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ECOMMERCE DEVELOPMENT SURVEY AND INDEX

April 2017

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I. INTRODUCTION

Ecommerce is spreading quickly around the world, enabling countries to tap latent sources of growth. Companies can now sell and buy goods and services with greater ease globally; consumers can access a wider variety of goods and services at lower cost. Studies show that ecommerce helps developing countries spur exports, entrepreneurship, and inclusive economic growth and development.

These and the many other gains from digitization to trade and inclusive growth and development are not automatic. Data show that most developing country companies have yet to join the online economy as online sellers. There are also several challenges, catalogued mostly anecdotally, in the enabling environment for digital trade that can impede companies selling online and the translation of the new technologies into trade and growth. Some of them include inadequate broadband connectivity and ICT skills; policy and regulatory issues increasing costs to digital companies, such as onerous legal liability regimes and data privacy rules; small businesses' limited adoption and use of digital technologies, such as ecommerce or online payments; the traditional challenges to cross-border trade, such as arcane customs procedures and expensive logistics; and national digital infrastructures and regulations that do not interoperate with those of other economies.

Cognizant of the trade and growth gains from ecommerce, several developing country governments and industry associations alike are seeking to remove these barriers and create an environment for ecommerce to flourish. One critical challenge in this process is the lack of a theoretical or a proven empirical framework on the success drivers for ecommerce. Another is lack of data specific to the enabling environment for ecommerce; databases such as World Bank's Doing Business or Enterprise Surveys are not nuanced enough to capture issues critical for ecommerce players, such as legal liability rules for internet intermediaries or the quality and cost of urban last-mile delivery. In particular, a policymaker in practically any developing country lacks systematic data to answer and act on central questions such as:

- What are priority challenges to ecommerce in my country?
- What are main problems facing different types of companies in my country (e.g., small vs. large companies, non-exporter vs. exporter, offline sellers vs. online sellers, and so on)?
- How does my country perform vis-a-vis its peer economies?
- What kinds of policies and programs actually work to improve ease of ecommerce?

As a result of these gaps, public policies, development interventions and capacity-building aimed to further ecommerce are not necessarily optimized for impact.

The purpose of this Ecommerce Development survey, database, and index is to start mending these gap – by asking developing country firms about the key challenges they experience when seeking to use ecommerce as a lever for growth and exports. The tools developed here are to provide five distinct benefits:

- Help developing country governments better assess their ecommerce readiness and prioritize public policies and investments in removing the binding constraints to ecommerce and cross-border ecommerce.

- Induce governments around the world to both engage in a healthy “race to the top” in improving their ecommerce economies, and collaborate with each other to improve the odds for cross-border ecommerce.
- Enable private sector actors in developing countries to better articulate to their governments the challenges facing them when engaging in ecommerce.
- Enable donors and development agencies to offer high-impact, relevant policy advice and to create development interventions tailored to solving the priority challenges to ecommerce in any one country.
- Provide data to trade and development economists and other analysts to rigorously assess the binding constraints to ecommerce in different countries around the world, and build a more robust basis for understanding the sequencing of interventions and policies key to driving ecommerce.

The following sections elaborate on the behavior of data and put forth three complementary indices on ecommerce development.

II. SAMPLE AND FINDINGS

Two surveys have been fielded in each economy – one for SME merchants, another for ecosystem players such as ecommerce platforms. The surveys were designed with inputs from the private sector, including such companies as eBay, PayPal and Google. They are in Appendix I. They include about 30 questions and sub-questions. The author translated the surveys also into Spanish and Portuguese.

The survey asks companies about their characteristics, such as their sector, growth rate, size, participation in ecommerce and in trade, and main foreign markets, and the gender of the respondent and his/her title. It also asks the respondents about their perceived barriers to ecommerce as well as their forecast revenue gains if these barriers were removed.

Results were secured from 94 countries, with robust samples for 15 countries from:

- Latin America: Argentina, Brazil, Chile, Colombia, Mexico, Uruguay
- Asia: Pakistan, Bangladesh, India, Philippines, Singapore
- Africa: Kenya, Nigeria, South Africa, Ghana

The countries were selected to cover several different geographic regions and based on the ease of reaching large sets of surveyed (For example, companies in some countries that could be interesting, such as Tanzania are harder and more expensive to survey). Another factor in country selection was responsiveness; the countries for which there is robust information were the ones where initial data spontaneously came in when partner organizations fielded the survey. The country samples cover companies of all sizes, numerous sectors, various growth trajectories, exporters and non-exporters, online sellers and offline sellers. Respondents range from staff-level employees to Senior Vice Presidents and CEOs. The typical sample per country where we have more robust data is on average 135 merchants and 66 ecosystem players. The total number of responses is 3,250; the number of quality responses is about 2,500. Descriptive statistics are in Appendix II.

Several partners helped field the survey, including: Latin American Ecommerce Institute, TradeKey, Ringier Africa, Google, Bangladesh Association of Software and Information (BASIS), Pacific Economic Cooperation Council (PECC), World SME Forum, and e-Commerce Association of Bangladesh (e-CAB). Survey firms Cint and QuestionPro were hired to bolster the samples in the above economies, so as to expand the samples in the countries where we started to have better data.

There were methodological issues to overcome. For example, the response rate was lower than expected and the share of incomplete surveys was higher than anticipated; some 20-25 percent started the survey but did not complete it. The survey is demanding and long to fill out, which is the likeliest cause of fatigue. Some of the completed surveys needed to be thrown out due to questions around the quality of the answers. These challenges were, however, overcome.

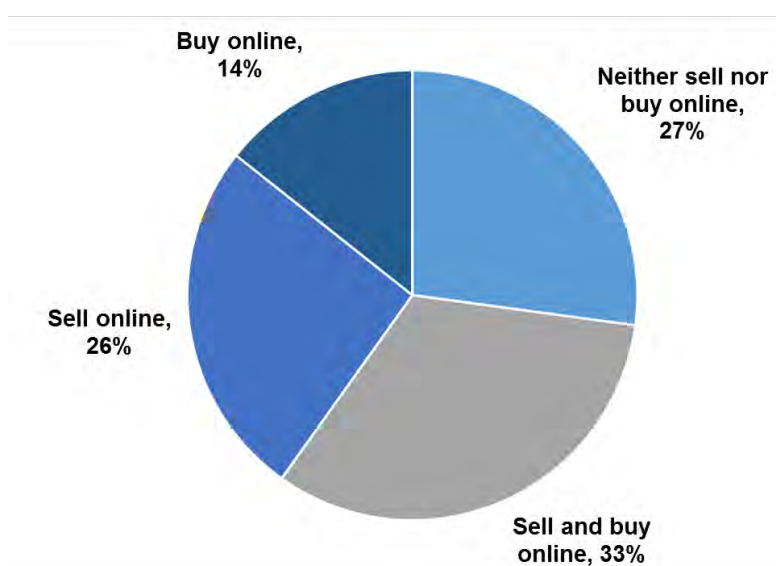
The following two sections analyze the surveyed companies' use of the Internet, and describe the challenges they face when selling online.

A. CHARACTERISTICS AND PERFORMANCE OF OFFLINE VS. ONLINE SELLERS

There are a number of findings related to surveyed companies' online presence and sales, and export activity.

A substantial share of companies surveyed buy and/or sell online. In the overall survey, 26 percent of companies reported online sales, 14 percent reported online purchases, and 33 percent both sell and buy online (Figure 1). Some 27 percent have yet to join the online economy; these are typically smaller companies. For example, 29 percent of small businesses and of domestically owned companies do not sell or buy online, vs. 22 percent for large companies and 21 percent for companies with 10 percent or more foreign ownership.

FIGURE I. SURVEYED MERCHANTS' ONLINE ACTIVITY



A significant share of surveyed companies export and import. Whereas only some tenth of companies in a typical developing country sell to overseas markets, 42 percent of all companies surveyed here have foreign sales. However, this may underestimate the international exposure of companies in the sample, in that not all companies in the sample reported on their foreign sales. Of those that did, 69 percent had sales in overseas markets. Similarly, 45 percent of all surveyed reported purchases from abroad, while 71 percent of those surveyed that reported on their overseas purchases do source from abroad (figure 2). There is also a significant correlation between importers and exporters: 91 percent of exporters import and 87 percent of importers also export.

FIGURE 2. % OF MERCHANTS THAT SELL TO OR PURCHASE FROM INTERNATIONAL MARKETS



There are significant differences across companies in their exposure to international markets; these are explained mostly by expected factors such as company size and online sales activity. For example, as could be expected on the basis of empirical work on companies' participation in international trade, surveyed large companies and companies with online sales are much likelier to export than small companies or companies that do not have online sales (figures 3-4).

FIGURE 3. % OF MERCHANTS THAT SELL TO OR PURCHASE FROM INTERNATIONAL MARKETS, BY FIRM SIZE

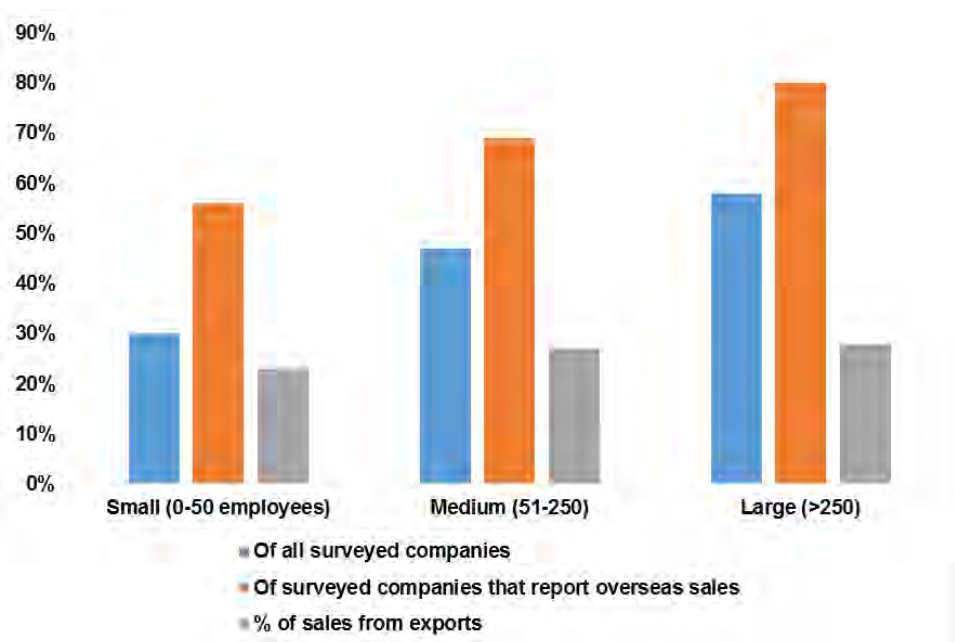
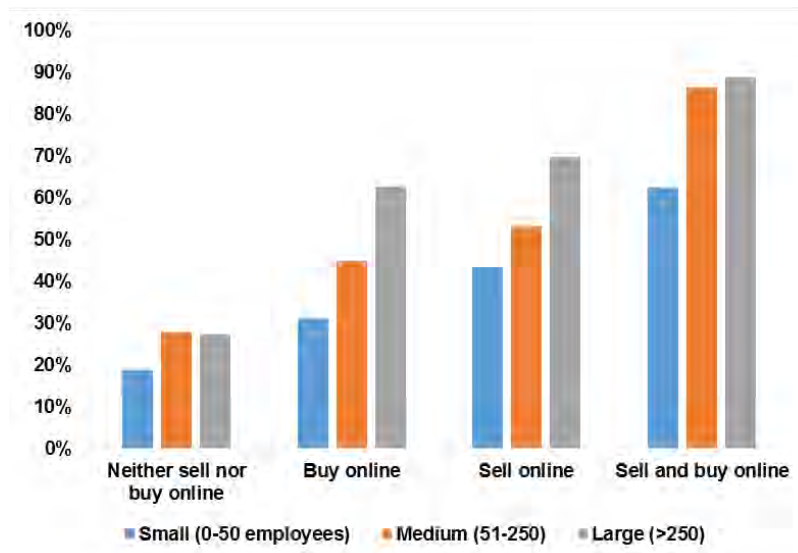
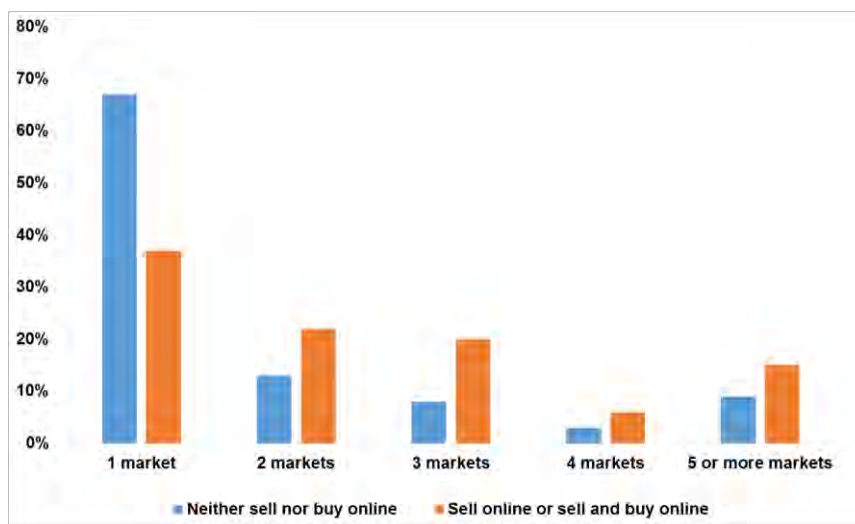


FIGURE 4. % OF COMPANIES THAT EXPORT, BY COMPANY SIZE AND ONLINE ACTIVITY



Online sellers are also more geographically diversified: some 63 percent of online sellers export to two or more markets, while only a third of offline sellers do, whereas surveyed companies that neither buy nor sell online typically export to only one foreign market (figure 5). To be sure, in most economies, companies' key export markets are regional. For example, Latin American merchants sell to Latin American markets or to the United States; African merchants sell to African or Middle Eastern markets; and Asian companies sell either to East Asia or to Europe. China and the United States are also often highlighted as tough markets to enter. Companies with online sales also derive a larger share of their revenues from exports than companies that do not buy or sell online.

FIGURE 5. NUMBER OF MARKETS COMPANIES SELL INTO, BY COMPANY'S ONLINE SALES ACTIVITY

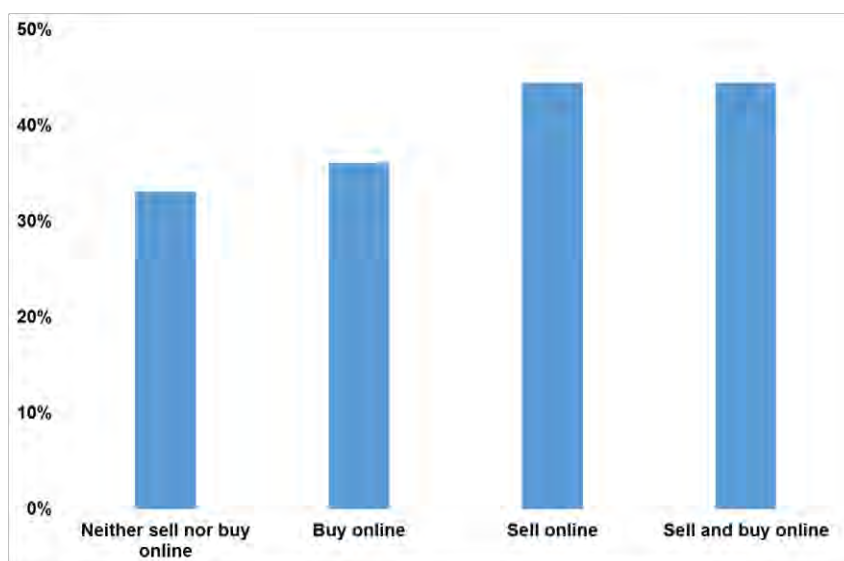


Similarly, companies that sell online are also likelier to be faster-growing—they have 10 percent or higher annual revenue growth—at least 10 percent per annum), controlling for company size. The share of these faster-growing companies is 45 percent of companies that have online sales, vs. 33 percent for offline sellers (figure 6). Also companies with at least 10 percent of foreign ownership export more than

those with no foreign owners, likely because of the overseas contacts that foreign owners and managers help provide.

FIGURE 6. % OF FAST-GROWTH COMPANIES

(Annual Revenue Growth of >10% or More) in a Category, by Online Activity



There are no appreciable differences between men- or women-run companies when it comes to their participation in trade, nor are there meaningful differences between business-to-business (B2B) or business-to-consumer (B2C) merchants. The differences between companies in their export participation and export intensity are mostly correlated with company size and their engagement in online sales. These regularities are echoed in international trade literature, where it is typically the fastest-growing and largest companies that are likeliest to export.

B. OBSTACLES TO ECOMMERCE

The core part of the survey was to grasp companies' perceived challenges to selling online. There are several findings.

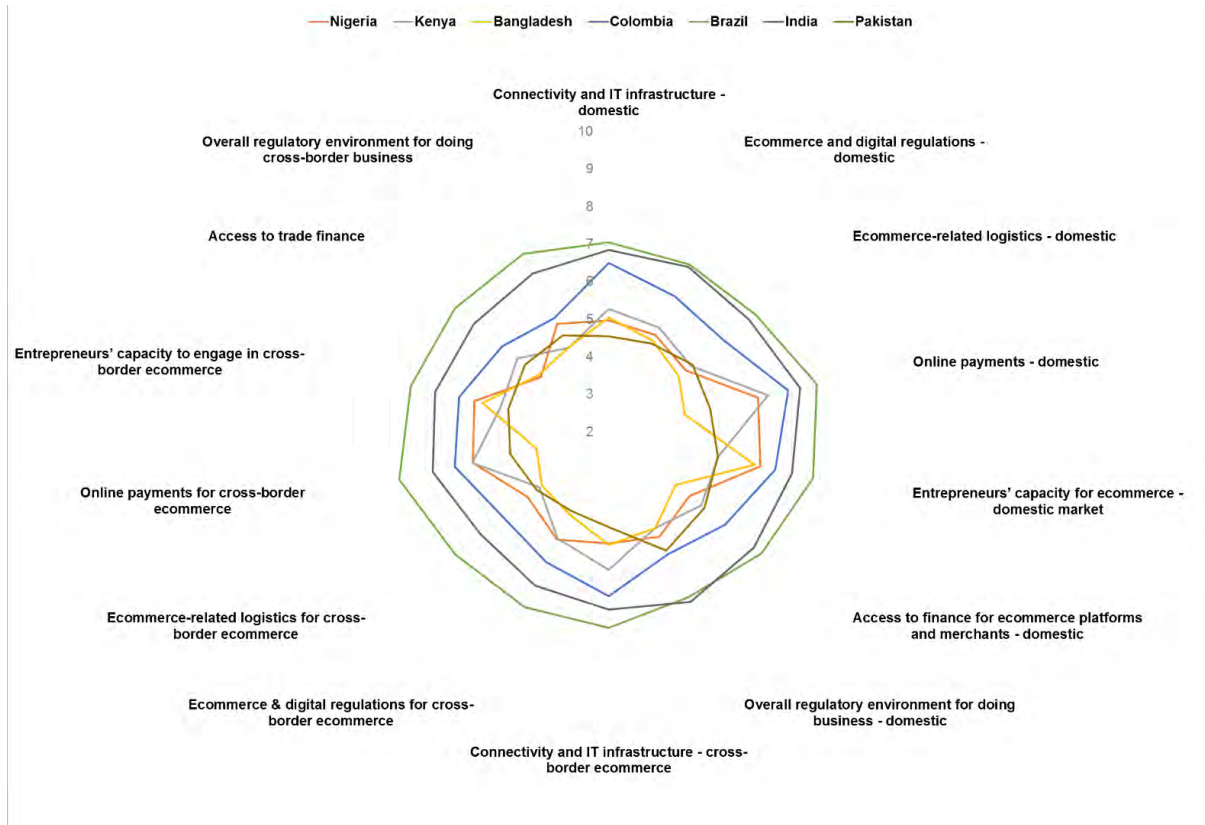
Perceived challenges to ecommerce vary very significantly across and within countries; every country has its idiosyncratic challenges, which means that policy recommendations and interventions need to be tailored to each country. This study asked companies to rank the functioning of the enabling environment for ecommerce from 1 (very poor, significant barriers to ecommerce) to 10 (excellent, facilitates ecommerce), both in broad categories (such as logistics) and in narrow subcategories helpful for designing policy interventions (such as, under logistics, last-mile delivery and customs procedures for ecommerce imports).

The results yield substantial variation across issues areas, countries, and companies. For example, in some countries such as Bangladesh, online payments are a leading problem to ecommerce; in others such as Argentina and Kenya, cross-border logistics and customs procedures are the most challenging (figure 7). In Kenya, for example, local platforms report tremendous hurdles for cross-border business, including delays and fees at customs and lack of cross-border logistics. Local companies thus lack incentives to use platforms or other formal channels for cross-border trade and platforms have not thus built cross-border into their growth strategies in the region. In still other countries, such as Brazil, ecommerce and digital regulations and the overall regulatory environment complicate ecommerce. In Nigeria, access to finance issues and logistics dominate the list of

problems. In Pakistan, the high cost of broadband and lack of Internet connectivity are reported to hamper ecommerce.

FIGURE 7. RATING OF ENABLING ENVIRONMENT FOR ECOMMERCE AND CROSS-BORDER ECOMMERCE, SELECTED COUNTRIES

(1 = very poor; 10 = excellent)



Tables 1 and 2 display a comparative mapping of these challenges in all countries, developing an index that is the simple average of the analyzed scores. The overall country indices are correlated with development levels (figure 8). African least developed countries (LDCs) do least well, typically rating the enabling environment for ecommerce at 5/10 or lower, perhaps equivalent to a subpar C-grade in a U.S. university, followed by Bangladesh. Brazil and India, while still far from perfect score of 10 on any dimension of the enabling environment, vastly outperform their peers at the same level of development. This is in part due to institutional factors such as, hypothetically, Brazilian legal reforms that have enabled the interoperability of online payments in the market, and India's national drive toward a cashless society.

TABLE I. PERCEIVED OBSTACLES TO ECOMMERCE, BY COUNTRY

(10 = functions extremely well, facilitates ecommerce; 1 = very significant obstacle to ecommerce)

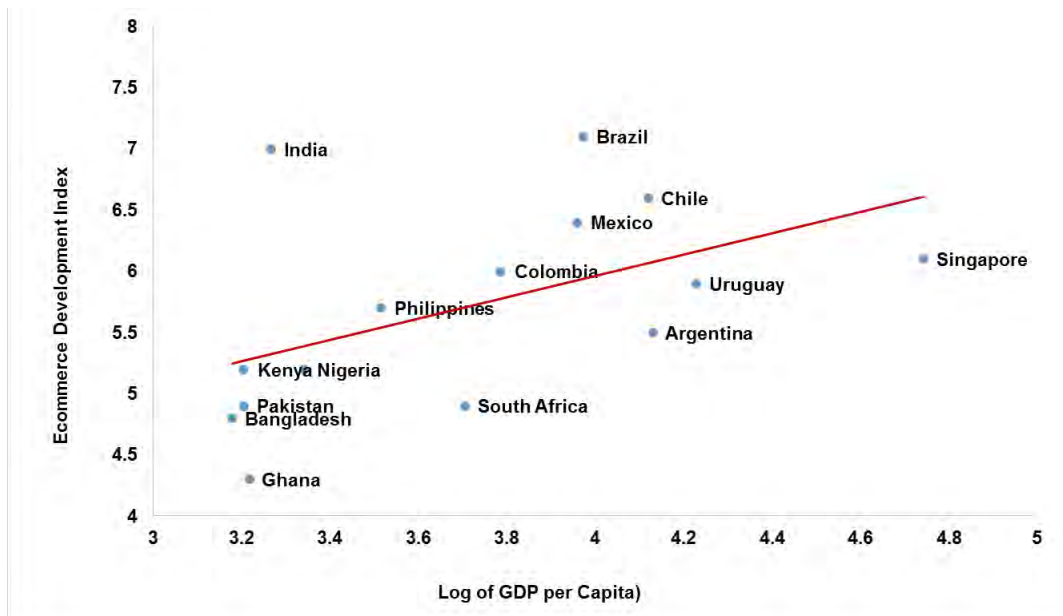
	Connectivity and IT infrastructure	Ecommerce and digital regulations	Ecommerce-related logistics	Online payments	Entrepreneurs' capacity for ecommerce	Access to finance for ecommerce platforms and merchants	Regulatory environment for doing business	Index	Rank
Brazil	6.9	6.8	6.8	7.6	7.5	7.2	6.7	7.1	1
India	6.8	6.9	6.8	7.2	7.0	6.9	7.0	7.0	2
Chile	6.6	6.7	6.1	6.7	6.7	6.4	6.7	6.6	3
Mexico	6.5	6.4	6.2	6.7	6.5	6.5	6.2	6.4	4
Singapore	6.0	6.0	6.0	6.4	6.2	6.2	6.0	6.1	5
Colombia	6.1	5.8	5.7	6.5	6.3	5.8	5.5	6.0	6
Uruguay	6.2	5.2	5.7	5.9	6.6	5.6	5.7	5.9	7
Philippines	5.5	6.0	5.7	5.8	5.5	5.8	5.8	5.7	8
Argentina	5.4	5.3	5.0	6.2	6.2	5.2	5.0	5.5	9
Kenya	5.3	5.1	4.8	6.4	5.0	5.1	4.9	5.2	10
Nigeria	4.9	4.7	4.6	6.0	6.1	4.7	5.2	5.2	11
Pakistan	4.5	4.6	4.9	4.8	5.0	5.3	5.5	4.9	12
South Africa	4.7	5.1	4.8	6.0	5.7	3.3	4.7	4.9	13
Bangladesh	5.0	4.7	4.4	4.1	6.0	4.3	4.8	4.8	14
Ghana	4.5	4.3	4.4	4.0	4.7	3.6	5.0	4.3	15

TABLE 2. PERCEIVED OBSTACLES TO CROSS-BORDER ECOMMERCE, BY COUNTRY

(10 = functions extremely well, facilitates ecommerce; 1 = very significant obstacle to ecommerce)

	Connectivity and IT infrastructure cross-border	Ecommerce and digital regulations cross-border	Ecommerce-related logistics cross-border	Online payments cross-border	Entrepreneurs' capacity to engage in cross-border ecommerce	Access to trade finance for cross-border	Regulatory environment for doing cross-border business	Index	Rank
Brazil	7.1	7.0	7.1	7.7	7.4	7.2	7.1	7.2	1
India	6.7	6.5	6.4	6.8	6.8	6.6	6.7	6.6	2
Mexico	6.7	6.4	6.4	6.7	6.4	6.2	6.3	6.5	3
Chile	6.4	6.4	6.1	6.6	6.4	6.3	6.6	6.4	4
Uruguay	6.4	5.6	5.6	6.4	5.8	5.9	5.7	5.9	5
Colombia	6.4	5.9	5.6	6.2	6.1	5.6	5.4	5.9	6
Singapore	5.6	5.4	5.6	6.1	5.6	5.6	5.3	5.6	7
Philippines	5.3	5.6	5.5	5.5	5.3	5.7	5.6	5.5	8
Argentina	5.6	5.3	5.3	6.0	5.8	5.2	5.1	5.5	9
Nigeria	4.9	5.1	4.7	5.7	5.7	4.5	5.2	5.1	10
Kenya	5.7	5.2	4.4	5.7	5.0	5.1	4.5	5.1	11
South Africa	4.7	4.9	4.6	5.5	5.3	4.9	4.5	4.9	12
Pakistan	4.5	4.3	4.5	4.7	4.8	4.9	4.8	4.6	13
Bangladesh	5.0	4.4	4.3	4.0	5.5	4.4	4.5	4.6	14
Ghana	4.1	4.2	4.2	4.1	4.2	3.4	4.2	4.1	15

FIGURE 8. PERFORMANCE COUNTRIES ON ECOMMERCE DEVELOPMENT INDEX, BY LEVEL OF DEVELOPMENT



Company characteristics shape companies’ perceptions of barriers to ecommerce, with small businesses reporting being particularly hampered. Small companies tend to be considerably more affected by these various potential barriers to ecommerce than large companies in every country, with access to finance and ecommerce logistics posing particularly steep challenges for small businesses (figure 9). Midsize and large companies, meanwhile, wrestle most with logistics and digital and other regulations. The gaps are significant between small and large companies: for example, some 60 percent of surveyed small companies rate areas of ecommerce enabling environment 5/10 or below, while only a third of large companies do (figures 10 and 11). These differences are echoed in responses to questions about cross-border ecommerce (figures 12-14).

FIGURE 9. MERCHANTS’ PERCEIVED OBSTACLES TO ECOMMERCE, BY COMPANY SIZE

(10=functions extremely well, facilitates ecommerce; 1=very significant obstacle to ecommerce)

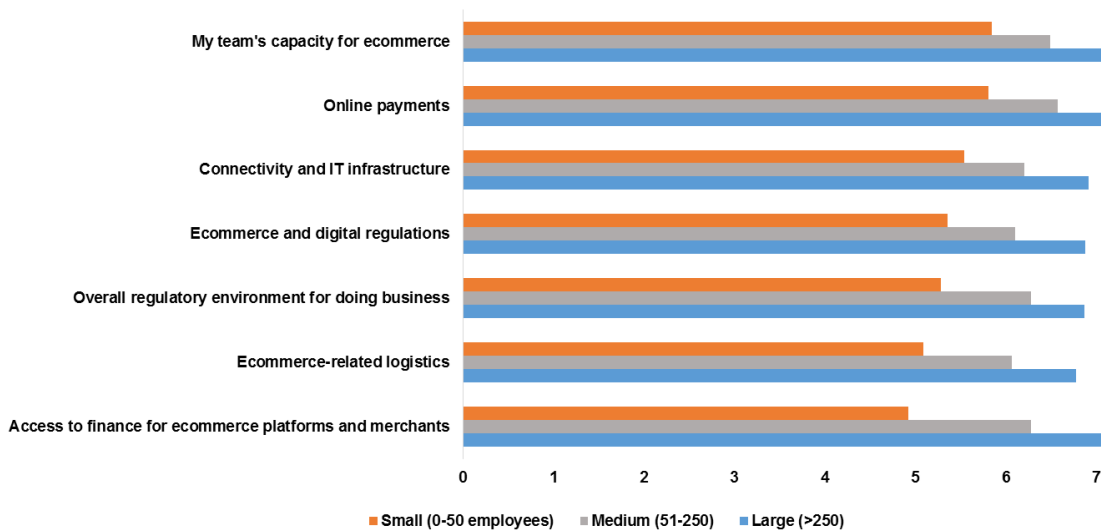


FIGURE 10. SEVERITY OF POTENTIAL OBSTACLES TO MERCHANTS' ECOMMERCE - % OF SMALL COMPANIES GIVING A CERTAIN RANKING

(10=functions extremely well, facilitates ecommerce; 1=very significant obstacle to ecommerce)

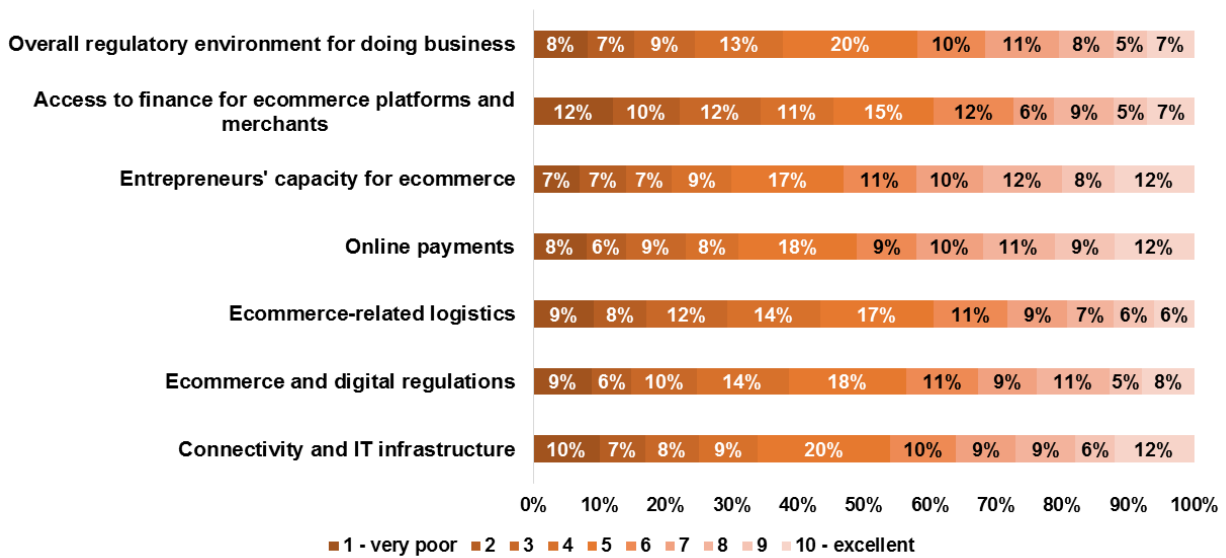


FIGURE 11. SEVERITY OF POTENTIAL OBSTACLES TO MERCHANTS' ECOMMERCE - % OF LARGE COMPANIES GIVING A CERTAIN RANKING

(10=functions extremely well, facilitates ecommerce; 1=very significant obstacle to ecommerce)

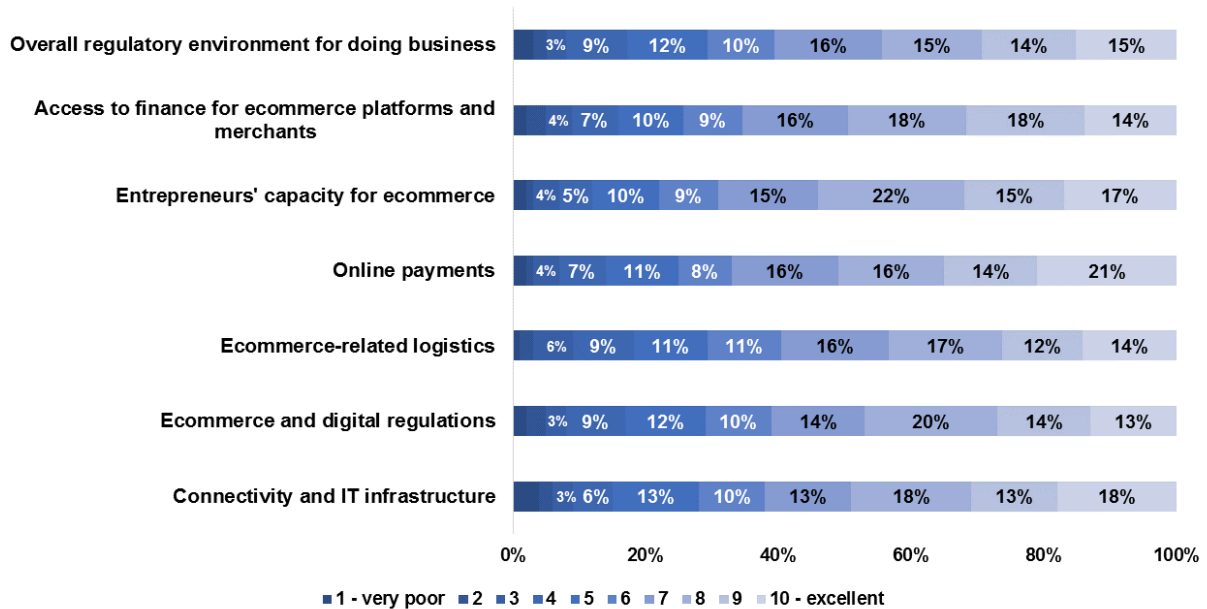


FIGURE 12. MERCHANTS' PERCEIVED OBSTACLES TO CROSS-BORDER ECOMMERCE, BY COMPANY TYPE AND SIZE

(10=functions extremely well, facilitates ecommerce; 1=very significant obstacle to ecommerce)

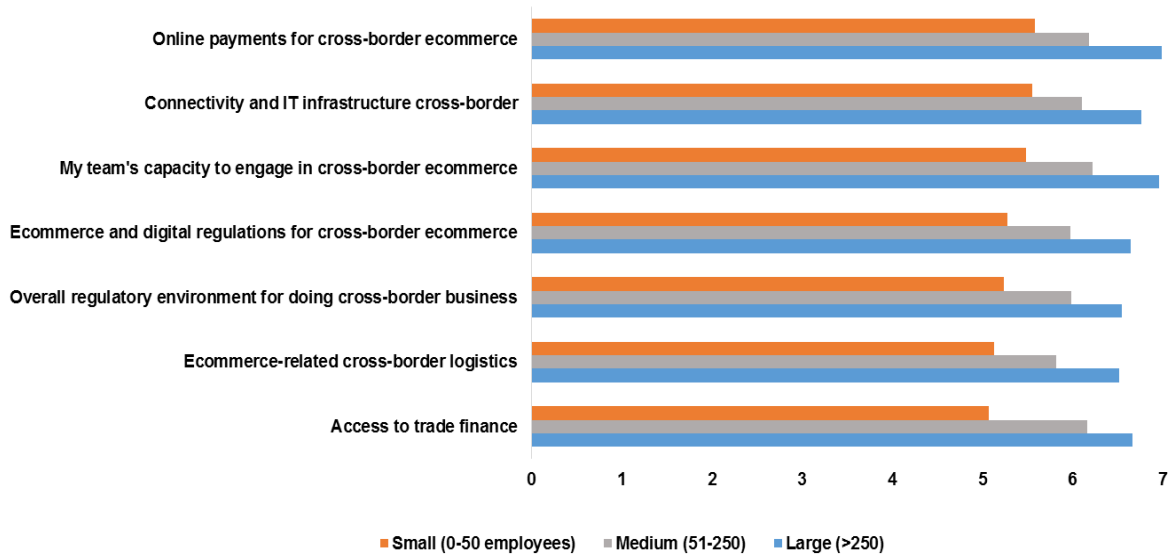


FIGURE 13. SEVERITY OF POTENTIAL OBSTACLES TO MERCHANTS' CROSS-BORDER ECOMMERCE - % OF SMALL COMPANIES GIVING A CERTAIN RANKING

(10=functions extremely well, facilitates ecommerce; 1=very significant obstacle to ecommerce)

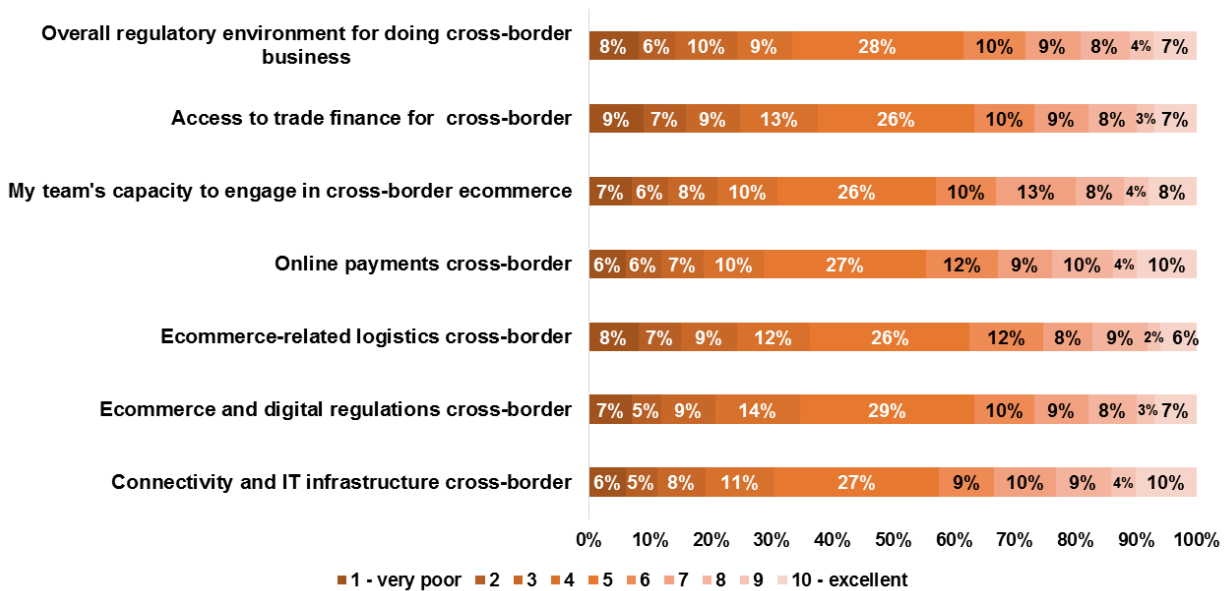
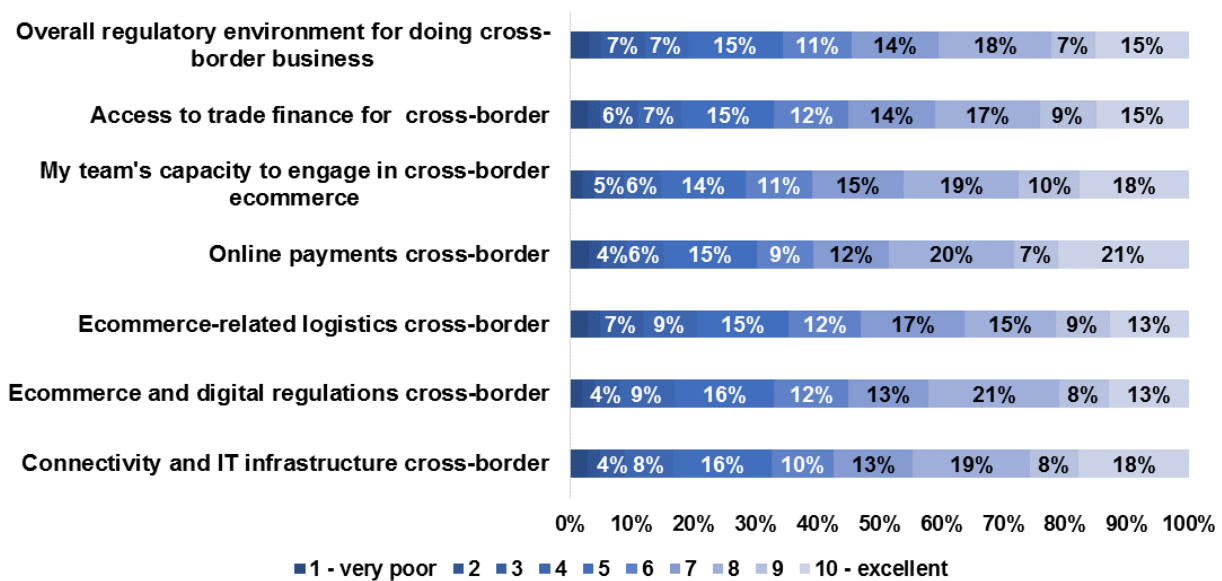


FIGURE 14. SEVERITY OF POTENTIAL OBSTACLES TO MERCHANTS' CROSS-BORDER ECOMMERCE - % OF LARGE COMPANIES GIVING A CERTAIN RANKING

(10=functions extremely well, facilitates ecommerce; 1=very significant obstacle to ecommerce)



To drive at actionable policy insight, the survey also poses questions about specific challenges within these broad categories. For example, while it is useful to know that ecommerce logistics require improvements, it is even more useful for policy purposes to know the specific aspects of logistics that need work, such as urban last-mile delivery, or customs procedures specific to ecommerce imports. These were also captured in the survey. In the global sample, companies reported tax rules, rural last-mile delivery, and access to digital finance, and legal liability issues for online sellers as some of the key obstacles to domestic ecommerce, while total cost of delivery, legal liability rules, and customs procedures for ecommerce imports as well as exports as the main barriers to cross-border business (figures 15-16).

This granular analysis also reveals that when complaining about lack of access to capital, the surveyed feel hampered by the lack of digital finance; this suggests that many of the surveyed do not get their financing needs met by banks and other traditional providers.

FIGURE 15. PERCEIVED OBSTACLES TO ECOMMERCE, BY COMPANY SIZE

(10=functions extremely well, facilitates ecommerce; 1= very significant obstacle to ecommerce)

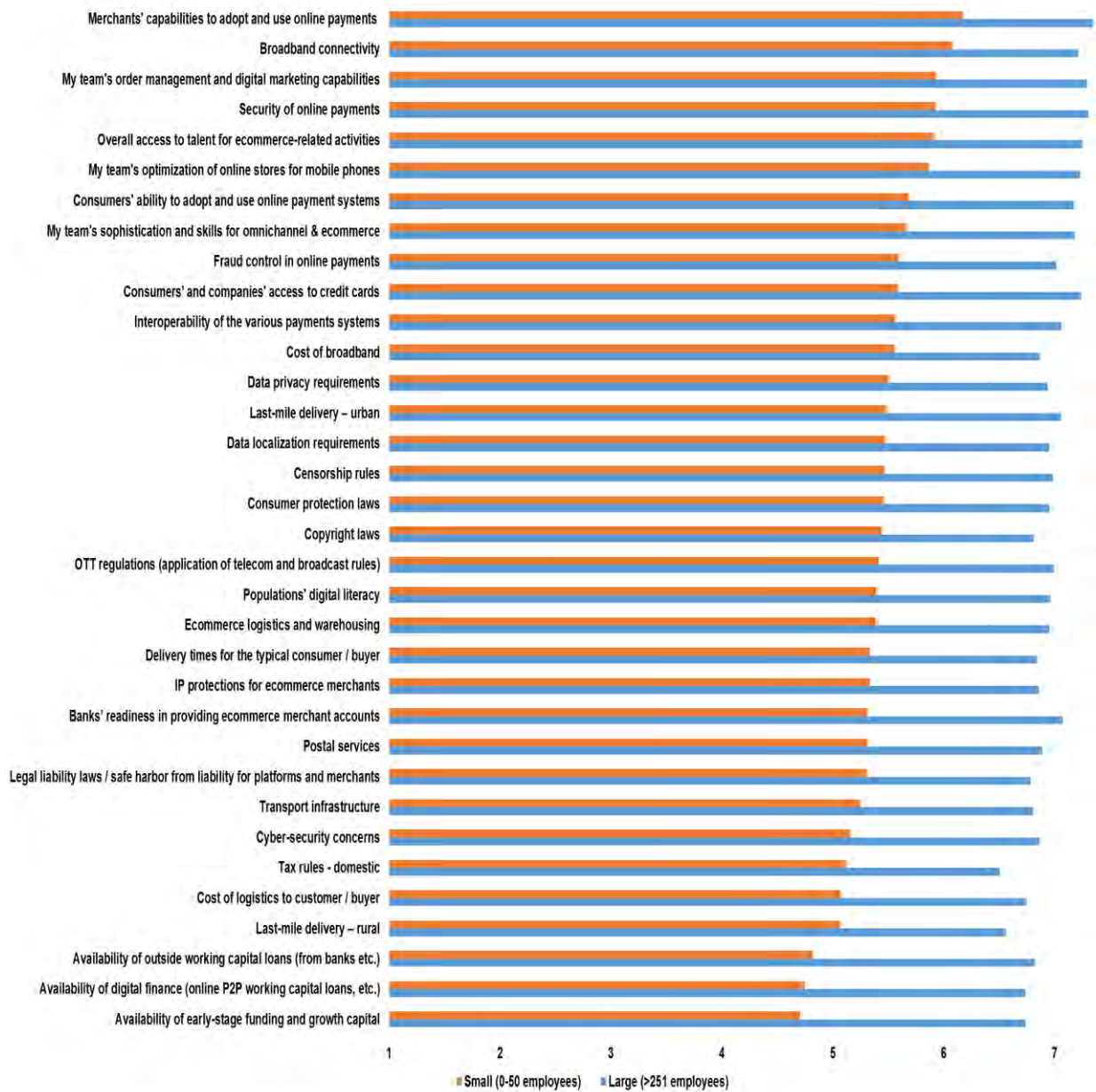
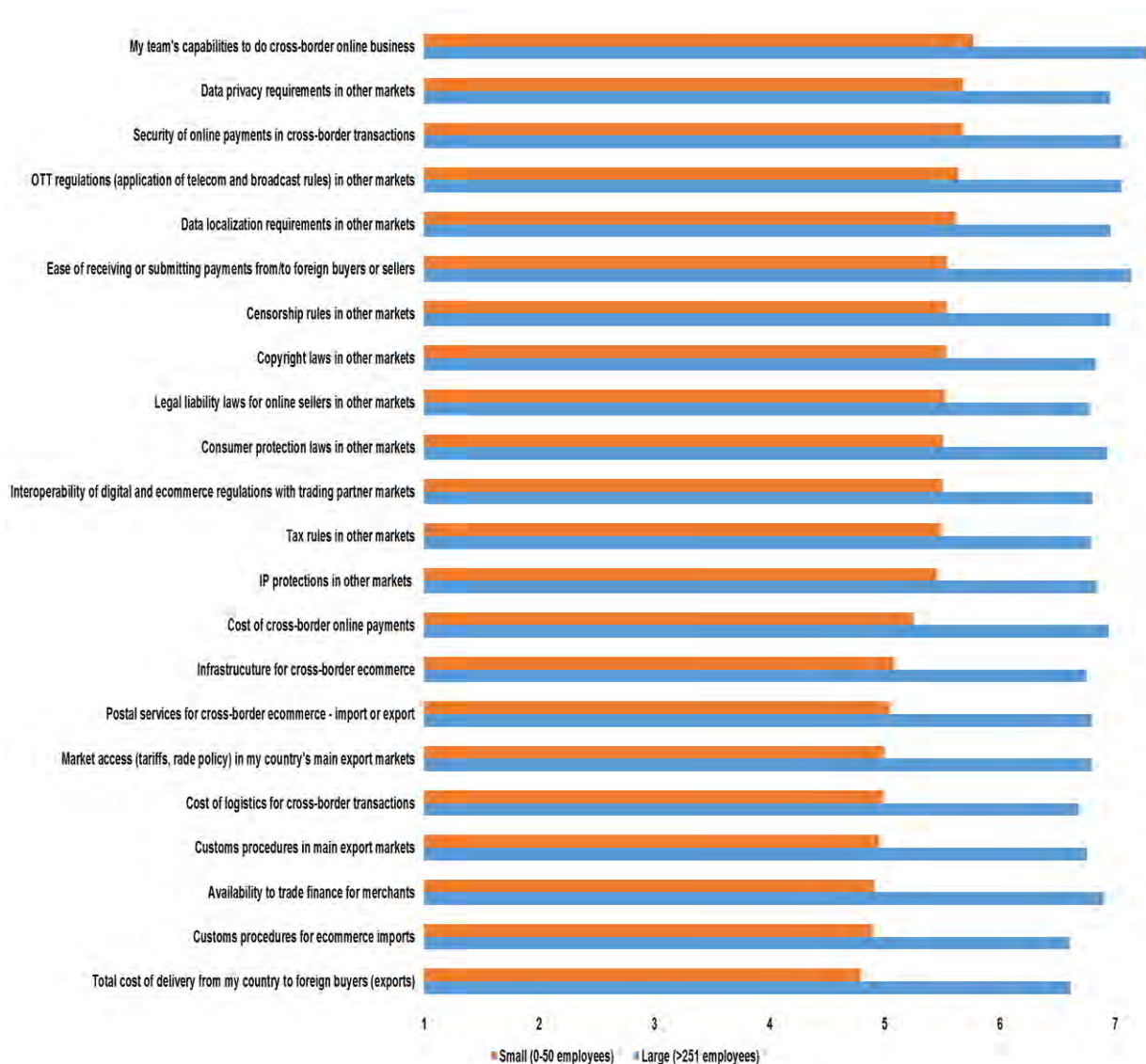


FIGURE 16. MERCHANTS' PERCEIVED OBSTACLES TO CROSS-BORDER ECOMMERCE, BY COMPANY SIZE

(10=functions extremely well, facilitates ecommerce; 1= very significant obstacle to ecommerce)



Ecosystem companies, which were asked how the potential obstacles affect ecommerce in their economies rather than their own businesses, highlight somewhat different obstacles than merchants do. For example, ecommerce platforms and payment companies tend to rate entrepreneurial capacity as a leading obstacle to ecommerce in their economies (figure 17) – suggesting that entrepreneurs may overrate their abilities. It is notable that ecommerce and payments platforms perceive greater challenges to ecommerce than other ecosystem players, such as financial services companies; this may be because they are closest to the challenges facing ecommerce merchants.

Ecosystem companies also highlight similar challenges, but also stress digital regulations and such issues as interoperability of digital rules with major trading partners and data localization practices in foreign markets as posing hurdles to cross-border ecommerce (figures 18-19).

FIGURE 17. ECOMMERCE ECOSYSTEM COMPANIES' % OF COMPANIES RANKING AN AREA 5 OR LESS OUT OF 10 TO ECOMMERCE IN THEIR ECONOMIES, BY MAIN SECTORS

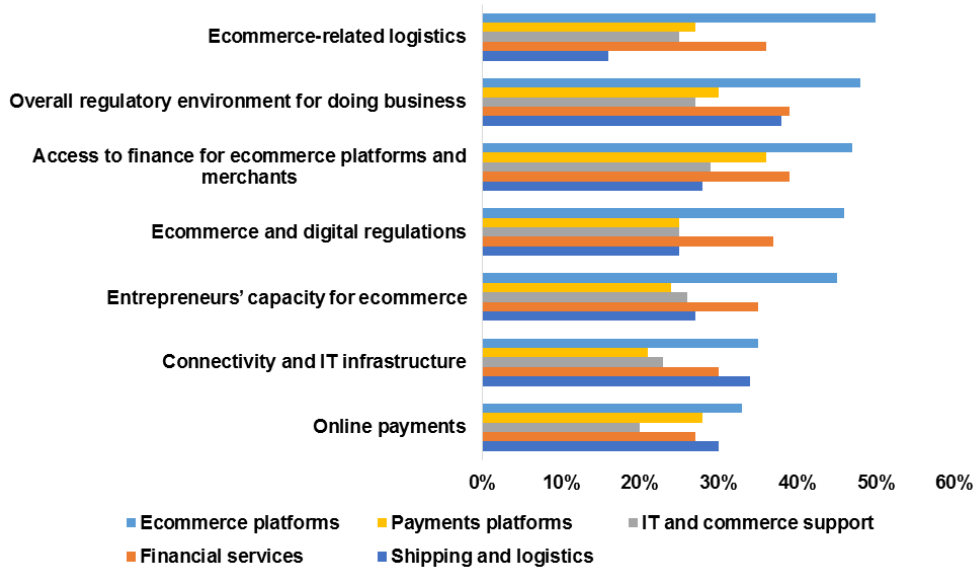


FIGURE 18. ECOSYSTEM COMPANIES' PERCEIVED OBSTACLES TO ECOMMERCE

(10=functions extremely well, facilitates ecommerce; 1=very significant obstacle to ecommerce)

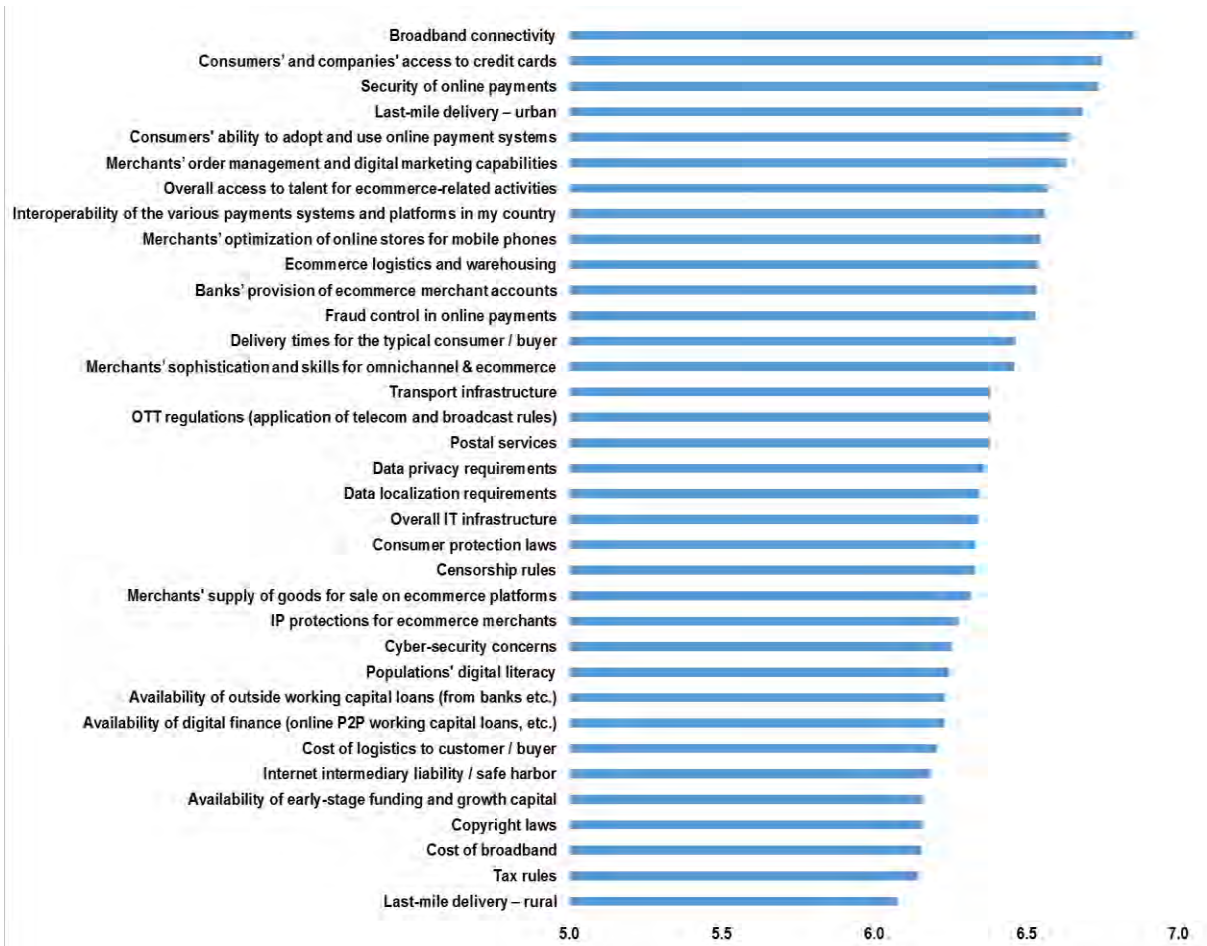
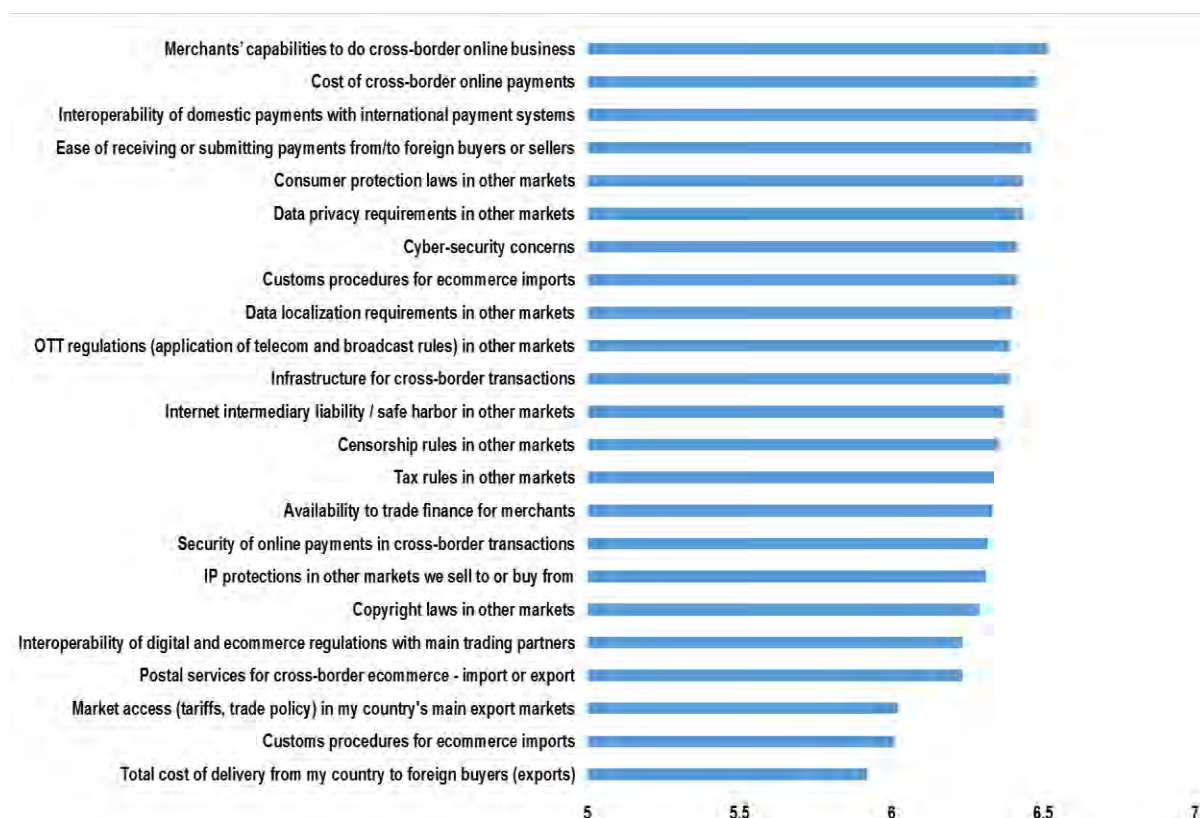


FIGURE 19. ECOSYSTEM COMPANIES' PERCEIVED OBSTACLES TO CROSS-BORDER ECOMMERCE

(10=functions extremely well, facilitates ecommerce; 1=very significant obstacle to ecommerce)



To enable tailoring the most appropriate policy responses to different groups, figure 20 analyzes finer distinctions across companies. For example, companies that are fast-growing or that have foreign ownership also tend to be less impacted by the various potential obstacles. Slowly growing companies report significantly higher barriers to engaging in ecommerce. It is of course entirely plausible that these companies are less entrepreneurial and do not try to engage in ecommerce. Women-led small companies tend to report somewhat larger gaps in access to capital as compared to their male-led peers, though otherwise men and women CEOs report rather similar degrees of challenges, controlling for company size.

Online sellers and export-driven companies tend to feel least hampered, while offline sellers who do not export tend to feel the most encumbered. The difference seems greatest in the area of entrepreneurial skills for ecommerce and access to finance, and connectivity (figures 21-24). This may suggest that surveyed companies that most complain about these challenges reside in rural areas with more limited access to skilled employees and capital. The spatial distribution of the surveyed enterprises will be useful to explore in further iterations of this survey.

FIGURE 20. PERFORMANCE ON ECOMMERCE DEVELOPMENT INDEX, BY FIRM TYPE AND SIZE

(10=functions extremely well, facilitates ecommerce; 1= very significant obstacle to ecommerce)

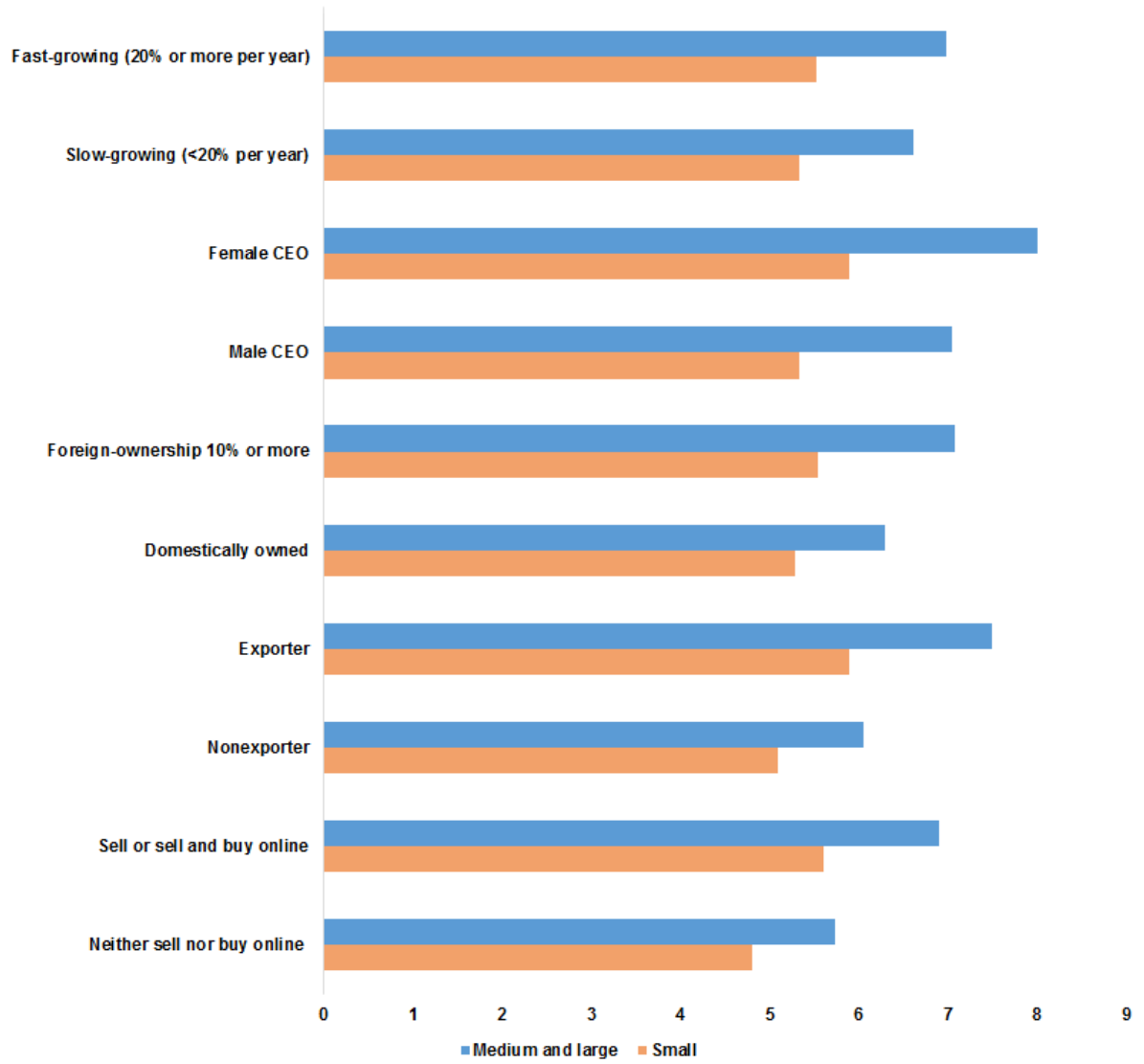


FIGURE 21. % OF SMALL COMPANIES RANKING AN AREA 5 OR LESS OUT OF 10 TO ECOMMERCE, BY EXPORT ACTIVITY

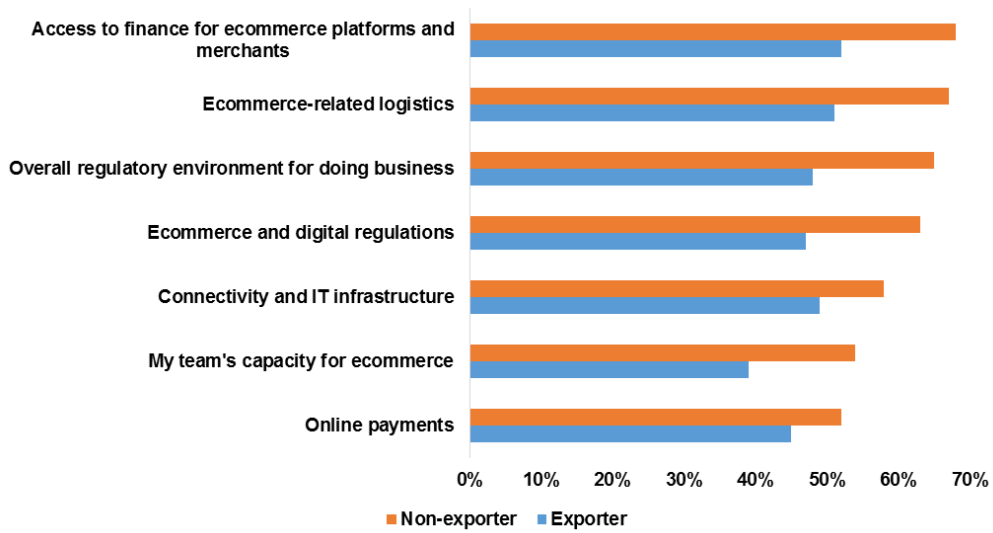


FIGURE 22. % OF SMALL COMPANIES RANKING AN AREA 5 OR LESS OUT OF 10 TO CROSS-BORDER ECOMMERCE, BY EXPORT ACTIVITY

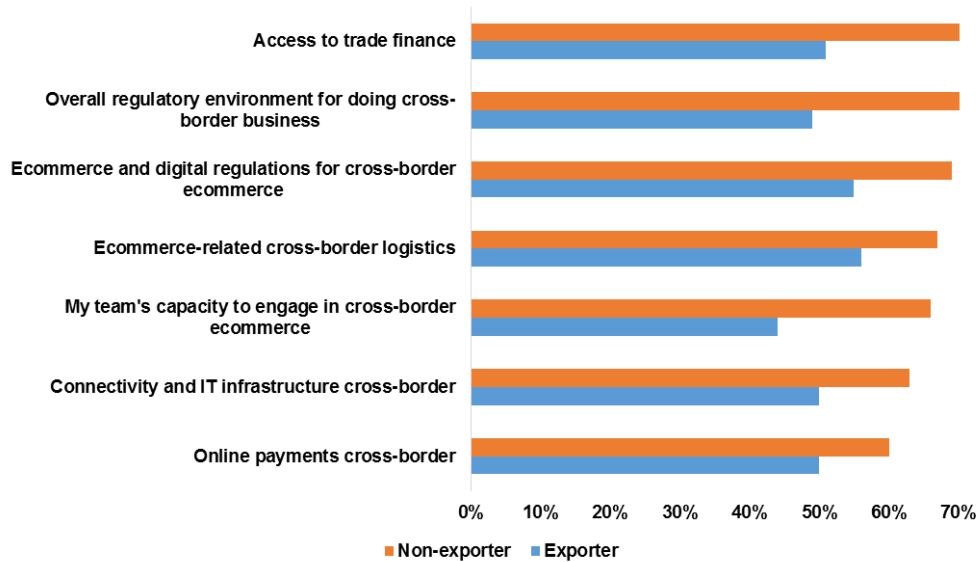


FIGURE 23. % OF SMALL COMPANIES RANKING AN AREA 5 OR LESS OUT OF 10 TO ECOMMERCE, BY ONLINE SALES ACTIVITY

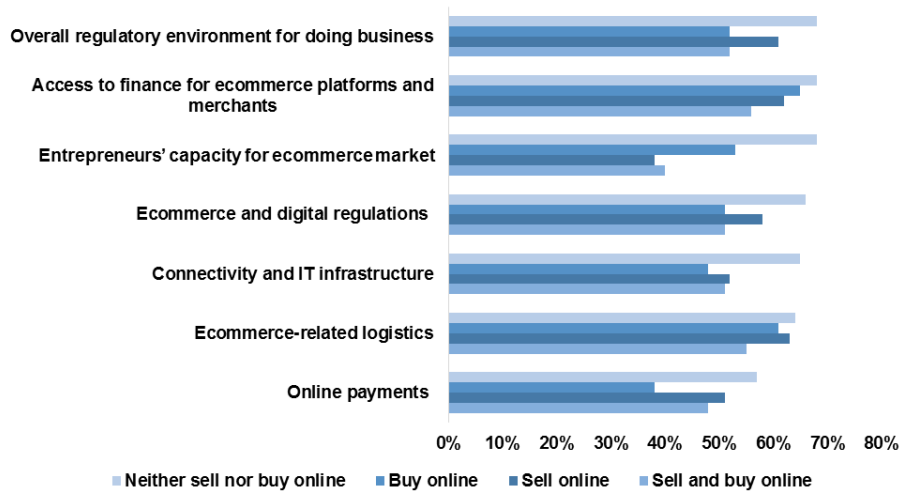
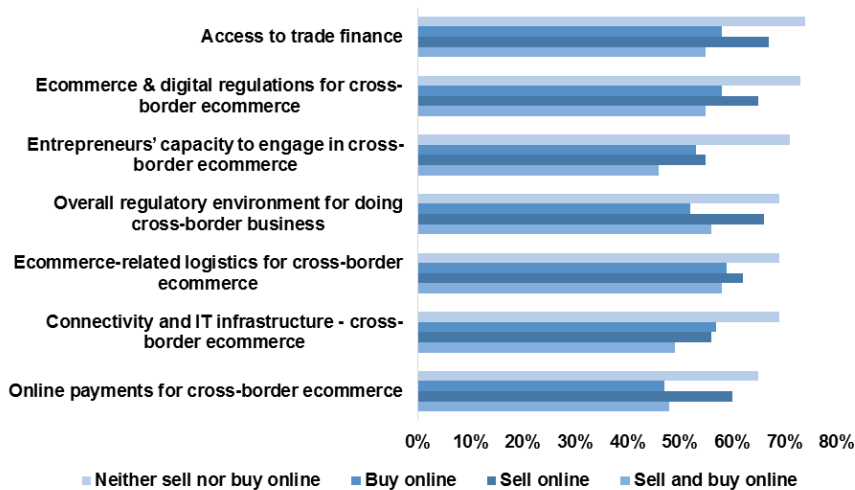


FIGURE 24. % OF SMALL COMPANIES RANKING AN AREA 5 OR LESS OUT OF 10 TO CROSS-BORDER ECOMMERCE, BY ONLINE SALES ACTIVITY



In every country, the regulatory environment is critical for success at ecommerce. The basics matter to ecommerce development: in many countries, companies highlight the overall regulatory environment as one of the leading obstacles for them to engage in ecommerce. Granted, many surveyed companies may simply be more familiar with this obstacle than they are with, say, some of the specific digital regulations, but the point remains about the importance of business environment to online sellers. Small businesses, which make up some 60 percent of companies surveyed here, are also likely more sensitive to these challenges, as they have fewer resources to overcome them. The survey also covers questions related to the challenges to starting to sell online; the typical barriers companies cite include high perceived costs and lack of clarity of the return on investment in ecommerce business, and perceptions about poor logistics.

Undoing barriers to ecommerce would result in significant revenue and growth gains for companies. The barriers surveyed here matter. If the top three barriers to ecommerce were removed, companies believe they would score annual revenue gains of 34 percent in their domestic markets and 30 percent in international markets (figure 25). Ecosystem players estimate their respective countries' ecommerce merchants would experience gains of nearly 28 percent in domestic sales in 32 percent in international sales. The survey also asked Brazilian firms for projected employment gains if the top three barriers were removed; the average expected employment gain is very significant: 28.5 percent, with the median gain being 20 percent.

Perhaps indicative of the severity of barriers facing them, small companies report the greatest revenue gains if the top three obstacles were undone: 37 percent domestically and 34 percent internationally (figure 26); companies that do not have foreign ownership have expectations that are nearly as high: 56 percent domestically and 36 percent internationally.

By country, Bangladeshi and Colombian companies report highest gains from foreign sales, 43 and 51 percent, respectively, if their top three barriers were removed (figure 27). Companies typically report that they would increase sales either to their existing export markets or to Europe or the United States.

FIGURE 25. REVENUE AND EMPLOYMENT GAINS TO COMPANIES IF TOP 3 BARRIERS TO ECOMMERCE WERE REMOVED

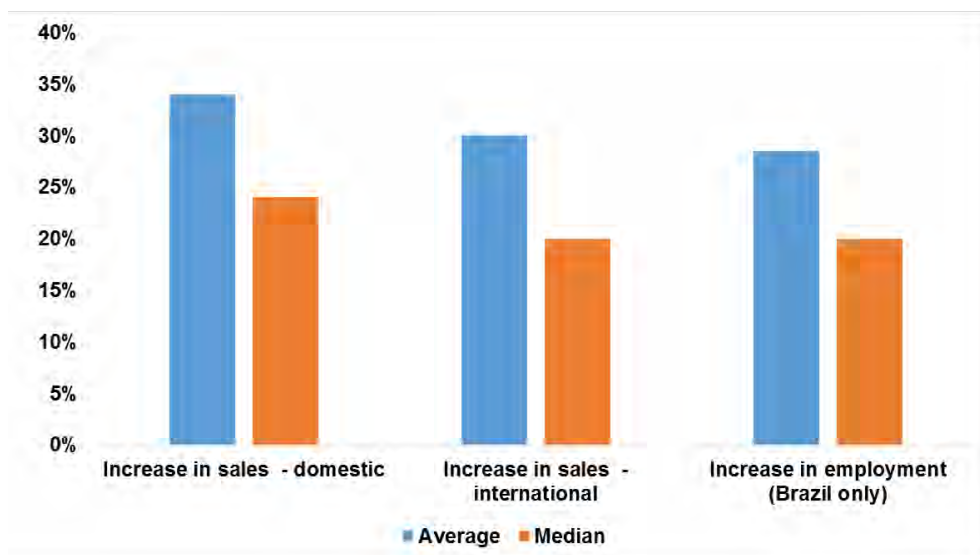


FIGURE 26. REVENUE GAINS TO COMPANIES IF TOP 3 BARRIERS TO ECOMMERCE WERE REMOVED, BY COMPANY SIZE

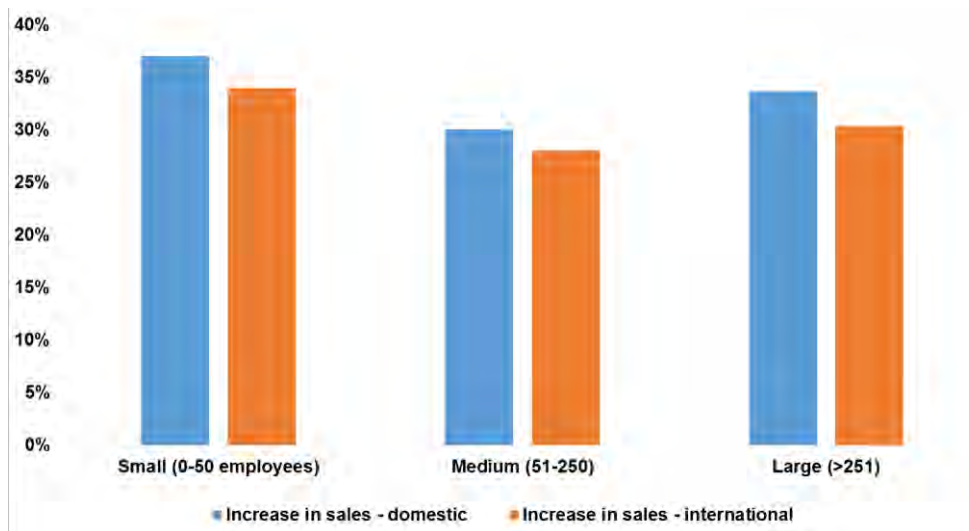
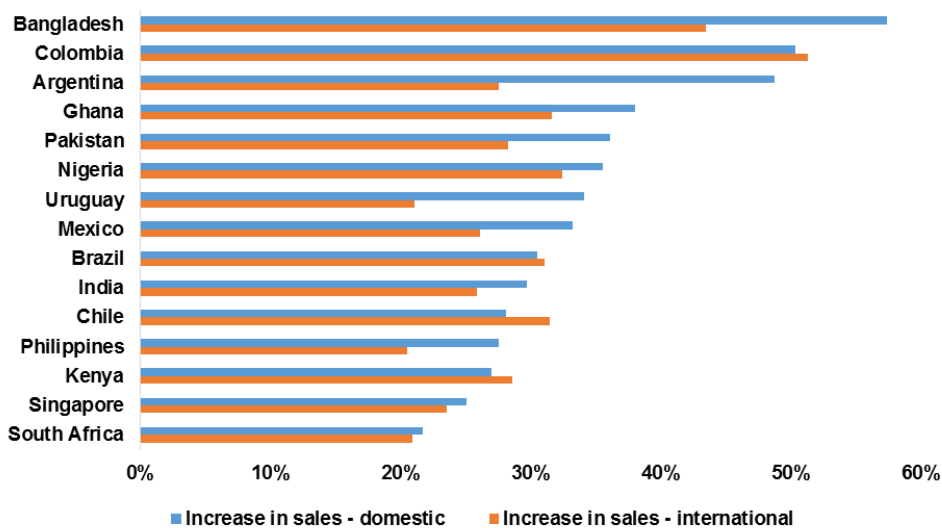


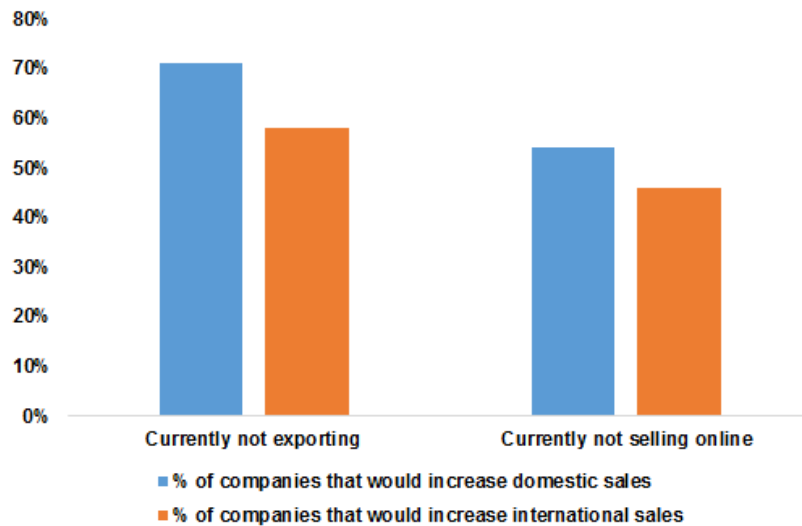
FIGURE 27. REVENUE GAINS TO COMPANIES IF TOP 3 BARRIERS TO ECOMMERCE WERE REMOVED, BY COUNTRY



Removing these barriers is also likely to lead to a significant increase in the number of exporters. Of current non-exporters (companies that report on their export sales), 71 percent report they would increase their domestic sales, and as many as 58 percent report they would have international sales (figure 28). In other words, removing barriers to ecommerce could make over one half of the companies that currently do not export into exporters.

Also 54 percent of companies that currently do not have online sales report that they would increase domestic sales as a result of removal of barriers to ecommerce, and 46 percent report they would increase their exports. These gains would possibly come from these offline sellers' becoming online sellers.

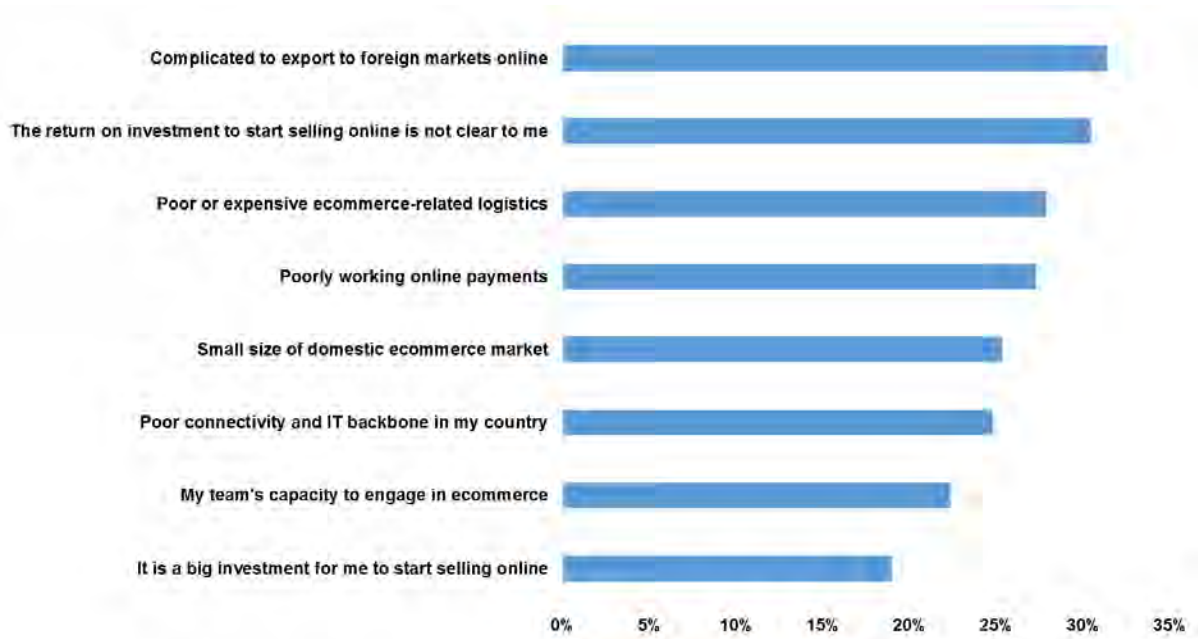
FIGURE 28. % OF NON-EXPORTERS AND OFFLINE SELLERS THAT WOULD INCREASE DOMESTIC AND INTERNATIONAL SALES IF TOP 3 BARRIERS TO ECOMMERCE WERE REMOVED



In addition, removal of the barriers can further companies' export diversification. For example, asked which three markets they would increase their sales if barriers to ecommerce were removed, Mexican companies indicate they would significantly diversify their sales to Asia and Latin America, from the status quo where a majority of exporters export to the U.S. market

Companies that have yet to start selling online worry about complexities in exporting using ecommerce and uncertainties related to the return on investment (figure 29). Companies in Latin America highlight logistics as a barrier, while companies in Africa mention the small size of the market as an obstacle.

FIGURE 29. PERCEIVED PRIORITY BARRIERS TO STARTING TO SELL ONLINE, % OF FIRMS AGREEING WITH THE STATEMENT



III. ECOMMERCE DEVELOPMENT INDEX

The intent of this research is to create the first-ever firm-level, highly actionable index for ecommerce development to help policymakers to prioritize solutions in their countries as well as to target solutions to specific groups of companies they wish to support, such as SMEs.

Developing an index requires normalizing the data, which the survey here already does by providing a measure of 1-10 for each obstacle. Thus no transformations of data are needed. Indexing also involves assigning weights to the different variables, or omitting weights. This paper chooses to omit weighting as there are no clear theoretical or empirical grounds for weighting one variable more than another. This of course is also a choice, as equal weights can imply substitution rates: we are trading one unit down in one indicator for one unit up in another.

However, there is no meaningful reason to assign weights for the variables in this study. It is likely that for the weights to be appropriate, they would have to reflect country-specific factors (e.g., in small, highly urbanized countries with easy terrains such as Singapore, indicators related to rural last-mile delivery may be of less importance than they are in large economies with large rural populations and poor mailing/address systems such as India). This so-called benefit-of-the-doubt approach is often used in comparative studies on the performance of European Union economies, which are quite different from each other. The “country-tuning” can be done via a budget allocation exercise with a set of experts; such work is beyond the scope of this study.

Going with unweighted data, there are three potential and complementary indices. They yield rather similar results.

A. UNWEIGHTED AVERAGES

One method is to simply average all responses into a sub-index, and average sub-indices into an aggregate index. Under this method, the country ranking is as in tables 1 and 2 above.

This method of calculating the sub-indices as simple averages from individual responses and then averaging the sub-indices into the main index is also used in World Economic Forum’s (WEF) Networked Readiness Index, where the only difference is WEF’s 1-7 scoring, instead of 1-10 used here. In this paper, the analysis yields the same results if performed by asking how many times any on country attains its index value in all variables (for example, above Brazil attains first place 7 times, Colombia attains second place 5 times, Philippines attains third place 4 times, etc.). This means that our index values do not appear to be affected by extreme out- or underperformance in any one variable.

One could of course argue that Brazilian companies are simply more positive than those in other countries, so that the scoring is of scant comparative value across countries, only across domains in Brazil or any other country. At the same time, the ranking above generally correlates with these countries’ rankings in other indices; it correlates well with WEF’s Networked Readiness Index, somewhat with the World Bank’s Doing Business ranking, and negatively with UNCTAD’s Ecommerce Index (figures 30-32). (Note that on Doing Business, poorer performers are on the right-hand side, so that we would expect the observed negative slope and inverse correlation.) This is likely because Networked Readiness index asks questions that are most pertinent to ecommerce, such as Internet connectivity and regulatory environment or ICT, whereas Doing Business is much

broader and general in nature and fails to capture the nuances of the ecommerce economy in a way the Ecommerce Development Index does.

FIGURE 30. CORRELATION OF ECOMMERCE DEVELOPMENT INDEX WITH WEF NETWORKED READINESS INDEX

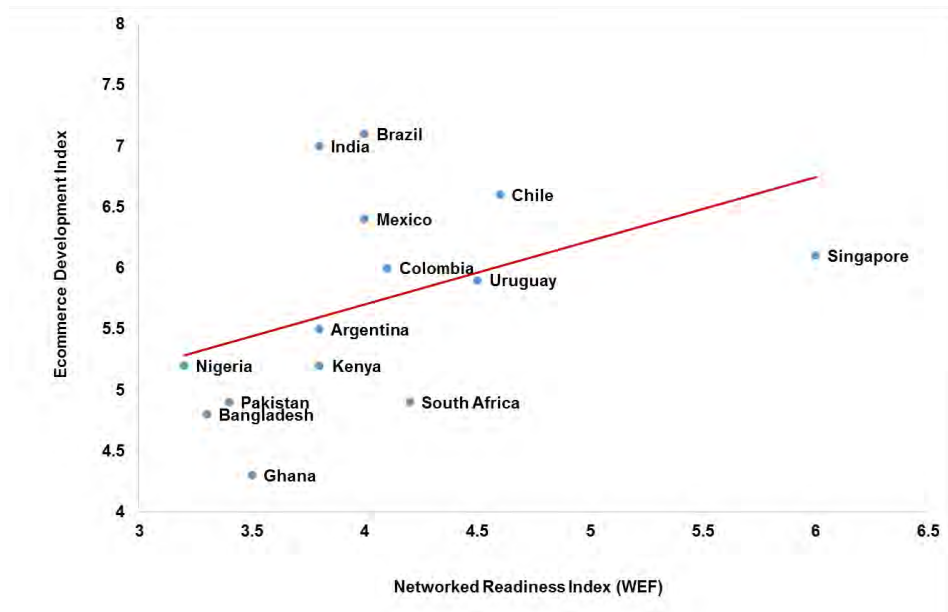


FIGURE 31. CORRELATION OF ECOMMERCE DEVELOPMENT INDEX WITH UNCTAD ECOMMERCE INDEX RANKING

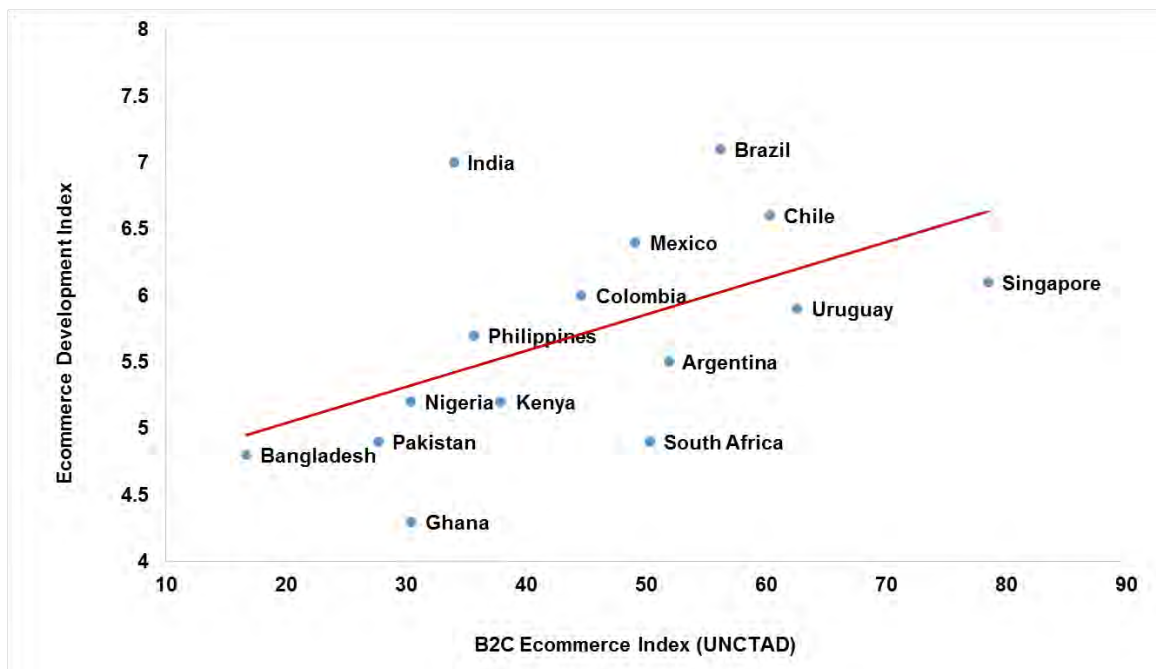
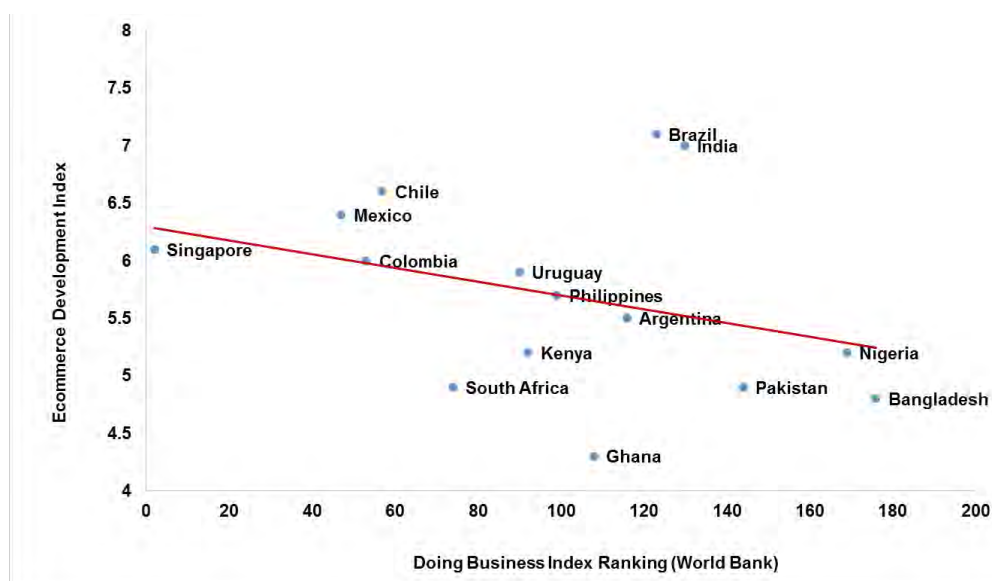


FIGURE 32. CORRELATION OF ECOMMERCE DEVELOPMENT INDEX WITH WORLD BANK DOING BUSINESS RANKING



The data are also quite in line with interviews; for example, Brazilian companies often find ecommerce regulations to be especially problematic while payments tend to be less challenging, whereas for Argentine and Colombian companies, logistics are problematic and for African countries, access to finance tends to top the list of constraints to ecommerce.

When all data, including sub-indicators such as cost of broadband or access to fixed broadband under connectivity, or last-mile delivery in urban areas or total costs of delivery under logistics are analyzed, the aggregate score is nearly the same as the aggregate score above. Also for any one country, the performance across issue areas is rather similar as in the above table.

B. DISTANCE FROM THE FRONTIER

In a “distance from the frontier”-analysis, countries are organized into percentiles by their performance in the different indicators, and ordered by their distance to the frontier economy in that indicator. The ranking above compares countries to another; the distance from the frontier score benchmarks countries vis-à-vis the best practice. This technique is employed for example in World Bank’s Doing Business and helps to tease out a country’s absolute performance over time, as opposed to only relative performance as in a ranking. The United Nations’ Human Development Report (HDR) uses a type of distance to the frontier score, but mostly to normalize various data points and create a ranking. Our method would yield the same ranking as above using this method, only the index would range from 0 to 1.

Figure 33 measures countries’ overall performance to the survey frontier (Brazil), while tables 3-4 measure the distance from the frontier for each economy and issue area.

FIGURE 33. DISTANCE FROM THE FRONTIER BY COUNTRY, OVERALL SCORE

(100=sample frontier; 0=sample worst performer)

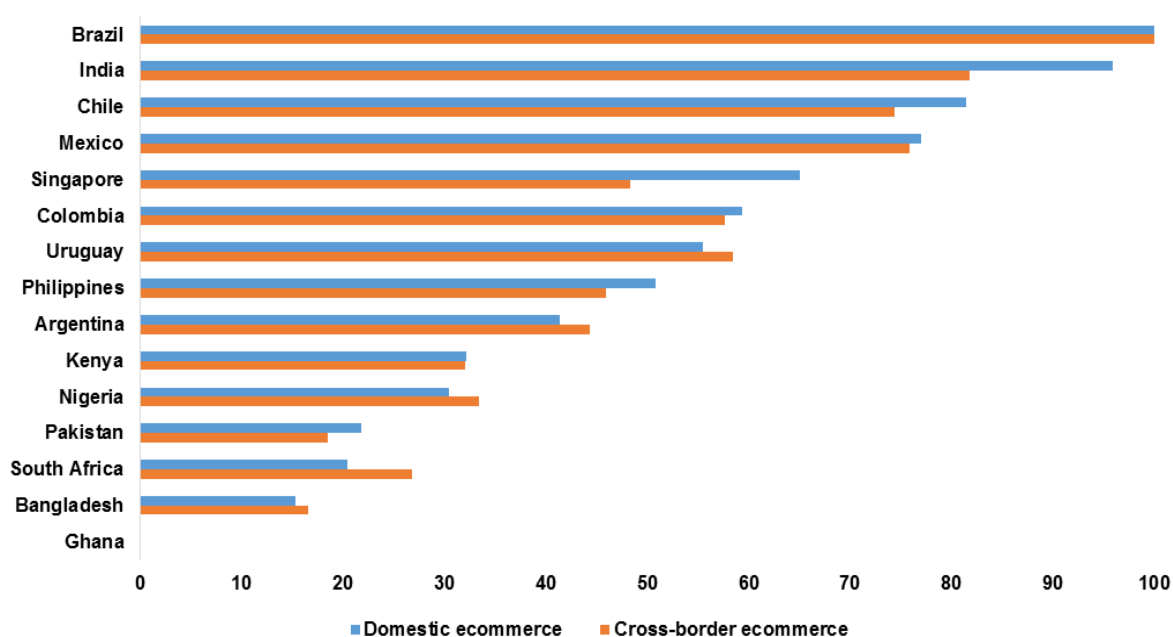


TABLE 3. DISTANCE FROM THE FRONTIER, EASE OF DOING ECOMMERCE, BY COUNTRY

(100 = sample frontier; 0 = sample worst performer)

	Connectivity and IT infrastructure	Ecommerce and digital regulations	Ecommerce-related logistics	Online payments	Entrepreneurs' capacity for ecommerce	Access to finance for ecommerce platforms and merchants	Regulatory environment for doing business	Distance from the frontier
Brazil	100.0	97.0	100.0	100.0	100.0	100.0	85.2	100.0
India	96.6	100.0	97.5	90.0	84.2	93.7	100.0	95.9
Chile	86.1	94.3	71.4	75.9	73.4	79.3	85.2	81.5
Mexico	83.2	81.8	75.6	76.0	65.1	83.0	64.3	77.0
Singapore	62.0	67.2	64.6	66.3	55.6	75.6	54.9	65.1
Colombia	66.4	57.6	54.4	70.7	60.2	64.0	31.0	59.3
Uruguay	69.5	35.1	54.2	54.6	68.4	60.6	42.2	55.4
Philippines	39.9	67.3	55.7	50.8	29.7	64.0	44.4	50.8
Argentina	37.1	39.1	25.5	61.1	54.6	49.0	11.5	41.3
Kenya	31.8	29.7	17.7	66.1	12.5	48.1	4.7	32.2
Nigeria	15.5	16.5	9.1	55.7	50.5	37.2	20.5	30.5
Pakistan	1.5	11.4	19.8	22.5	11.9	51.0	33.4	21.8
South Africa	7.6	30.8	17.1	56.2	36.9	0.0	0.0	20.4
Bangladesh	22.2	14.8	0.0	3.3	47.7	26.0	4.6	15.3
Ghana	0.0	0.0	1.3	0.0	0.0	7.7	10.2	0.0

TABLE 4. DISTANCE FROM THE FRONTIER, EASE OF DOING CROSS-BORDER ECOMMERCE, BY COUNTRY

(100 = sample frontier; 0 = sample worst performer)

	Connectivity and IT infrastructure cross-border	Ecommerce and digital regulations cross-border	Ecommerce-related logistics cross-border	Online payments cross-border	Entrepreneurs' capacity to engage in cross-border ecommerce	Access to trade finance for cross-border	Regulatory environment for doing cross-border business	Distance from the frontier
Brazil	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
India	87.5	82.0	76.1	76.8	80.8	84.8	85.3	81.7
Mexico	86.2	77.7	78.6	73.7	70.6	74.9	71.4	75.8
Chile	75.6	77.9	67.5	71.6	69.7	77.3	82.8	74.4
Uruguay	75.7	48.6	47.9	65.5	51.7	65.9	51.6	58.5
Colombia	75.2	57.4	50.7	60.4	60.3	58.9	40.4	57.6
Singapore	47.6	42.5	49.0	56.5	43.3	57.3	39.0	48.2
Philippines	39.5	49.3	45.8	41.9	35.9	60.0	48.8	45.9
Argentina	48.8	38.1	37.7	54.0	51.5	47.0	30.8	44.3
Nigeria	25.4	30.8	18.2	46.9	47.8	27.7	35.9	33.3
Kenya	51.8	32.5	7.7	47.6	24.3	45.2	10.4	32.0
South Africa	17.9	24.0	15.6	40.0	35.0	40.4	9.7	26.8
Pakistan	13.2	3.2	11.1	19.3	17.9	38.2	22.9	18.4
Bangladesh	29.4	6.9	4.7	0.0	40.2	26.2	10.8	16.6
Ghana	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0

C. INCLUSIVENESS INDEX

It is not immediately clear whether to weight respondents differently, however, this can be done usefully if the objective is to score countries by inclusiveness. In that case we would stress, say, the scores assigned by smallest companies. Table 5 shows the first cut at an ecommerce inclusiveness score, focused on micro businesses' (less than 10 employees) views. In this case, the ranking changes only in that Pakistan went up, but the sample of micro firms for Pakistan as used here is very small. The ranking remains similar to the overall ranking. (Singapore is left out due to small number of observations for this size category.)

If inclusiveness is the aspiration, the country index can also be created by weighting responses by micro enterprises and women-led firms more than all firms. This table helps capture barriers to entrepreneurship; table 6 includes an inclusiveness score for small export-driven companies to capture frictions hampering small companies that participate in trade. The data lend themselves to an index of women-led companies; however, the sample of women-led companies in each size category is too small for meaningful comparisons at this point.

TABLE 5. INCLUSIVENESS INDEX (FOCUSED ON SMALL BUSINESS WITH 0-50 EMPLOYEES)

	Connectivity and IT infrastructure	Ecommerce and digital regulations	Ecommerce-related logistics	Online payments	Entrepreneurs' capacity for ecommerce	Access to finance for ecommerce platforms and merchants	Overall regulatory environment for doing business	Inclusiveness Index - small business	Vis-à-vis country index	Rank
Brazil	6.3	6.1	6.0	7.5	6.8	6.4	5.9	6.4	-0.8	1
Chile	6.5	6.4	5.8	6.7	6.8	5.7	6.4	6.3	-0.1	2
India	6.0	6.0	5.7	6.8	6.1	6.0	6.2	6.1	-0.5	3
Uruguay	6.2	5.1	5.5	5.8	6.3	5.3	5.3	5.6	-0.3	4
Mexico	5.7	5.7	5.4	5.9	5.9	5.2	5.4	5.6	-0.8	5
Colombia	5.9	5.3	5.3	6.1	6.0	5.1	4.9	5.5	-0.4	6
Philippines	4.9	5.7	5.5	5.7	5.0	5.5	5.2	5.4	-0.2	7
Kenya	5.4	5.1	4.8	6.1	4.7	5.0	4.7	5.1	0.0	8
Argentina	5.0	5.0	4.6	5.8	5.8	4.9	4.6	5.1	-0.4	9
Nigeria	4.4	4.8	4.2	5.5	5.5	3.9	5.4	4.8	-0.3	10
Bangladesh	5.0	4.6	4.3	4.0	5.9	4.0	4.7	4.7	0.1	11
Pakistan	4.5	4.3	4.7	4.5	4.2	4.8	5.4	4.6	0.0	12
South Africa	4.0	4.7	4.4	5.5	5.7	3.4	4.2	4.6	-0.3	13
Ghana	4.4	4.6	4.6	4.3	4.5	3.8	5.3	4.5	0.4	14

TABLE 6. INCLUSIVENESS INDEX (FOCUSED ON SMALL ONLINE SELLER EXPORTERS)

	Connectivity and IT infrastructure	Ecommerce and digital regulations	Ecommerce-related logistics	Online payments	Entrepreneurs' capacity for ecommerce	Access to finance for ecommerce platforms and merchants	Regulatory environment for doing business	Small online seller & exporter Index	Vis-à-vis large online seller & exporter business index	Rank
Brazil	6.3	6.2	5.8	7.7	7.2	6.6	6.1	6.5	-1.9	1
Chile	7.1	6.8	6.1	6.4	8.1	5.0	6.1	6.5	-1.0	2
India	6.3	6.2	6.0	7.3	6.6	6.5	6.6	6.5	1.4	3
Mexico	6.5	6.9	6.1	6.0	7.7	5.9	5.7	6.4	0.1	4
South Africa	4.5	6.5	6.5	6.5	7.0	5.5	6.5	6.1	-0.5	5
Pakistan	6.1	5.8	6.5	6.4	5.8	6.2	5.7	6.1	-0.2	6
Uruguay	5.2	5.4	6.0	6.2	6.9	5.6	5.4	5.8	-1.2	7
Argentina	5.8	5.2	5.0	6.2	6.6	5.6	5.3	5.7	-0.2	8
Kenya	5.0	4.0	5.0	6.0	6.0	6.0	7.0	5.6	-2.0	9
Colombia	5.9	5.5	5.1	5.9	6.3	5.5	4.5	5.5	-1.8	10
Nigeria	4.6	4.8	4.5	6.1	5.7	3.4	5.5	4.9	-2.8	11
Philippines	4.7	4.6	5.2	4.6	4.8	4.9	5.4	4.9	-2.2	12
Ghana	4.6	4.9	4.5	4.9	4.8	4.6	5.8	4.9	-2.1	13
Bangladesh	5.0	4.8	4.5	4.0	5.8	4.2	4.9	4.8	-1.1	14

D. FINDINGS IN SUM

This survey and index pioneers in capturing firm-, sector-, and country-specific challenges and needs for ecommerce – key to helping countries prioritize policy interventions aimed at fueling digital trade, and to tailoring solutions to different types of firms. The results reviewed here have highlighted that:

- The Internet has become a very important feature in developing country companies' sales and purchases, and a key means for companies to internationalize. Compared to brick-and-mortar companies, of which only a small fraction exports, a significant share of companies surveyed here – all of which have some online presence due to taking this survey online - sell and buy online across borders.
- Perceived challenges to ecommerce vary significantly across countries, which means that policy recommendations and interventions need to be tailored to each country's circumstances. The severity of these challenges tends to be negative correlated with countries' development levels.
- Companies report access to finance, logistics, and online payments as posing especially important problems in domestic ecommerce, and logistics and regulatory frameworks for their cross-border ecommerce. The challenges also vary significantly by firms' size and online activity. For example, small companies are tend to be considerably more hampered in doing ecommerce than large companies in practically every economy. This means that interventions aimed at helping businesses sell more online need to be tailored to each company. However, quite universally, the basic business environment is seen by companies as critical for success at ecommerce.
- Merchants and ecosystem companies' views differ somewhat. Merchants' views are more related to their day-to-day business operations; ecosystem companies take more of a macro perspective. Separating the two is useful as it provides for targeting solutions; for example, the merchant survey provides useful insights if the goal is to get more SMEs to sell online, while the ecosystem survey may be more helpful if a given government is looking for more sophisticated views on how to structure the enabling regulatory environment for ecommerce.
- The barriers matter—and businesses believe that removing them will result in significant revenue and employment gains for companies. If the top three barriers to ecommerce were removed, companies would score annual revenue gains of 34 percent in their domestic markets and 30 percent in international markets. Some countries such as Colombia and Bangladesh would realize even greater gains. Brazilian companies report that if the top three barriers to ecommerce were removed, they could increase employment by a very significant 28 percent.

This survey and database brings new and actionable dimensions to development debates. For example, as granular as Enterprise Surveys are, they do not capture or analyze any of the variables specific and often most pressing to ecommerce sellers, such as internet intermediary liability rules, rural last-mile delivery, access to fast-disbursing online loans, fraud control in online payments, or banks' willingness to offer ecommerce merchant accounts. These and many other issues specific to ecommerce are not at all satisfactorily addressed by databases such as Doing Business, UNCTAD's Ecommerce Index, or the WEF Networked Readiness Index. Yet they are highly pertinent to companies engaged in ecommerce, and as such need to be surfaced in order for policymakers as well as market participants to address them.

IV. IMPROVEMENTS AND POLICY DIRECTIONS

There are a number of ways to leverage these data. Perhaps the most pertinent and timely inquiry building on this study is why certain countries outperform in the index created here, and others underperform—and particularly the institutional and policy variables that help explain these differences.

This survey can also be rerun annually to track countries over time, and help countries track their performance over time. Ideally it is also run for the same companies year after year, to track any one company' performance and perceptions. Either way, further iterations of this index can be improved with the following inclusions:

- Asking companies about their job growth if barriers were removed; this is an important data point for articulating the importance of measures to remove barriers to ecommerce to policymakers.
- Analyzing the market opportunity for removing a constraint. For example, it would be useful to know how large a market unlocking rural last-mile delivery—something that companies report as hampering ecommerce in practically every economy—would yield.
- Requiring companies to include their geographic location would enable us to analyze the spatial distribution of ecommerce activity and challenges, and for involving subnational governments to ecommerce development activities.
- Capturing further firm characteristics (e.g., skill intensity, growth in past five years, export growth per annum) would allow us to study “ecommerce premium”, impact and gains from engagement on ecommerce.
- Asking merchants and ecosystem companies about the level, desirability, and availability of foreign direct investment (FDI) in ecommerce, so as systematically catalogue merchants' interest in selling on major global platforms and help policymakers design policies that help regulate and incentivize, as desired, FDI in the ecommerce sector.
- Expanding country samples, both for greater representativeness and for making finer cuts of the data (for example, analyze how companies with a female CEO perform).

There are also several lines of work that appear timely, stemming from the interviews and workshops that are in demand among the countries analyzed:

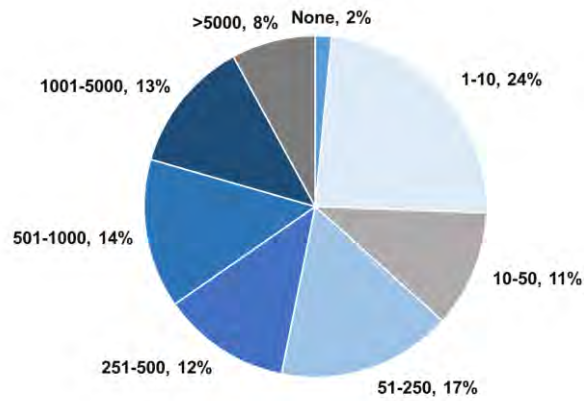
- Country diagnostics, benchmarking of digital trade, enabling environment for digital trade, activities to boost digital trade.
- Best practice identification and knowledge-share across countries and regions.
- Targeted solutions to small online sellers, such as small, fast disbursing online working capital loans.
- Impact assessments of potential reforms, e.g., in the areas of ecommerce regulations or in trade facilitation for small parcels.

- Ideation of fresh solutions to emerging problems. e.g., new facilities to systematically finance SME ecommerce capacity-building.
- Multi-stakeholder dialogues (“trade policymakers +”), e.g., for interoperability of payments, digital regulations.
- Creation of PPPs, e.g. commerce platforms and export promotion agencies.

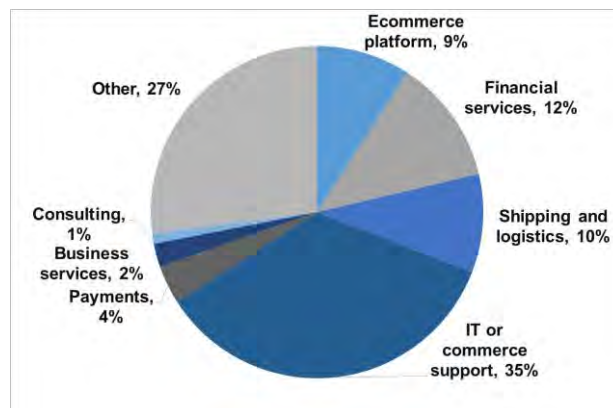
APPENDIX I – DESCRIPTIVE STATISTICS

ECOSYSTEM COMPANIES

By Size

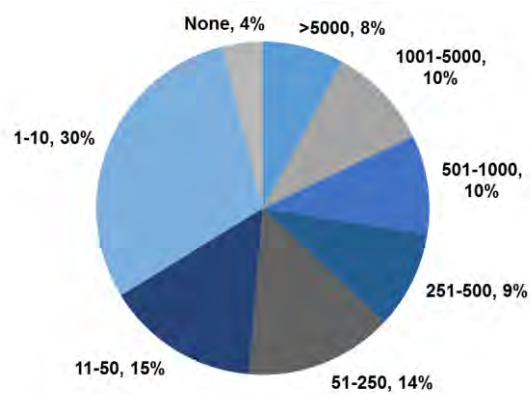


By Sector

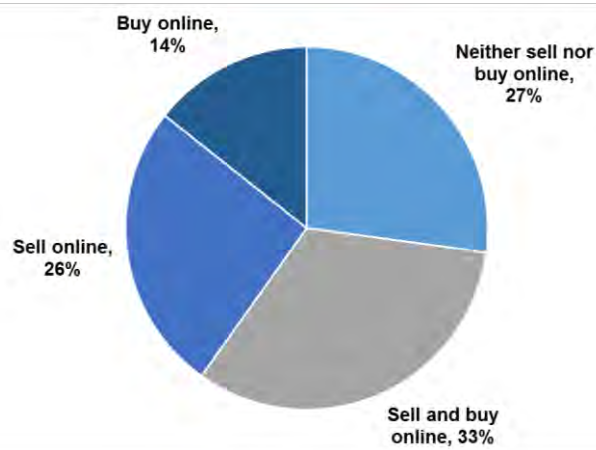


MERCHANTS

By Size



By Online Activity



Descriptive Statistics – Ecosystem Dataset, by Country

	Number of Companies	Ecommerce Platform	Payment Platform	Law	Financial Services	IT Services	Shipping	Other (business services, consulting)	Small (0-50 employees)	Medium (51-250 employees)	Large (251 or more employees)	Slow-growth (10% or less per year)	Medium (10.1% or more per year)	Fast-Growth (20.1% or more per year)
Argentina	92	15	2	1	7	21	13	33	57	5	30	56	11	22
Bangladesh	58	36	2	0	0	7	4	9	49	7	2	35	12	11
Brazil	261	20	16	2	20	98	23	81	69	43	148	46	28	142
Chile	57	9	5	1	7	10	14	9	27	18	12	8	2	9
Colombia	74	10	3	2	8	14	8	20	45	12	17	53	10	10
Ghana	21	3	1	0	1	7	0	9	14	2	5	8	5	8
India	295	25	6	2	24	165	7	60	33	43	219	138	105	52
Kenya	69	3	0	1	15	31	4	14	45	6	18	33	20	16
Mexico	103	7	1	1	18	35	14	24	43	23	37	37	14	13
Nigeria	66	7	1	0	12	34	1	9	41	9	16	35	13	18
Pakistan	41	2	4	0	7	11	3	11	16	3	22	16	7	18
Philippines	48	2	0	0	2	24	6	12	14	11	23	23	14	11
Singapore	45	0	0	2	6	8	3	26	11	8	26	26	10	9
South Africa	24	1	0	0	7	3	3	10	15	6	3	0	0	0
Uruguay	11	5	1	0	0	3	0	1	9	0	2	5	2	2
Other	127	20	3	2	11	33	11	41	70	20	33	33	7	5

Descriptive Statistics – Merchant Dataset, by Country

	Number of Companies	Small (0-50 employees)	Medium (51-250 employees)	Large (251 or more employees)	Slow-growth (10% or less per year)	Medium (10.1% or more per year)	Fast-Growth (20.1% or more per year)	Foreign Ownership 10% or more	Foreign Ownership less than 10%	Neither sell nor buy online	Buy online	Sell online	Buy and sell online	Exporters	Importers
Argentina	221	137	32	52	135	31	51	53	164	42	12	63	30	55	62
Bangladesh	132	123	4	5	80	26	23	11	114	5	2	62	24	20	15
Brazil	244	61	34	149	127	53	28	126	116	37	25	52	122	184	193
Chile	112	61	19	32	41	12	22	36	75	18	15	25	32	58	64
Colombia	162	92	20	50	106	26	29	55	107	34	15	37	37	60	63
Ghana	74	50	6	18	48	9	13	19	52	25	8	5	15	21	24
India	406	103	58	245	216	123	62	181	221	91	64	45	157	230	234
Kenya	38	29	3	6	31	4	2	11	26	11	9	0	14	21	20
Mexico	187	102	35	50	86	30	30	54	131	46	24	42	44	75	81
Nigeria	62	36	10	16	36	15	8	17	42	13	12	7	22	28	31
Pakistan	98	51	8	39	52	19	25	40	56	31	6	21	19	40	42
Philippines	72	31	15	26	35	15	17	27	45	19	10	12	15	26	26
Singapore	46	13	6	27	37	4	5	28	17	17	4	3	13	19	21
South Africa	55	32	13	10	14	1	3	11	44	17	6	10	14	18	18
Uruguay	50	33	5	12	34	7	5	8	40	12	4	11	8	11	21
Other	188	123	28	37	114	20	36	50	133	34	21	37	27	52	56