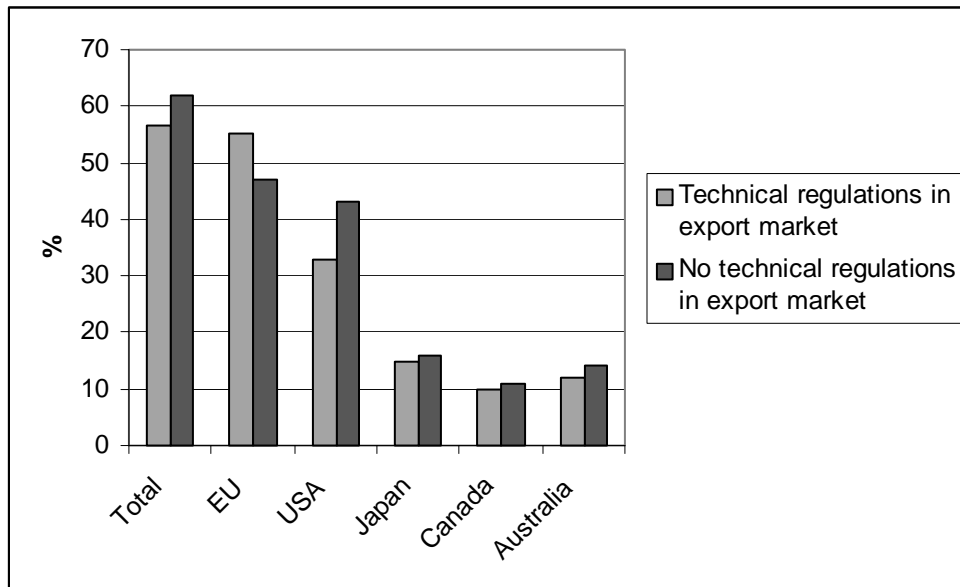


Figure 3.2 Impact of the Technical Regulations on Export Share



Section 4. International Standards

There is a considerable effort being made to harmonize national standards setting (where it exists) with international standards. Such international standards setting bodies include the International Standards Organization (ISO), International Electrotechnical Commission (IEC), Codex Alimentarius Commission (Codex), and others. The World Trade Organization's (WTO) Technical Barriers to Trade (TBT) Agreement and Sanitary and Phytosanitary (SPS) Agreement encourage countries to use international standards where appropriate, however international standards are not mandatory. Conformance with internationally shared standards are generally considered to promote trade by increasing the reputation of the product, as found in some empirical literature (Swann, Temple and Shurmer, 1996; Blind and Jungmittag, 1999; Moenius 2000). The World Bank Technical Barriers to Trade data will enable us to investigate the firm's perception of the benefit of complying with international standards.

ISO standards are the most widely aligned international standards in the world. Our samples, except for Senegal and Uganda, participate in ISO in different manners. Fifteen countries are member bodies² each representing their respective national standards, Mozambique is a Correspondent member³ having not yet fully developed their national standards, and Honduras is a Subscriber member⁴ since it is a country with a small economy. There is no pattern among regions, but it can be observed that fewer African nations follow international standards. Many countries are making an effort to harmonize their national standards with either international, the EU, the US, or regional standards. Among those countries, ISO standards are included as part of their national standards and obtained voluntarily depending on either the industry or firm. Situation of each of the studied countries with respect to alignment with international standards along with some bilaterally imposed standards is summarized in the table in Annex II.

Due to the voluntary nature of international standards, the alignment to the international standards is the choice of the individual country's government or firm. A country or a firm is expected to align with international standards only when it finds the alignment to be welfare-improving. This section investigates the pattern of alignment with various international standards, and their effect on firms' costs and their benefits.

Table 4.1 presents the different international standards which the national governments have chosen to align with. Except for Panama and Mozambique, **all the countries have a high percentage of firms aligned with ISO standards** because those countries need to follow the framework which ISO with IEC and ITU provide for trading goods and

² A member body of ISO is the national body "most representative of standardization in its country". Only one such body for each country is accepted for membership in ISO. Member bodies are entitled to participate and exercise full voting rights on any technical committee and policy committee of ISO.

³ A correspondent member is usually an organization in a country which does not yet have a fully-developed national standards activity. Correspondent members do not take an active part in the technical and policy development work, but are entitled to be kept fully informed about the work of interest to them.

⁴ Subscriber membership has been established for countries with very small economies. Subscriber members pay reduced membership fees that nevertheless allow them to maintain contact with international standardization.

services internationally. These three organizations have a strategic partnership with WTO, and ISO has the most important rules among the three agencies. Therefore, the political agreements in WTO require underpinning by technical agreements of ISO.

The following four countries have a high alignment with international standards. Bulgaria has 46 percent of its firms aligned with ISO standard followed by Kenya and Uganda each with 45 percent and Nigeria 44 percent of its firms aligned with the ISO standards. Those countries follow the EU-based international standards which is the second most common. The major exporter of these four countries is the EU according to Table 2.8 of Export Destination. Since the EU is the major market for Bulgaria, Kenya, Uganda and Nigeria. The EU-base international standards has an important rule for these counters.

On the other hand, Panama has only 3 percent in alignment with international standards, because there is no legal limitation in the ISO-9000 program in Panama even though they have registered to participate in it. In **Panama** the majority of firms are aligned with either **US-based international standards** or sanitary and phytosanitary-related international standards such as CODEX, OIE and IPPC. This fact is consistent with the country's observed pattern of trade—high export shares with the US and Latin American countries. The firms in Panama are inclined harmonize their standards to their major exporters.

The majority of the firms in Mozambique follow some “other” standard. Eastern Europe has the highest percentage (38 percent) of firms aligned with ISO standard. As an individual country Bulgaria has the highest percentage (46 percent) of ISO based firms. In Sub-Saharan Africa, Kenya and Uganda each have 45 percent ISO based firms. Overall, 28 percent of firms are aligned with ISO standards, the highest share coming from Eastern Europe (38 percent). Our statistical data is consistent with the fact that EU-based standards is the second common and the EU is the major exporter of Eastern Europe.

Table 4.2 shows whether alignment with international standards—in terms of new equipment and facilities as a percentage of investment costs, labor costs as a percentage of production costs, and inspection costs as a percentage of production costs—results in cost savings or additional cost or neither. Even though a majority of the firms find the question is not applicable or they do not answer the question, the percentage of firms answering **additional costs** is more than **cost savings** in terms of the three above-mentioned categories. However, when the standard related factor is labor costs as a percentage of production costs, 15 percent of the firms answer “neither” which is 1 percent more than additional costs.

Table 4.3 shows the importance of international standards for the success of the product in domestic and international markets. A majority of the firms leave the question unanswered. However, a far greater number of firms answering the question find international standards “important (on a scale of somewhat to –very important) as opposed to “not all important.” In **Eastern Europe** 29 percent of the firms find

international standard to be conducive for sales, i.e. the highest percentage among all regions, followed by 28 percent of firms in Latin America and Caribbean region. At the individual country level, Mozambique has the highest, i.e., 50 percent of its firms consider international standards to be important. Overall, 19 percent of the firms find international standards to be beneficial for sales.

Table 4.1 Alignment with International Standard (Percentage of Country Total)

region	country	ISO	IEC	ITU	CODEX	OIE	IPPC	US	EU	JPN	OTH
East Europe	Bulgaria	46	3	0	3	3	3	3	15	0	3
	Czech Republic	41	10	2	2	0	0	0	27	0	0
	Poland	27	12	0	0	0	5	0	10	0	12
East Europe Total		38	8	1	2	1	2	1	17	0	5
Lat.Amer.&Caribbean	Argentina	29	0	0	14	6	6	17	20	9	17
	Chile	37	0	0	10	7	10	17	13	10	13
	Honduras	17	0	0	8	0	0	0	0	0	0
	Panama	3	0	0	7	7	3	14	0	0	14
Lat.Amer.&Caribbean Total		23	0	0	10	6	6	14	10	6	13
Middle East	Iran	14	0	0	0	4	0	7	7	7	4
	Jordan	20	0	0	3	0	0	10	7	0	10
Middle East Total		17	0	0	2	2	0	9	7	3	7
South Asia	Pakistan	37	3	3	0	0	0	0	0	0	0
	India	22	1	0	0	0	0	0	0	1	0
South Asia Total		24	1	0	0	0	0	0	0	0	0
Sub-Sah.Africa	Kenya	45	0	0	5	0	5	10	10	0	20
	Nigeria	44	0	0	2	0	2	2	4	0	0
	South Africa	24	1	0	1	0	1	1	3	3	3
	Uganda	45	0	0	0	0	20	0	20	0	5
	Mozambique	0	0	0	10	0	10	0	0	0	40
	Senegal	17	0	0	8	0	0	0	8	0	0
Sub-Sah.Africa Total		32	1	0	3	0	4	2	6	1	6
Grand Total		28	2	0	3	1	2	4	7	2	5

Table 4.2 Cost Impact of International Standards

factor	response				Grand Total
	Cost saving	Additional Costs	Neither	NA	
1.new equipment and facilities as percentage of investment costs	7	16	11	66	100
2.labor costs as percentage of production costs	6	14	15	66	100
3.inspection costs as percentage of production costs	7	16	11	66	100

Table 4.3 Importance of the International Standards for the Success of the Products in Domestic and International Market

q158str	East Europe			East Europe Total	Lat.Amer.&Caribbean				Lat.Amer.&Caribbean Total	Middle East		Middle East Total	South Asia		South Asia Total	Sub-Sah.Africa						Sub-Sah.Africa Total	Grand Total
	Bulgaria	Czech Republic	Poland		Argentina	Chile	Honduras	Panama		Iran	Jordan		Pakistan	India		Kenya	Nigeria	South Africa	Uganda	Mozambique	Senegal		
1. Very Important	11	24	18	18	12	27	17	14	17	14	24	19	27	3	6	25	6	17	15	40	0	16	13
2. Important	6	12	10	9	6	17	0	14	10	0	0	0	0	1	1	0	0	0	5	10	38	3	4
3. Somewhat important	0	0	5	2	3	0	0	0	1	4	0	2	0	3	3	0	0	4	5	0	0	2	2
4. Not at all important	0	2	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
5. Not answered	83	61	65	69	79	57	83	72	71	82	76	79	73	93	90	75	94	77	75	50	63	79	80
Grand Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Section 5. Mutual Recognition Agreements

A Mutual Recognition Agreement (MRA) is an agreement in which one government recognizes another country's testing and certification requirements as acceptable, without undertaking its own testing or customs inspections. Since the MRA approach requires a high level of trust in a partner nation's governance capacity, it is really a matter of credibility for the developing nations. As a consequence, most MRA agreements tend to exclude the developing nations. According to Baldwin (2001), this gives rise to a two-tier system of market access, with developing countries occupying the second tier. There are some problems associated with this kind of framework. First, it violates the non-discriminatory and multilateral spirit of the WTO and as a result undermines the rule-based world trade system. Also, an MRA agreement between two developed nations may divert investment from a third developing nation. For example, the EU-US MRA may divert investment from a nation like Mexico. Due to all these problems, currently there are ongoing talks to include developing countries as part of the MRA agreement.

Table 5.1 shows whether any product of the firms in the sample is subjected to an MRA. **The majority** (69 percent) of the firms **do not subject** their product to a MRA, whereas only 23 percent do. The firms in **Eastern Europe** and **Latin America and Caribbean** most actively participate in MRAs. **South Asia** has the highest percentage, i.e., 84 percent of the firms **do not** have products **subject to MRAs**—with India having 94 percent of its firms answering in the negative. On the contrary, 63 percent of firms in Pakistan, 59 percent in the Czech Republic, and 58 percent in Honduras say that they have products that are subject to a MRA.

Despite the fact that the overall participation rate in MRAs is low, more firms find participation in MRAs will reduce export costs. Table 5.2 shows whether there are any cost savings from MRA recognition. Overall, **more firms consider MRA recognition to be cost saving**. Forty-one percent of firms in the Czech Republic think that there are cost savings from MRA recognition, whereas 33 percent of firms in Honduras say there are no cost savings. In **Eastern Europe** 24 percent of the firms consider MRA to be cost saving, which is the **highest** among the regions. On the other hand, the highest percentage answering in the negative for cost savings are Latin American and Caribbean firms (18 percent) despite their high participation rate in MRAs.

Table 5.3 indicates whether an MRA agreement with a potential destination market will make it easier for the country to export there. In fact, for destination markets such as the EU, the US, Canada, Japan, and Australia, **60 percent of the firms** in our sample of countries say that it will be **somewhat easier** for them to export to a destination with an MRA agreement. Sixty nine percent of firms say an MRA will ease the export process to Japan to a certain extent and 62 percent say that export to the US will be somewhat easier with an MRA agreement.

The low participation in MRAs may reflect the difficulties that developing countries face in reaching MRAs with other nations as they typically fail to establish credibility in their

inspection procedures, which makes it more difficult for developing countries to participate in MRAs with developed countries (Chapter 3, Global Economic Prospects, World Bank, 2002). But the tables also suggest that once a country enters into MRAs, these agreement tend to reduce export costs. The firms in Eastern Europe are the most successful in leveraging the opportunity and benefits of MRAs.

Table 5.1 Participation in MRAs

	East Europe			East Europe Total	Lat.Amer.&Caribbean				Lat.Amer.&Caribbean Total	Middle East		Middle East Total	South Asia		South Asia Total	Sub-Sah.Africa						Sub-Sah.Africa Total	Grand Total
	Bulgaria	Czech Republic	Poland		Argentina	Chile	Honduras	Panama		Iran	Jordan		Pakistan	India		Kenya	Nigeria	South Africa	Uganda	Mozambique	Senegal		
1. Yes	17	59	30	36	17	53	58	28	35	39	24	32	63	2	10	35	19	16	15	50	38	22	23
2. No	75	41	68	61	69	47	33	55	55	57	55	56	20	94	84	50	62	83	65	50	63	68	69
3. Not answered	8	0	3	3	14	0	8	17	10	4	21	12	17	4	6	15	19	1	20	0	0	10	8
Grand Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table 5.2 Cost Savings from MRA (Percentage of country total)

	East Europe			East Europe Total	Lat.Amer.&Caribbean				Lat.Amer.&Caribbean Total	Middle East		Middle East Total	South Asia		South Asia Total	Sub-Sah.Africa						Sub-Sah.Africa Total	Grand Total
	Bulgaria	Czech Republic	Poland		Argentina	Chile	Honduras	Panama		Iran	Jordan		Pakistan	India		Kenya	Nigeria	South Africa	Uganda	Mozambique	Senegal		
1. Yes	8	41	20	24	9	13	17	14	12	4	0	2	40	2	7	20	15	4	5	10	38	11	11
2. No	8	12	5	9	9	30	33	10	18	0	14	7	17	0	2	15	2	7	10	10	0	7	7
3. Not answered	83	46	75	68	83	57	50	76	70	96	86	91	43	98	91	65	83	88	85	80	63	82	81
Grand Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

Table 5.3 Advantage of MRA in the Future Participation (Percent of Total)

dest	Much Harder	Somewhat Harder	No Effect	Somewhat Easier	Much Easier	Not answered	Grand Total
AUS	6	2	17	58	11	3	100
CAN	7	3	18	55	13	3	100
EU	9	4	15	54	12	4	100
JPN	5	2	13	69	8	1	100
USA	7	3	15	62	10	2	100
Grand Total	7	3	16	60	11	3	100

Section 6. Summary of Findings and Implications

The World Bank Technical Barriers to Trade Survey is the fundamental first step in the effort to measure and analyze the firm-level impact of standards and technical regulations. The overview provided in this paper suggests that standards and technical regulations are perceived to be one of the important factors affecting a firm's operation and ability to export. The findings of the survey can be used to design domestic and trade policies that effectively promote exports of small and medium firms to major western markets, which leads to a nation's economic development.

The survey was conducted in countries that differ in stages of development, leading export commodities, and export markets. Further, firms in a variety of industries, of ownership forms, and of employment size were interviewed. These make comparative analysis more interesting. In addition to the investigation of the issues over the entire sample, this paper conducts a regional comparison to illustrate the variation of the impact of standards and technical regulations, and other trade- promoting and impeding factors.

The major findings include:

General factors that affect business

- Limited access to credits and low demand are the most crucial impediments to business among both exporting and non exporting firms. Product quality and existence of high demand are found to be major factors to increase ability to export. For firms that are willing but unable to export, low demand and costs of transporting goods are major impediments to exports.

Mandatory standards and Technical Regulations

- 70 percent of firms that export are confronted by mandatory standards and technical regulations. The majority of those who responded perceive technical regulations to be important for entering export markets but the obligation to meet these requirements may discourage export.
- More firms confront mandatory standards and technical regulations than domestic technical regulations, but compliance costs to meet the regulations are about the same between domestic and foreign regulations.
- Among the major export markets studied, the EU is the export market whose technical regulations are most widely perceived to be important, followed by the US.
- By regional comparison, a large share of firms in Eastern Europe and LAC consider technical regulations to be important.
- Among foreign technical regulations, product quality standards are most widely perceived to be important for success in export, followed by performance standards and testing/certification requirements. In general, variation across countries is notable.
- Technical regulations possibly reduce production costs and the ability to export.

Compliance

- Compliance to technical regulations is most commonly done within the capacity of the

existing plant, equipment, workers, and technology. Among the firms that incur any cost for compliance, additional cost per type of effort is commonly within 10 percent of investment cost.

- But among the firms that incur any cost of compliance, investment in additional plant or equipment is the most common effort.
- Product re-design and additional employment are also common types of compliance efforts because they require smaller amounts of installation costs.

Conformity assessment

- The EU conformity assessment is most widely imposed.
- Own conformity testing is typically more expensive than outsourcing.

International standards

- Among international standards, ISO is most commonly used.
- The majority of firms that responded consider international standards to be important for successful sales in domestic and foreign markets.

Mutual Recognition Agreements

- Mutual Recognition Agreements are generally not common among the firms in the 17 studied countries.
- Relatively, Eastern Europe and Latin America and Caribbean most actively participate in MRAs.
- The majority of firms that responded consider that Mutual Recognition Agreements lead to cost saving.

In summary, mandatory standards and technical regulations as well as international standards are important factors that affect domestic sales and the ability to export. Production and investment costs tend to be higher for firms that face technical regulations, and the investment for the compliance is typically below 10 percent of the total investment costs. While the current participation level is low, MRAs would provide more export opportunity. Relatively advanced countries are more likely to succeed in MRAs but less developed nations should raise their capacity in providing more credible accreditation to attract potential partner countries.

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