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**DIGITAL TRADE IN EUROPE  
AND CENTRAL ASIA**

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**Abstract**

The Internet greatly increases firms' potential to produce new goods and service for new markets. The Internet is also having a dramatic impact on services, especially in the retail, trade and finance sectors, by enabling firms to digitize their products and deliver them over long distances. This paper considers how the Internet can increase exports by reducing trade costs, discusses how e-commerce is transforming sales to both domestic and foreign consumers, and considers how the Internet is making firms more mobile. Despite the enormous potential benefits, the use of the Internet to conduct digital trade is relatively limited in Europe and Central Asia (ECA). The paper focuses on the broad range of developing and developed countries in the ECA region, whose experience will have relevance for many countries. The policy priorities for governments are then reviewed, followed by the new challenges for policy.

**Keywords:** e-commerce, international trade, Internet, trade costs, firm location, Europe and Central Asia

**JEL Classification:** F10, F13, O10, L81, O52, O53

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## 1. INTRODUCTION AND MAIN MESSAGES

The Internet greatly increases firms' potential to produce new goods and service, and serve new markets. The Internet reduces transaction costs – communication, information, and coordination – through the use of emails, websites, and dedicated platforms and online marketplaces, making it easier for firms to participate in international trade. Online platforms can reduce the matching and information costs that can affect international trade more than domestic trade, and provide mechanisms such as feedback and guarantees that improve consumer trust in online sellers. These advantages facilitate the participation of smaller firms in export activities. In combination with innovations in logistics, particularly container shipping, the reduction of transactions costs through the Internet has led to an enormous expansion of global value chains. The Internet is also having a dramatic impact on services, especially in the retail, trade and finance sectors, by enabling firms to create new digital products, such as music, videos and books, and digitize their services and deliver them over long distances. This ability has led to a remarkable global expansion of business, professional and technical services exports.

Despite the enormous potential benefits, use of the Internet is relatively limited in Europe and Central Asia (ECA). Fewer firms in the ECA countries use the Internet to sell their products and services compared to other regions. The countries in Western and Northern Europe have smaller shares of e-commerce sales in GDP than the United States and Japan. ECA firms that use the Internet to sell products tend to sell more to domestic rather than foreign markets, missing opportunities to expand their markets. And the export of digitally enabled services is particularly low in many ECA countries.

Establishing the appropriate enabling environment is critical to facilitating more digital trade and to attracting and retaining firms, particularly as the Internet has greatly expanded firms' mobility. A firm's choice of location is no longer determined solely by where the customers are, but will include factors such as business environment, good source of labor, and proximity to amenities. First, firms need a good logistics infrastructure to limit the costs of exporting goods and a developed payments system to ensure that they can conduct their financial transactions. Second, firms need a well-oiled trade system that is not impeded by unnecessary paperwork or complicated customs procedures. Third, firms need to have access to international markets for their exports of goods and services. While tariffs are low in most countries, many other trade barriers impede exports, for example non-tariff measures and services restrictions that can hinder the flow of digital trade.

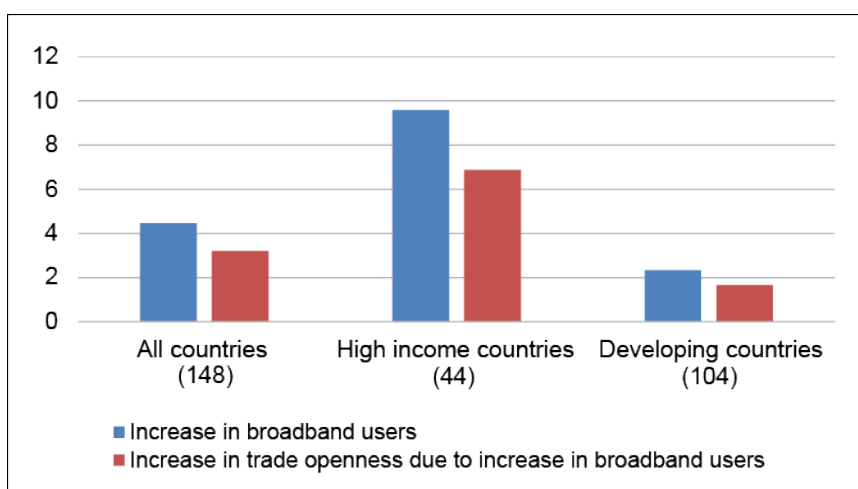
A framework for classifying countries by the relationship between the share of firms engaging in e-commerce and the quality of infrastructure and payment systems can be used to choose priorities for improvements in the enabling environment. Emerging digital countries face significant difficulties in delivering goods and effecting payments, and should focus on improving their logistics infrastructure and allowing for easier and more secure online transactions. Transitioning digital countries have these fundamentals in place, and should focus on simplifying and streamlining trade procedures, while increasing the incentives to adopt new technology through more competitive pressures. Finally, transforming digital countries have the foundations of a good digital trade system, but need to negotiate with trade partners to reduce barriers to their exports.

This paper first examines how the Internet can increase exports, and then discusses how e-commerce is transforming sales to both domestic and foreign consumers, and considers how the Internet is making firms more mobile. The policy priorities for governments are then reviewed, followed by the new challenges for policy.

## 2. THE INTERNET CAN INCREASE EXPORTS BY REDUCING TRADE COSTS

Higher Internet use is related to more international trade. A wide variety of studies show a positive correlation between Internet use and international trade, using various measures of Internet use (number of Internet users, number of web hosts, and communication costs) and trade (export flows, export growth, and openness of trade). One of the earliest studies finds that a 10 percentage point increase in the growth of Internet use (measured by the number of web hosts) is associated with a 0.2 percentage point increase in the growth of bilateral merchandise exports from 1995 to 1999.<sup>1</sup> Similarly, increases in Internet penetration is associated with the growth of services imports and exports.<sup>2</sup> Another study shows that an increase in the number of broadband users by 10 percent is associated with a rise of the ratio of total trade to GDP of 1.94 percentage points.<sup>3</sup> Using regression estimates to perform some simple calculations, the projected rise in broadband users increased trade openness by an average of 6.88 percentage points in high income countries and by 1.67 percentage points in developing countries (Figure 1).<sup>4</sup>

**Figure 1: Trade Openness Can Increase by 1.7 to 6.9 Percentage Points Due to Projected Increase in Broadband Users**



Source: Riker (2014).

Note: The increase in trade openness due to increases in broadband is calculated by multiplying the estimated regression coefficient with the projected increase in the broadband users from 2012 to 2017. The numbers in the parentheses next to the axis categories are the countries in each category.

<sup>1</sup> Freund and Weinhold (2004).

<sup>2</sup> Freund and Weinhold (2002). See also Choi (2010).

<sup>3</sup> Riker (2014).

<sup>4</sup> See Riker (2014) on how the growth of broadband users is forecasted. The effects of broadband users on trade openness should be taken with some caution as it is a partial equilibrium analysis.

Examining the effects of the Internet on international trade is complicated by the endogenous relationship between Internet adoption and international trade is endogenous. Higher Internet adoption can increase international trade but more trade can lead to higher Internet adoption through development effects (higher income levels can lead to more Internet infrastructure development) and firm selection effects (firms that do not adopt the Internet are less competitive and exit the market). While establishing causality in the relationship between Internet and trade may be challenging, suggestive evidence show that trade costs play an important role in explaining this relationship.

The Internet helps firms export more by reducing trade costs. Despite the decline in tariffs in recent years, trade costs remain high due to non-tariff measures, such as sanitary and phyto-sanitary (SPS) regulations and technical barriers to trade (TBTs), as well as communication and information barriers. These costs are high even in high-income countries, reaching as much as 170 percent ad valorem tariff equivalent.<sup>5</sup> This is one reason that few firms participate in exporting, even in high-income countries. For example, in the United States only four percent of firms exported in 2000.<sup>6</sup> Trade costs are even higher in lower income countries. The ability to incur these costs can only be met by firms that are large or productive enough, and small firms are often restricted from exporting.<sup>7</sup> In Europe, for example, firms with more than 249 workers are 15 to 40 percentage points more likely to export than firms with 10–19 workers.<sup>8</sup>

The Internet can significantly reduce the fixed costs of trade, for example, the upfront costs of product design, marketing and customer service, logistics and distribution, meeting standards and regulations, and obtaining import licenses. The Internet reduces these costs by facilitating connections between firms and customers. Firms can use the Internet to learn about export markets and use communication technologies, such as emails and voice-over Internet protocol (VOIP), to liaise with their suppliers and customers. The costs to match buyers and sellers can be reduced when firms use online platforms to provide a marketplace for customers and firms. These platforms can also reduce capital costs for firms, as they do not need to establish a physical storefront to reach their customers.

Lower fixed costs mean that firms with Internet access are more likely to export. A study of firms in ECA find that, controlling for firm and country characteristics, manufacturing firms with Internet access are 27 percentage points more likely to export and service firms with Internet access are 15 percentage points more likely to export.<sup>9</sup> The study also shows that when firms are already exporting, Internet access does not increase the amount of exports. Thus the Internet is more likely to increase the number of goods (or the extensive margin) than the average value of goods (or the intensive margin) exported. While higher Internet adoption in the exporting country increases both exporters' intensive and extensive margins, the impact on the extensive margin is higher by 1.1 percentage point for a 10 percent increase in Internet adoption.<sup>10</sup>

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<sup>5</sup> Anderson and van Wincoop (2004).

<sup>6</sup> Bernard, et al. (2007).

<sup>7</sup> Melitz (2003); Chaney (2008).

<sup>8</sup> Barba Navaretti et al. (2010) examine the probability of exporting of firms in seven European countries: Austria, France, Germany, Hungary, Italy, Spain and the UK.

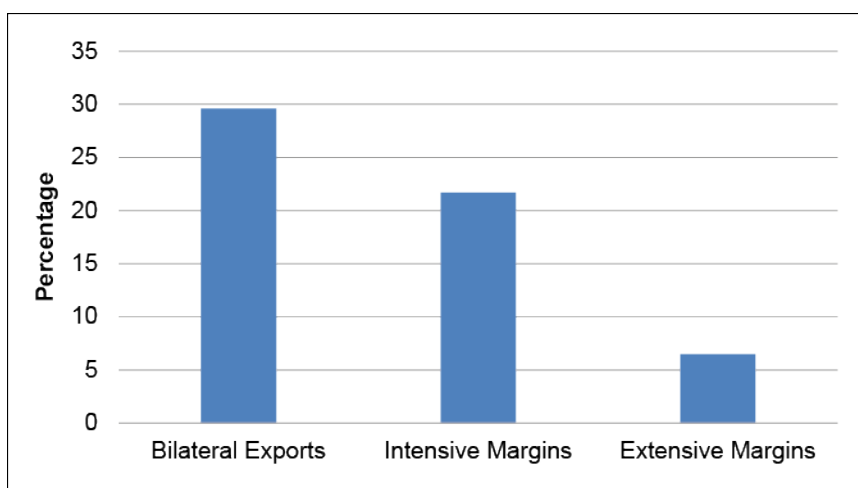
<sup>9</sup> Clarke (2008). Falk and Hagsten (2015) also find that firms exporting have higher levels of Internet sets compared to non-exporters and this stylized fact is true across the manufacturing and services sector.

<sup>10</sup> Osnago and Tan (2016).

The impact of the Internet on trade costs differs by the type of goods. A reduction in the communication costs has a greater impact on differentiated goods, which often require detailed information exchanges, than on homogeneous goods.<sup>11</sup> The Internet greatly reduces the cost of trade by transforming books or recorded media containing music, videos or computer software into digital goods, where the cost of reproduction is virtually zero and the cost of transport is minimal. Due to network effects, the Internet also has a higher impact on costs for trading pairs with high levels of Internet adoption in both countries. Countries with high Internet penetration can communicate more and find more matches between each other, than can trading pairs where only one or neither partner has high levels of Internet adoption.<sup>12</sup> Country pairs where both have high Internet adoption levels have 29.6 percentage points more bilateral exports, 21.7 percentage points more trade on the intensive margin, and 6.5 percentage points more trade on the extensive margin, compared to other country pairs (Figure 2).

Although the impact is smaller, the Internet can also reduce the variable costs of trade. Firms can reduce communications costs by using email or VOIP to reach their customers, or use e-commerce websites and online platforms to streamline their logistics and distribution processes. Firms can practice “drop-shipping”, a distribution model where the retailer does not have the product in stock but passes the order to a wholesaler who fulfills the order. This allows firms to reduce their distribution costs and, more importantly, the capital costs that are tied to inventory. With this operations model, firms also can improve product customization, as the product can be made at the time of ordering. Firms can then cater to the “long-tail” – the market for niche products – while still reaching a larger consumer base.

**Figure 2: Higher Impacts of the Internet if Both Countries Have High Adoption Levels**



Source: Osnago and Tan (2016).

Note: The effects of the Internet are for country pairs with both high levels of Internet adoption compared to other bilateral pairs.

<sup>11</sup> Fink et al. (2005) and Tang (2006).

<sup>12</sup> Osnago and Tan (2016).



One approach to measuring the impact of the Internet on trade costs, which implicitly encompasses both fixed and variable costs, concerns how the Internet can reduce the negative effects of distance and borders on trade. There is a rich literature on how distance and borders create frictions that reduce international trade.<sup>13</sup> Even within the EU, a market free of trade barriers for goods flows, distance reduces the value of trade and the number of shipments, especially at very short distances. The distance effects are stark: when trading regions are more than 250 kilometers apart, total value of trade and the number of shipments declines rapidly and remains flat thereafter (Figure 3).

The Internet reduces the effects of distance; the impact of distance on trade is about 65 percent smaller for online than for offline trade flows in a sample of 62 countries.<sup>14</sup> Distance still has some negative impact on online transactions: the size of trade flows between two countries is negatively related to the distance between them, even after controlling for the extent of Internet adoption in the countries.<sup>15</sup> The lingering effect of distance may be capturing some effects of tastes and preferences. E-commerce websites selling differentiated and taste-dependent goods, such as music and games, are more affected by distance than websites selling more general products and services such as technology information and financial information.<sup>16</sup>

The Internet-driven reduction in communication and coordination costs also has boosted trade by increasing firms' ability to manage the outsourcing of intermediate goods to the lowest-cost locations, thus significantly increasing the growth of global value chains (GVCs).<sup>17</sup> The entry of multinational companies is positively correlated with the level of Internet use by firms, and more foreign affiliates are located in countries with higher use of Internet by firms.<sup>18</sup> The positive relationship between Internet use of firms and multinational entry is stronger when the multinational firm is in an industry that uses communication technologies more intensively and has fewer routine tasks. The Internet also enables countries to develop new sectors that export services and digital products. As digital technologies develop, more physical products can be digitized and consumed over the Internet. Development of new sectors that can deliver services and products online is important for many ECA countries, and in particular the land-locked countries in ECA.

The Internet may be increasing global trade in services, but digitally-enabled services exports from ECA countries are small. ICT services exports average 4.4 percent of GDP in Western Europe, but only 0.8 percent in other parts of ECA (Figure 4). The exports of ICT services are even lower in Turkey, Russian Federation, South Caucasus and Central Asia, where ICT services exports average below 0.3 percent of GDP for all countries except Armenia (1.1 percent) and Tajikistan (1.3 percent). Conversely, Central, Northern and Eastern Europe have larger shares of ICT services exports.

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<sup>13</sup> See Anderson and Van Wincoop (2004) for a summary of the literature.

<sup>14</sup> Lendle et al. (2012).

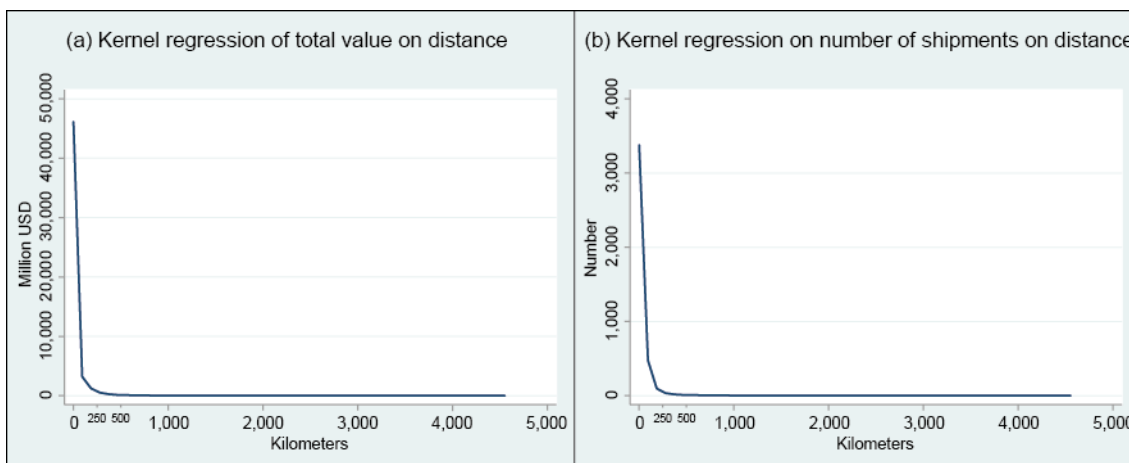
<sup>15</sup> Freund and Weinhold (2004); Osnago and Tan (2016).

<sup>16</sup> Blum and Goldfarb (2006).

<sup>17</sup> Many studies confirmed this relationship for firms in different countries: Germany (Rasel, 2013), Canada (Baldwin and Gu 2008), Ireland (Murphy and Siedschlag, 2013), Italy (Benfratello et al., 2009), the U.K. (Abramovsky and Griffiths, 2006), and globally based on a large dataset of multinational firms and their subsidiaries (Alfaro and Chen, 2015).

<sup>18</sup> Alfaro and Chen (2015).

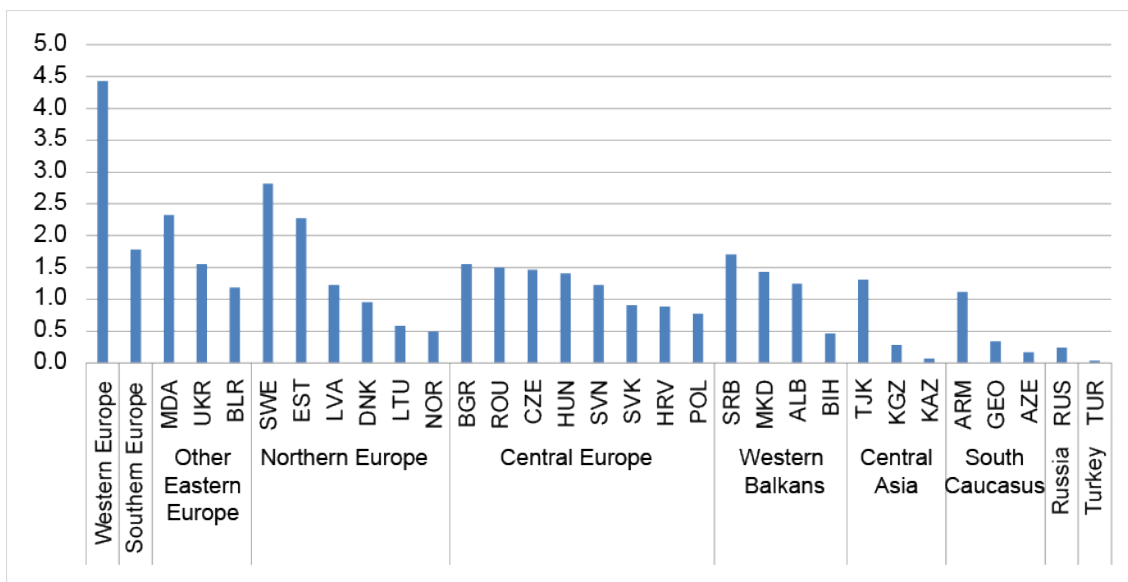
**Figure 3: Distances between EU Regions Reduces Trade Flows and the Extensive Margins of Trade**



Source: Tan (2016).

Note: The analyses use a Gaussian kernel estimator in STATA to estimate the relationship between trade flows and distance. The data is bilateral freight flows between 278 EU NUTS-2 level regions collected by Eurostat. Distance is calculated as a weighted average of actual distance travelled by the freight trucks.

**Figure 4: Small Share of ICT Services Exports in the GDP of ECA Countries (%)**



Source: Own calculations using UNCTAD and WDI.

Note: The ICT services are the exports of the “Telecommunications, computer, and information services” sub-sector.

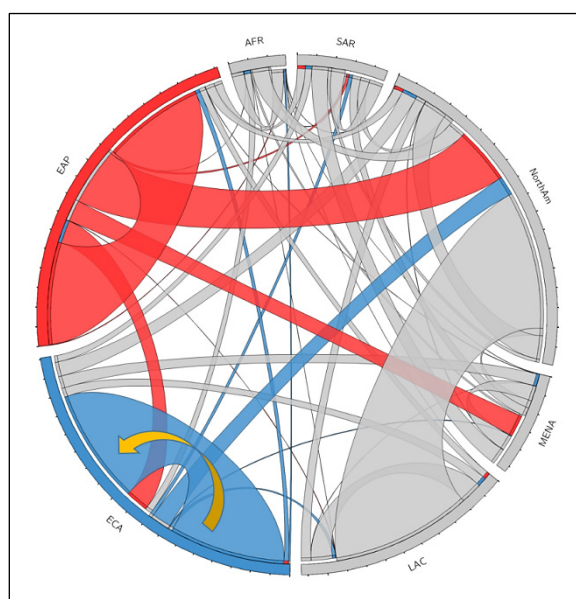
The available data does not provide a complete picture of ICT services exports. Services are difficult to measure, as they are intangible and leave little administrative trail when crossing borders. Services delivered through the Internet are particularly difficult to capture in statistics.<sup>19</sup> In addition, official statistics do not record free services provided on the Internet. For example, services in the form of email, video, search services, and social media websites are usually provided for free and paid for through

<sup>19</sup> A technical note by UNCTAD (2015) examines the possible ways of measuring ICT-enabled services.

advertising revenues. These ad-supported business models make it difficult to assess the economic value of these services.

An alternative measure of a country's service exports can be gleaned from the amount of Internet communication each region receives. Many offices use VOIP to communicate with their foreign affiliates and subsidiaries, for example to instruct factories, to request IT help or to provide customer services. The Internet voice traffic entering a country can be an indication of the amount of business and professional services a country exports. The VOIP data is not a perfect indication of services exports, as the data is not separated into business and personal VOIP calls and is based on surveys from national regulators. The data, however, is the only comprehensive source of voice traffic that captures bilateral flows between many countries.

**Figure 5: ECA has a Sizeable Amount of Incoming Voice Traffic but Most of It is from Other ECA Countries**



Source: Own calculations using Telegeography.

Note: The incoming flows for each region is calculated by aggregating the amount of VOIP calls for the latest available year (either 2013 or 2014) entering each country in that region. The size of the ribbons represents the amount of flows between the regions, measured in millions of minutes. The flows for the ECA region are shaded blue and the flows for the East Asia and Pacific (EAP) region are shaded red. For example, the blue ribbon with the yellow arrow represents the flows from the ECA region to itself. Regions are geographical classifications that include developed and developing countries. EAP = East Asia and Pacific, LAC = Latin America and the Caribbean, MENA = Middle East and North Africa, NorthAM = North America, SAR = South Asia Region, AFR = Africa.

The ECA region has 20 percent of global voice traffic, behind EAP with 28 percent and LAC with 24 percent (Figure 5).<sup>20</sup> Seventy-eight percent of the voice traffic was within the region in 2014 (represented by the yellow arrow), compared to almost 50 percent intra-regional voice traffic in the EAP region. This may indicate that ECA countries are

<sup>20</sup> In the data, the countries grouped under ECA include the developed and developing countries in the region. These countries are Albania, Andorra, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Gibraltar, Greece, Greenland, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Macedonia FYR, Malta, Moldova, Monaco, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Serbia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Ukraine, and the United Kingdom.

not taking advantage of digital technologies to market and export more services to international markets, especially to the large North American market, which accounts for only 13 percent of ECA's VOIP traffic.

### **3. E-COMMERCE IS TRANSFORMING SALES TO BOTH DOMESTIC AND FOREIGN CONSUMERS**

Firms can conduct e-commerce either through online platforms that serve many buyers and sellers, or through their own website. Online platforms, such as eBay, Amazon, and Alibaba, can provide a marketplace for customers to find sellers and firms to market their products. These platforms also remove uncertainties about products by providing consumers with information through photographs and rating systems, and increasing consumer trust through feedback and contractual enforcement mechanisms. These services reduce the risks of asymmetric information inherent in many foreign transactions, especially for firms in developing countries. For example, many platforms also act as a trusted intermediary between buyers and sellers, as they can handle product complaints and protection against fraudulent sellers. Alibaba even guarantees foreign buyers a refund if the product is not delivered on time or does not fit the description.

The role of these platforms in reducing costs through increasing information is shown in a study of the sale of used cars on eBay, which finds that sellers with better information (photos and text) are able to sell at higher prices.<sup>21</sup> Taobao, an Alibaba website in the People's Republic of China (PRC), also indicates the online status of sellers and allows buyers to communicate instantly with sellers to verify product details. Ratings and feedback mechanism can also provide the prospective buyer with independent information about the seller.<sup>22</sup> Customers pay nothing to shop on these platforms, and firms pay relatively low fees to register.

Online platforms facilitate exports by smaller firms, which otherwise can face very high fixed costs in exporting. Many firms on eBay have less than 10 employees, but are still able to engage in international trade. Online platforms also facilitate exporting to diverse markets. On average, firms on eBay reached 27 export destinations in 2014, and many of them are able to cover many countries (Figure 6).

Firms in Western Europe are reaching less export destinations through online platforms than firms in the less developed sub-regions of ECA. This may reflect the high costs of starting a business and trading across borders in the ECA countries, causing more firms to use the online platforms to export. For example, Ukrainian firms face very high costs in starting a business (Ukraine was ranked 112th in the world in 2012 in the Doing Business Surveys) and trading across borders (ranked 140th), and many Ukrainian firms use online platforms to export: Ukrainian firms reached an average of 37 export markets and a total of 152 export markets on eBay.<sup>23</sup> Firms on these online platforms reached 8.4 destinations on average, compared to 2.8 destinations for offline firms.<sup>24</sup>

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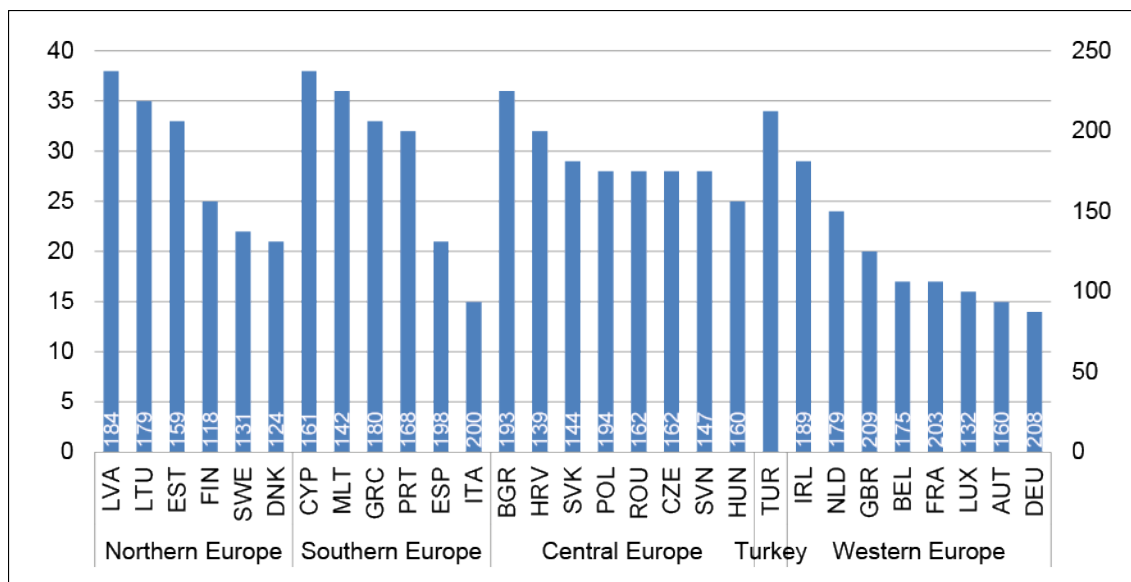
<sup>21</sup> Lewis (2011).

<sup>22</sup> There are some issues when evaluating the impact of feedback mechanisms on online sales. For example, there is an omitted variable bias since people are less reluctant to give negative feedback. See Bajari and Hortaçsu (2004) for more details on these issues and a summary of the literature.

<sup>23</sup> eBay (2015).

<sup>24</sup> Lendle and Vézina (2015) compared firm-level exports in the Exporter Dynamics Database and eBay data.

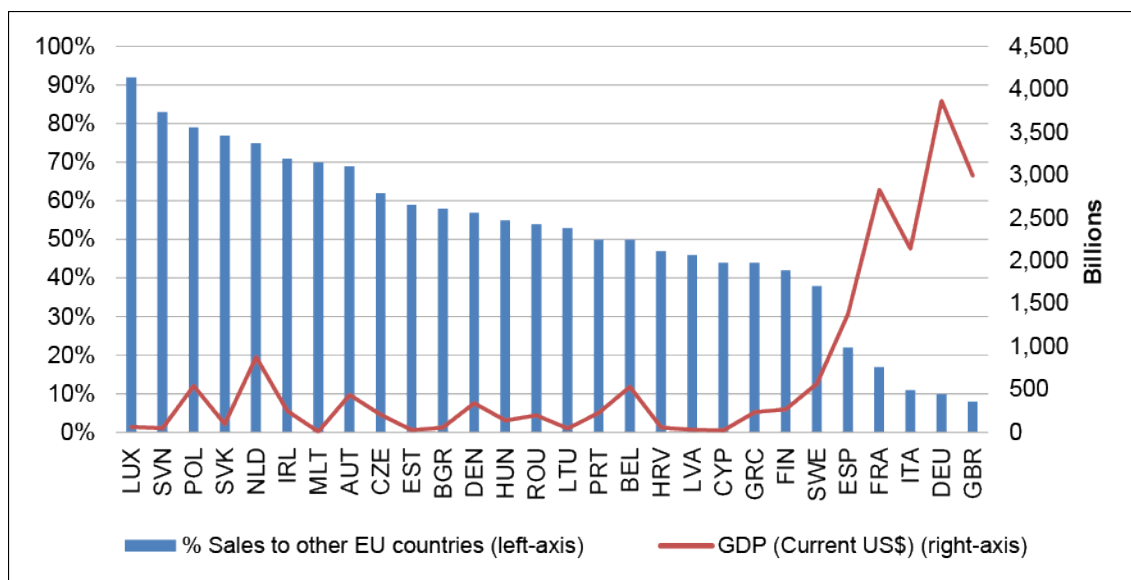
**Figure 6: Commercial Sellers on eBay in ECA are Able to Reach an Average of 27 Export Destinations**



Source: eBay (2016) and eBay (2014).

Note: The numbers at the base of each bar chart represents the average *total* number of export destinations for each country. Commercial sellers on eBay are firms that operate in eBay with transactions of more than \$10,000 per year. Data for Turkey is obtained from eBay (2014): the data is from 2013 and does not have the average total number of export destinations.

**Figure 7: E-commerce Allows Firms to Reach a Larger Consumer Base and Achieve Economies of Scale**



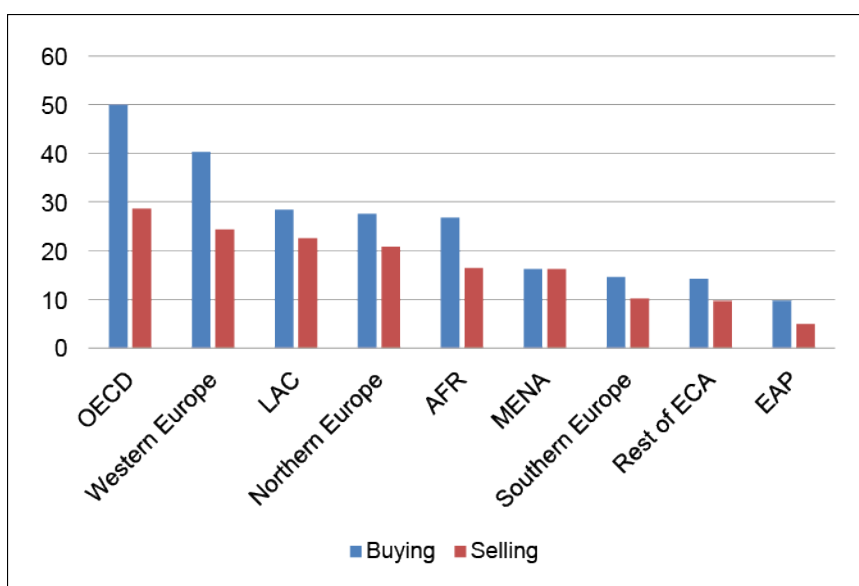
Source: Own calculation using eBay (2015) and World Development Indicators.

Note: eBay sales to other EU countries is a percentage of total sales by the firms in the country.

The Internet is particularly important for firms in small countries, which may face difficulties in achieving efficient scale if serving only on domestic markets. For example, eBay sales from UK and German firms to other EU countries is less than 10 percent of total eBay sales, while 80 percent of eBay sales from firms in Slovenia and Luxembourg go to other EU countries (Figure 7). More generally, the share of sales to other EU countries in total eBay sales is negatively correlated with the size of GDP. Thus, the benefits of e-commerce is highest for the smaller and less developed countries in the ECA region.

The use of the Internet to sell products is limited in ECA. With the most recent available data, only about 10 percent of firms in many ECA countries used the Internet to sell their products and services in 2009, a smaller share than in all regions other than EAP (Figure 8).<sup>25</sup> Despite the lower level of economic development and Internet penetration, there is a higher percentage of firms in Africa that sell online than in these ECA countries. With the exception of Croatia, the share of firms selling online increased from 2009 to 2015 (for the limited number of countries with data) by an average of 104 percent (Figure 9).

**Figure 8: Firms in the Developing ECA Countries are Not Participating in E-commerce**

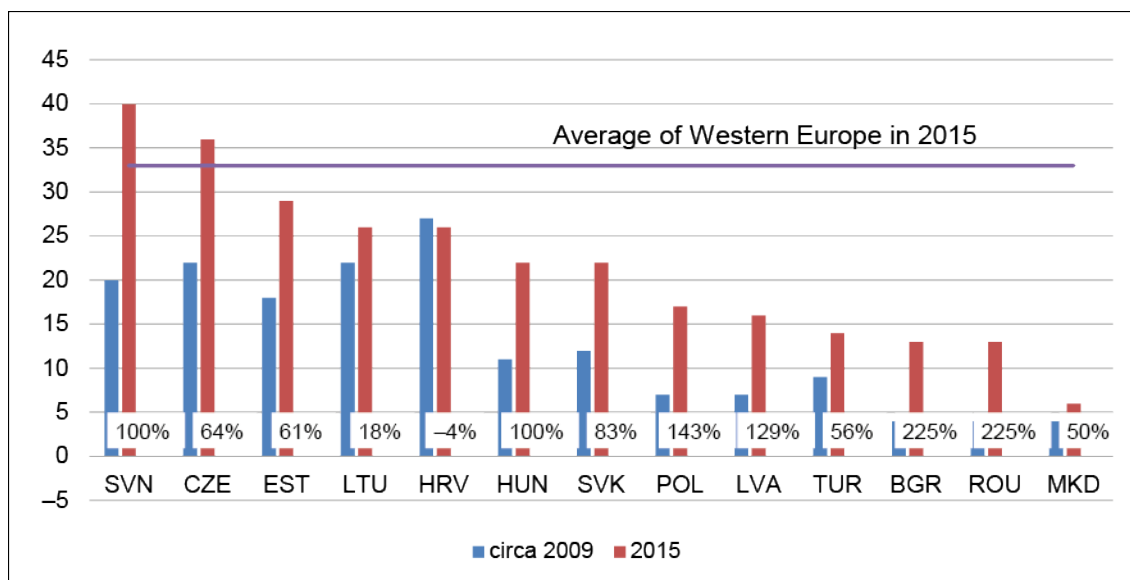


Source: Own calculations using UNCTAD Business of ICT.

Note: The most recent data was used for each country and the average percentage is taken for the available data in each region. The high income countries are Australia, Canada, Japan, New Zealand and Singapore.

<sup>25</sup> The information provided in Figure 8 is the latest available for e-commerce activities among firms across a wide number of countries. The average percentage of firms in EAP region may be under-estimated. The latest available data for PRC is for 2005, when only 6 percent of Chinese firms selling online, but there has been an explosion of e-commerce activities in PRC fueled the Alibaba.com website in the last five years.

**Figure 9: The Share of ECA Firms Selling Online Rose from 2009 to 2015**



Source: Own calculations using Eurostat.

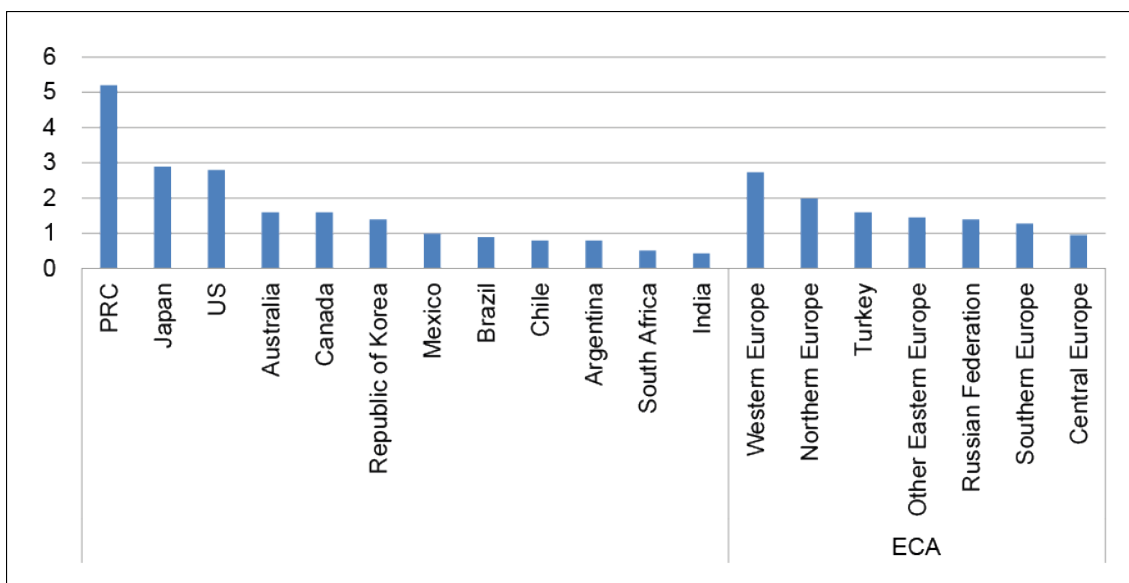
Note: The latest data is taken for the countries when available. The red line is the average percentage of wholesale and retail firms that have received an order through computer mediated networks in 2015 for countries in Western Europe.

However, the share of firms selling online in other parts of ECA remained well below the 35 percent share in Western Europe. The share of business to consumer (B2C) e-commerce sales in ECA averages 1.6 percent of GDP, ranging from 0.4 percent to 5.7 percent in 2014 (Figure 10).<sup>26</sup> The developed countries in ECA have smaller shares of e-commerce sales than do the United States or Japan, and the difference is larger when the average does not include the U.K., which has the highest share of e-commerce sales in ECA. It is revealing that there are more firms that buy online than sell online in all the regions, because it is more difficult to set up an e-commerce website for sales. The firm needs to link its e-commerce website to its supply chain, manufacturing, logistics and payment systems before it can start selling its products, while there are less costs to purchasing online, which can often be conducted over email.

The largest firms tend to sell more through e-commerce than do small firms. In Central Europe and the Western Balkans, firms with more than 250 employees on average receive 18 percent of turnover from e-commerce, compared to about 11 percent for firms with 50–249 employees and 6 percent for firms with 10–49 employees (Figure 11). The difference between the percentages of turnover received from e-commerce by large versus small firms can be as large as four times in Croatia, five times in Estonia, and 6.4 times in Hungary. Large firms are more likely to sell through e-commerce due to the high costs involved, including specialized skills and ICT equipment. As noted above, the sale of goods and services through on-line platforms is common among small firms, since the fixed costs involved are spread among numerous users.

<sup>26</sup> The share of B2C e-commerce sales is measured by the calculating the sales of goods and services in sectors that are more likely to be conducted through e-commerce.

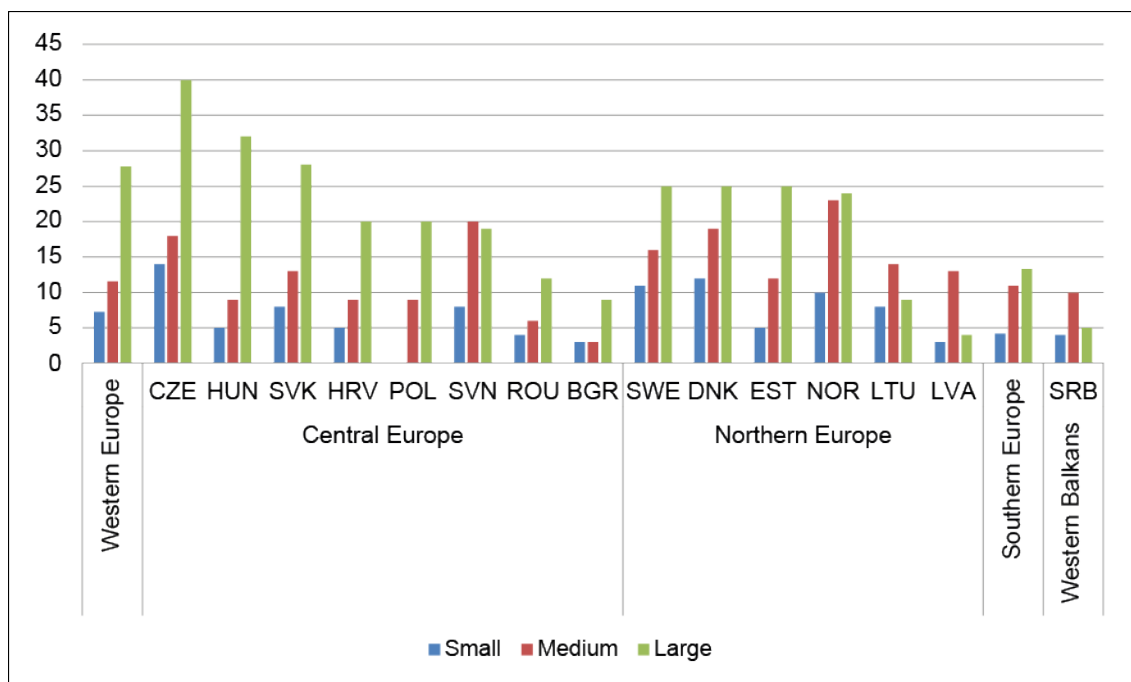
**Figure 10: ECA Countries have Small Shares of E-commerce Sales Compared to Other Countries (%)**



Source: Own calculations using data from various reports by the E-Commerce Foundation.

Note: The averages are calculated for different ECA regions. The e-commerce shares in GDP is calculated as the total sales of goods and services in sectors that are more likely to be conducted through e-commerce. These sectors are: event tickets, fashion, food and health, sports and recreation, toys, electronics, insurance, travel, media and entertainment, and telecom.

**Figure 11: Large Firms Benefit Most from E-commerce**



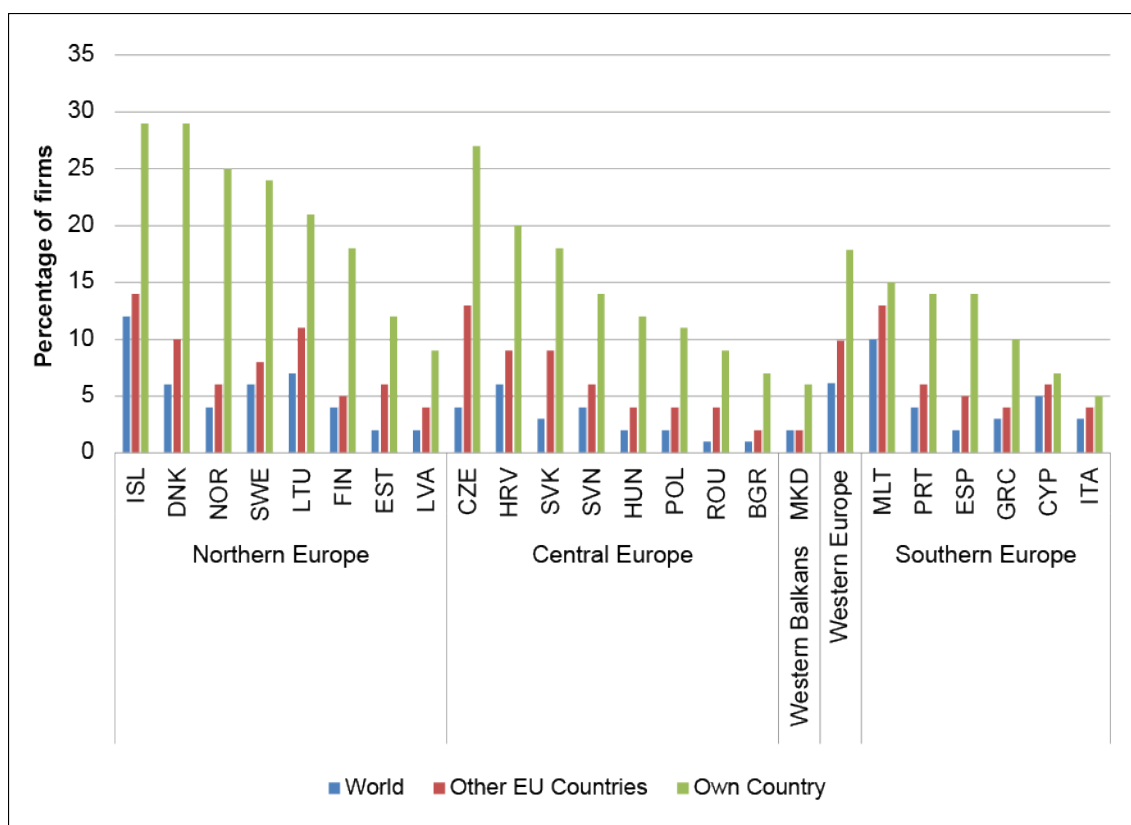
Source: Eurostat.

Note: Data is from 2015 for all countries except Serbia and Latvia, which is from 2014. Data for Belgium, Finland, Iceland and Macedonia are not available. The size of the firms are defined by Eurostat where small-sized firms have 10–49 employees, medium-sized firms have 50–249 employees and large-sized firms have more than 250 employees.



Firms in ECA are more likely to sell online to domestic than to foreign consumers. The share of ECA firms that have online sales to domestic consumers is on average more than three times the share of firms selling to the world, or to other non-EU countries (Figure 12). The difference between firms selling domestically and to the world is as large as 23 percentage points in Czech Republic and Denmark. Despite the lack of trade barriers or borders within the EU, a smaller share of EU firms sell to consumers in other EU countries than sell to domestic consumers (Czech Republic again has the largest difference, of 14 percentage points). This may reflect the fact that local products tend to be more suited to consumer preferences, or some unwillingness to purchase from foreign firms. Consumers usually have an ordered preference in where they purchase from – domestically, then from neighboring countries, then foreign countries further afield. This pattern is observed among consumers in the EU.<sup>27</sup>

**Figure 12: Overseas Sales by Firms in ECA are Limited**



Source: Eurostat.

Note: Countries in the “World” classification excludes other EU countries.

#### 4. THE INTERNET MAKES FIRMS MORE MOBILE

The Internet makes firms more mobile by allowing them to outsource many activities, communicate easily from a distance, and deliver services from any location. Firms can choose their location based on the available resources, and are no longer as tied to locations near large consumer markets. Knowledge spillovers may be less important for firms to obtain new information, as scientific knowledge exchanges can be

<sup>27</sup> Cowgill et al. (2013) examine the data collected by Google through AdWords, its online advertising software, which tracks shoppers through their clicks and converts transactions to sales.

conducted over the Internet. Moreover, the Internet enables firms to rely on remote workers rather than depending solely on the local job market. This is more feasible for routine tasks that can be codified.<sup>28</sup> In short, many firms are no longer forced to locate near either their customers or their workers. Firms' increased mobility means that countries have greater scope to attract production and jobs by creating the right enabling environment, but also greater potential for losing firms to competing countries.

Greater mobility enables firms to respond either to the attractions of agglomeration in cities or the reduced costs in the periphery. On the one hand, firms often locate in dense urban environments to reap the benefits from agglomeration: a large supply of workers with a variety of skills, proximity to consumers, the availability of specialized inputs, and learning by interacting with and observing technological improvements by neighboring firms (referred to as knowledge spillovers). On the other hand, firms may choose to locate in the periphery, because urban locations impose congestion costs, such as higher land rents, wages, and cost of services.

An example of firms' flexibility in location choice is that ECA e-commerce firms do not necessarily locate in population centers. Even within a country, the region with the highest digital density – the number of firms that sell on eBay and the amount of sales – is not always the region with the highest GDP or population (Figure 13). For example in the United Kingdom, the Greater Manchester region has the highest number of eBay firms and eBay sales per 100,000 inhabitants, but the Inner London ("UKI1") region has the highest GDP and the Surrey, East and West Sussex ("UKJ2") region has the highest population. Moreover, new technologies such as 3D printing are further changing how firms are located and can increase the dispersion of firms.

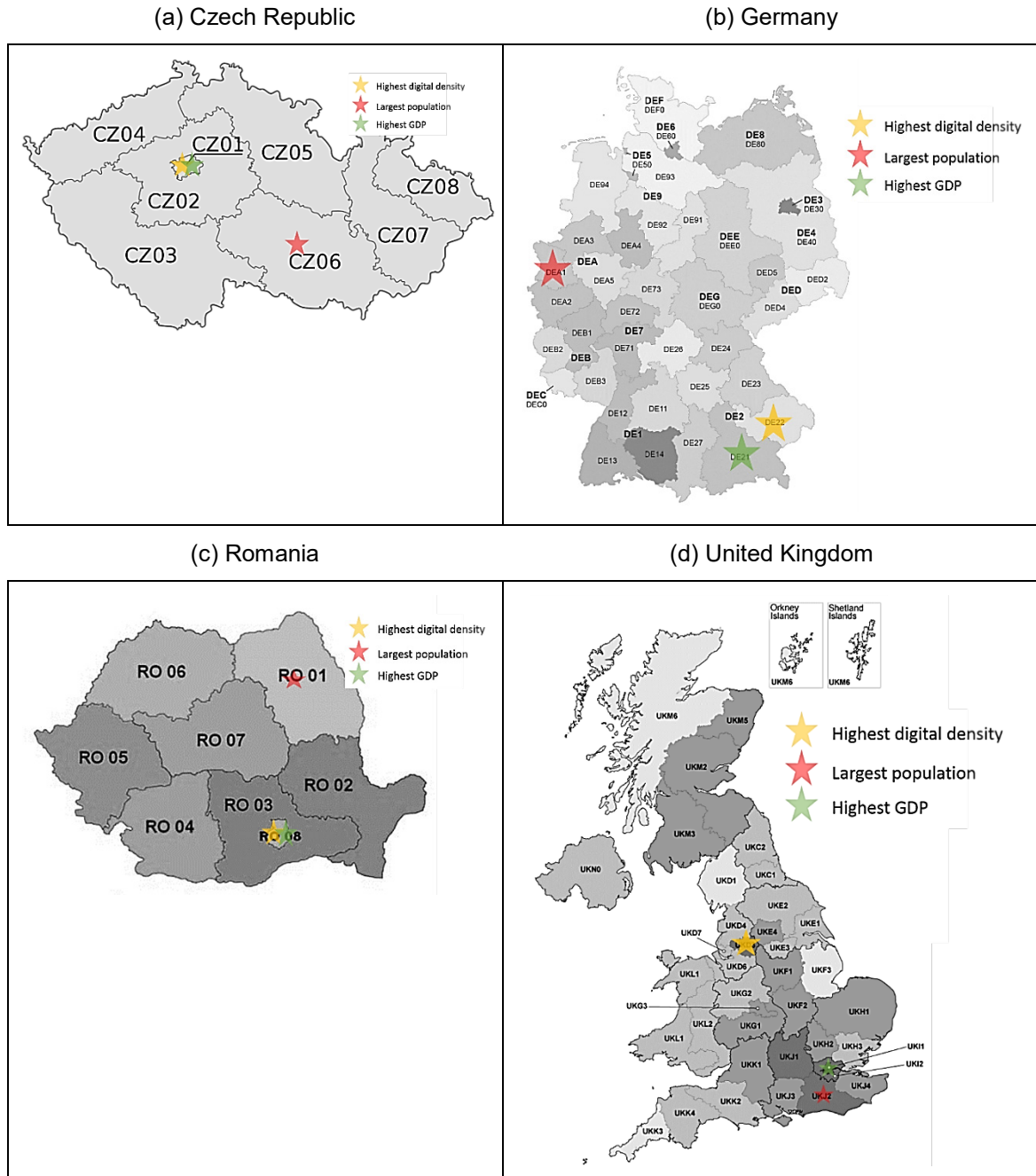
It is difficult to determine the impact of the Internet on firms' location choices in principle. The tendency to gain from agglomeration is likely strongest for firms providing services that can be delivered over the Internet. These services firms tend to perform complex tasks that benefit from face to face interaction among skilled, and often specialized, workers, whose supply is greater in cities. By contrast, many manufacturing firms are more likely to perform routine tasks and require less face to face interaction, so they can use ICT to communicate and locate in peripheral areas with lower costs.

The agglomeration of firms can also have a positive effect on the Internet use of firms in that location. As the density and concentration in a location increase, the costs of adopting the Internet and other new technology fall. A larger, denser location will have lower costs of adopting Internet technologies as these locations are more likely to have more Internet infrastructure and a larger labor pool to provide the specialized skills to implement the new technology. Moreover the presence of more firms can create more competition among firms, which increases the incentives for firms to adopt new technology.

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<sup>28</sup> Leamer and Storper (2014).

**Figure 13: A High Digital Density Does Not Need to Correspond with High GDP or Population Density**



Source: eBay (2015) and Eurostat.

Note: Digital density is obtained from eBay (2015) and measures the number of eBay firms per 100,000 inhabitants and the sales by eBay firms per 100,000 inhabitants at the NUTS 2 region level. Population and regional production data is obtained from Eurostat. All data is for 2014.

Countries need to adopt broad, horizontal policies designed to develop sectors and it is more important for countries to get the fundamentals – education, business environment and infrastructure – right. While these policies can be termed as industrial policies, they are different from the more interventionist policies adopted by countries in the mid-20th century. Industrial policy, per se, is not bad but it depends on the issues or problem the industrial policies are applied to.<sup>29</sup> Industrial policies, or transformative productivity policy, can be beneficial when they are policies that provide public goods on issues that affect the economy. The egregious example will be market interventions that deal with a specific sector, such as tax exemptions for the chemicals sector. Industrial policies have to be partnered with competition, as competitive forces act as a discipline on the firms in that sector. When industrial policies are targeted at competitive sectors, the policies can increase the productivity and innovation of firms in that sector.<sup>30</sup> Moreover, tax policies aimed at attracting certain firms can create unnecessary competition among countries and may be counterproductive as the mobility afforded by the Internet allow firms to easily move their profits to the lowest tax regime. Ultimately, firm location will be determined by the access to skills and talent, entrepreneurial activities and capital.

Countries should not try to pursue narrow industrial policies that predict the next sector that will grow in their cities. For example, many ECA countries are motivated by the growth of ICT services exports in Romania, Poland and Bulgaria,<sup>31</sup> and use the BPO sector as a popular reference point if they are thinking about developing sectors that can export more digitally-enabled services. But with the fast evolving technology, the BPO sectors may not be the next growth engines as call centers may be replaced by robots. With better technology to recognize voice and textual answers, it may not be necessary for call centers to perform repetitive work such as updating and changing customer information. The market failures in the economy may be too complex and industrial policies do not address them.<sup>32</sup> There is no clear and ambiguous evidence that policies that promote an industrial cluster improve the productivity, employment and innovation of the firms in that cluster.<sup>33</sup> There is also evidence that policies to promote industrial clusters do not have long term benefits for firms. The BioRegio policies were designed to develop biotechnology sectors in German regions and a study finds that while the winners of the public R&D grants had more patent and collaboration in public R&C projects, the effects of these grants were temporary and did not have significant outcomes in the periods after winning the grant.<sup>34</sup>

## 5. POLICY PRIORITIES FOR THE GOVERNMENT

Countries need to create the right enabling environment to encourage greater e-commerce, which can involve a wide range of policies. Priorities for reform should be based on what is suitable for the economy and firms. The countries in ECA can be classified into the three groups, emerging, transitioning, and transforming, based on the relationship between the share of firms engaging in e-commerce and the quality of infrastructure and payment systems, which captures the basic enabling environment for

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<sup>29</sup> See Inter-American Development Bank (2014) for a discussion on this issue.

<sup>30</sup> Aghion et al. (2015).

<sup>31</sup> In the 2016 A.T. Kearney Global Service Location Index that ranks ICT offshoring locations, Romania is ranked 13, just behind Poland at 10th place and Bulgaria at 12th place.

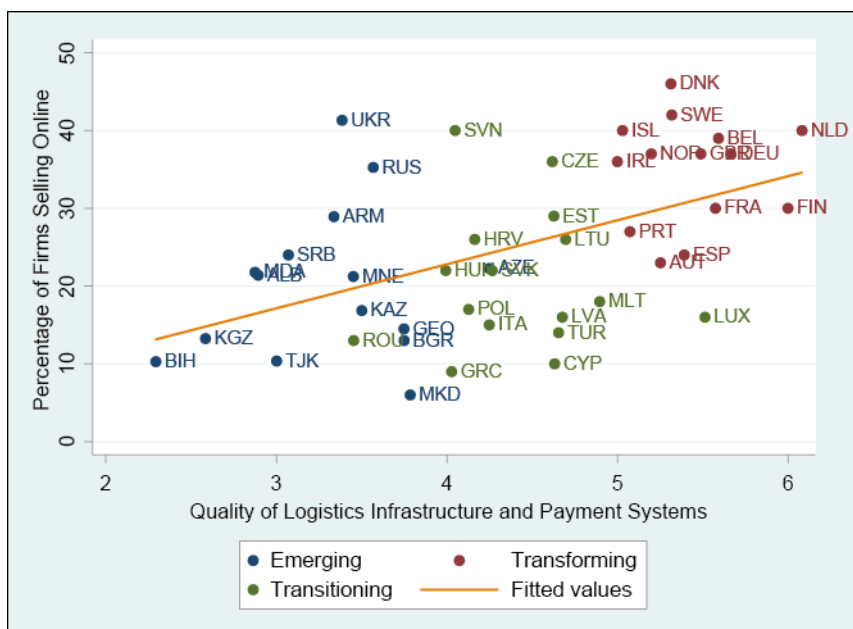
<sup>32</sup> Duranton (2011).

<sup>33</sup> Uyarra and Ramlogan (2012).

<sup>34</sup> Engel et al. (2013).

digital trade (Figure 14). The categorization is based loosely on these criteria: countries that have weaker infrastructure and payment systems (below a score of four) are classified as emerging, countries with an intermediate quality level (between four and five) are classified as transitioning and countries with a high level (above five) are classified as transforming.<sup>35</sup>

**Figure 14: Policies for Creating the Enabling Environment for Digital Trade for Emerging, Transitioning and Transforming Digital Countries**



Source: Own Calculation Using Enterprise Survey, Eurostat and WEF Competitiveness Report.

Note: the data for firms selling is calculated from the Enterprise Survey and Eurostat and is obtained for the latest available years. The quality of logistic infrastructure and payment systems is calculated as an average of the response from executives in the WEF Competitiveness survey. The questions are the quality of roads, railroad infrastructure, port infrastructure and air transport infrastructure, and the affordability and availability of financial services, where the answers are ranged from 1 (worst) to 7 (best). The year of the data from the WEF Competitiveness Survey corresponds to the year for the data of firms selling online for each country.

Emerging digital countries need to strengthen their logistics infrastructure and develop their payment systems to allow for easier and more secure online transactions, so that firms are able to deliver their goods and receive payments for them. Transitioning digital countries have these fundamentals in place, and should focus on making it easier for firms to export by reducing the amount of paperwork and simplifying and streamlining trade procedures. Some of the transitioning countries already have low costs of exporting but they still have low percentages of firms engaging in e-commerce. In these cases, the transitioning countries should focus on increasing the incentives to adopt new technology by encouraging a more competitive environment. Lastly, transforming digital countries have the foundations of a good digital trade system, but will need to negotiate with their trade partners to reduce tariff and non-tariff barriers on

<sup>35</sup> Belarus, Kosovo, Turkmenistan and Uzbekistan are not covered in the WEF competitiveness survey. The quality of their infrastructure and payment systems can be approximated using the Logistics Performance Indicators (LPI) and the FINDEX database. Turkmenistan and Uzbekistan have scores below the passing grade of 2.5 on the LPI and Belarus just passes with a score of 2.64. Less than one percent of individuals use the Internet to purchase goods in Turkmenistan and Uzbekistan, 5.2 percent in Kosovo and 21.7 percent in Belarus. As their infrastructure and payment systems are not developed, they are classified as emerging countries.

goods and services restrictions. The countries and the policy priorities for each group are presented in Table 1. The three groups of policy priorities provide a guide for ECA countries but it may be necessary for a country to also pursue policies beyond those recommended for its group as the policies to create an enabling environment are difficult to sequence and are often complementary.

**Table 1: Policy Priorities for Emerging, Transition, and Transforming Digital Countries**

Groups	Countries	Policy Priorities
Emerging	Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Georgia, Kazakhstan, Kosovo, Kyrgyz Republic, Macedonia, Moldova, Montenegro, , Russian Federation, Serbia, Tajikistan, Ukraine, and Uzbekistan	<ul style="list-style-type: none"> <li>• Improve logistics infrastructure</li> <li>• Develop online payment systems</li> </ul>
Transitioning	Czech Republic, Croatia, Cyprus, Estonia, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, Poland, Romania, Slovakia, Slovenia, and Turkey	<ul style="list-style-type: none"> <li>• Enhance trade facilitation measures</li> <li>• Improve competition</li> </ul>
Transforming	Austria, Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Netherlands, Norway, Portugal, Spain, Sweden, and United Kingdom	<ul style="list-style-type: none"> <li>• Reduce trade barriers in partner countries (NTMS, service restrictions)</li> </ul>

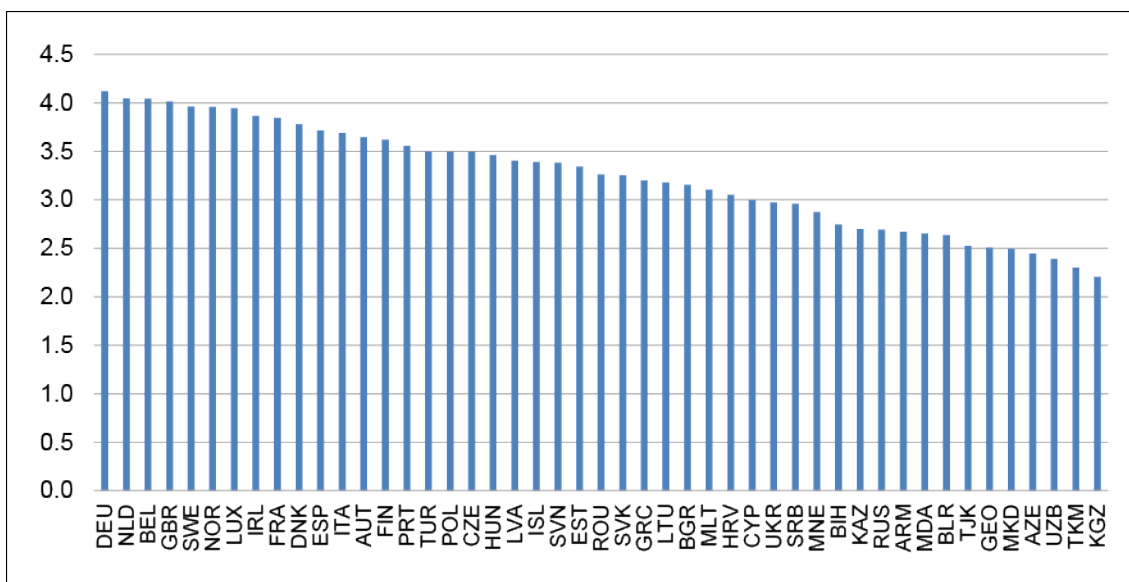
Note: Countries are grouped based on the relationship between the number of firms selling online and the quality of infrastructure and payment systems, which is presented in Figure 14. The WEF data is not available for Belarus, Kosovo, Turkmenistan and Uzbekistan. These countries are classified based on their scores in the Logistics Performance Indicators and the FINDEX database.

Emerging digital countries can facilitate more e-commerce by ensuring that the infrastructure is in place to ship goods. A solid logistics infrastructure is necessary for efficient e-commerce. While the Internet can help firms to export more, high-quality logistics infrastructure can strengthen the effect. A study examining foreign product entry into the US market finds that the probability of product entry increases by 0.65 percent when there is 10 additional Internet users per 100 people, but the probability increases by 1.18 percent when these 10 additional Internet users are in a country with highly efficient export logistics.<sup>36</sup>

The logistics system encompasses many components – freight transportation, warehousing, border clearance, and domestic postal system – and inefficiencies in the system will increase the trade costs for firms. Kyrgyz Republic, Turkmenistan, Uzbekistan, Azerbaijan, FYR Macedonia and Georgia have scores at or below the midpoint of 2.5 of the Logistics Performance Index (Figure 15). These countries have additional challenges, as they have difficulties accessing the major shipping routes or are landlocked. In addition, countries that lack a good postal system will increase the costs for e-commerce companies that rely on the domestic postal systems to make the last mile parcel delivery to their consumers. Countries with weak logistics performance can improve their logistics sector by encouraging more competitiveness within the sector, allowing the development of third party logistics services, and incorporating technology to improve traceability of shipments.

<sup>36</sup> Riker (2015).

**Figure 15: Weak Logistics Sector among ECA Countries**



Source: Logistics Performance Indicators.

Note: the overall LPI score is a weighted average of six dimensions that includes efficiency of clearance process, quality of trade and transport, and competence and quality of logistics services.

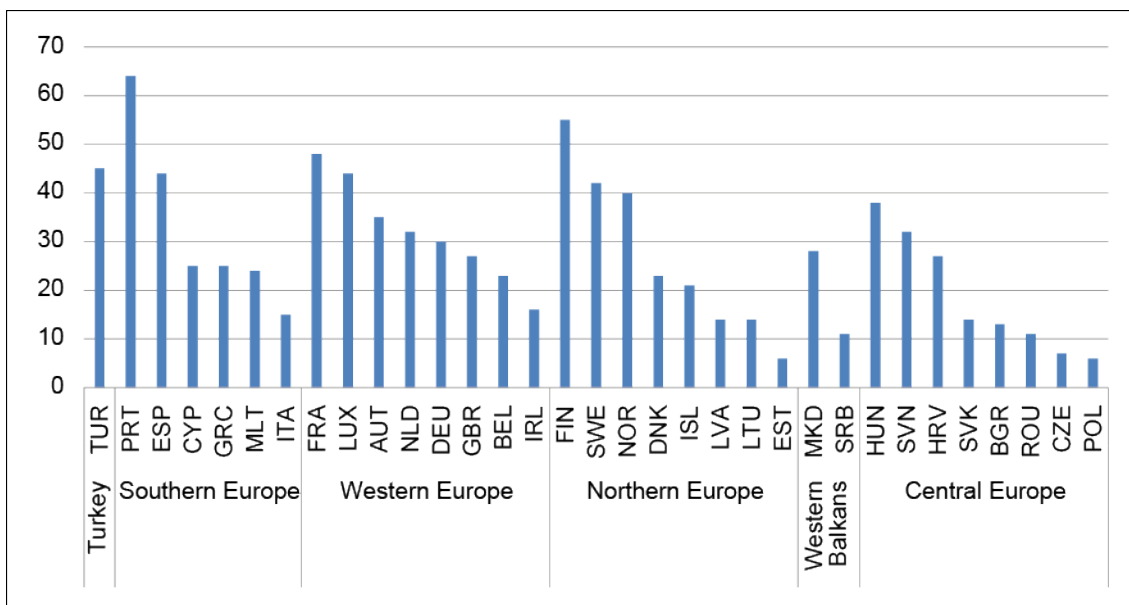
In addition to logistics infrastructure, emerging countries need to ensure that there is a developed payment system that will facilitate online transactions. Online transactions are usually carried out with a credit card or through online payment methods such as PayPal. As online payment systems become more widespread, measured by the market share of PayPal in the country, cross-border online trade in the EU also increases.<sup>37</sup> Moreover, online payment systems may offer more payment security over credit and debit cards, and concerns over payment security prevent many consumers from purchasing products and services online. These concerns may rise as countries engage more in e-commerce and as consumer education about payment fraud increases. The share of consumers who are more worried about payment security tends to be higher in the more developed ECA countries (Figure 16).

If individuals do not have a credit card, they will be less likely to purchase anything online. On average, only 15 percent of individuals in many parts of ECA have credit cards, compared to about 50 percent in Western Europe (Figure 17). Similar to the situation in logistics, financial access is less developed in Central Asia and South Caucasus; five percent or less of individuals have credit cards in Turkmenistan, Tajikistan, Uzbekistan, and Armenia. Firms in many countries in Central Asia, South Caucasus and Eastern Europe also do not have access to online payment services, making it doubly difficult to sell things online.<sup>38</sup>

<sup>37</sup> Gomez-Herrera et al. (2013).

<sup>38</sup> The absence of PayPal in Central Asia and Caucasus can be attributed to three reasons: a business decision by PayPal (size of market, ease of entry, competition), a regulatory issue (payment and banking regulations) or infrastructure issues (broadband and mobile connectivity, access to banking 'rails' or systems to conduct banking services).

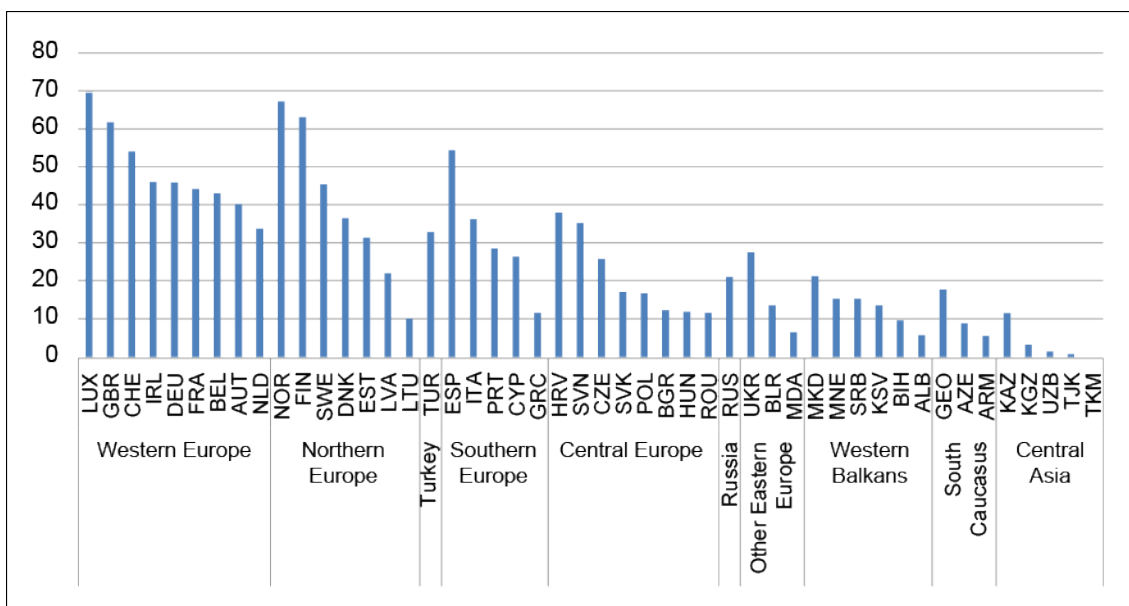
**Figure 16: Consumers in ECA Worry about Payment Security and More so in Developed ECA Countries**



Source: Eurostat.

Note: The percentage of individuals who purchased something online in previous years or never did. The data for all countries is for 2015, except for Iceland and Serbia that have data for 2009.

**Figure 17: Many individuals in ECA countries have no credit cards**

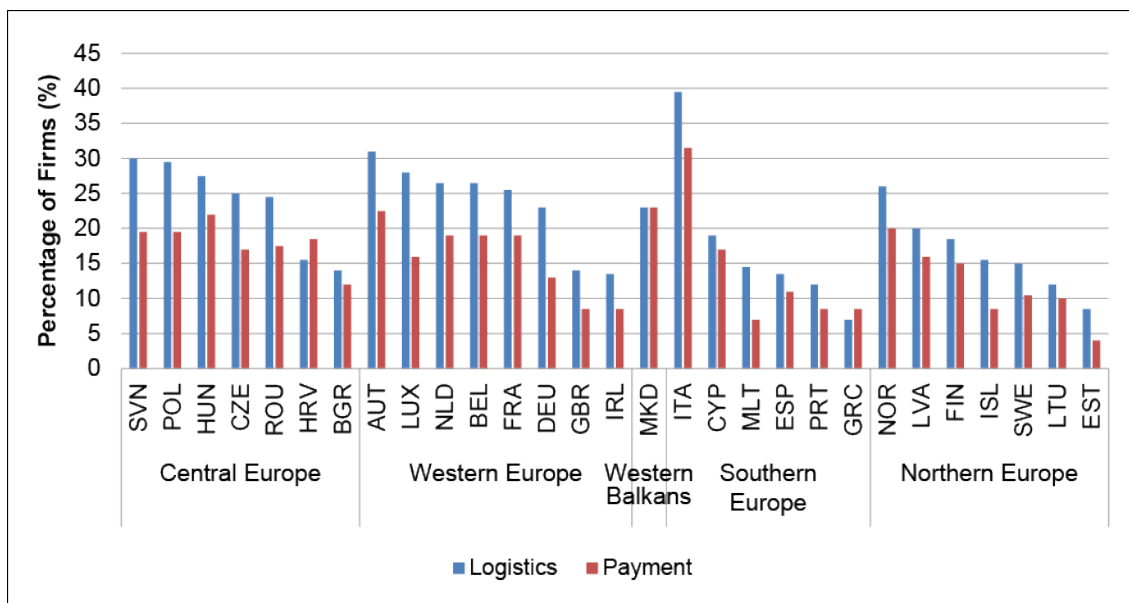


Source: FINDEX database.

While the lack of a good logistics infrastructure and payment systems are both important, more firms find that a weak logistic infrastructure is an obstacle to e-commerce sales. On average, 21 percent of firms in ECA that are not selling online find that logistics are an obstacle to e-commerce and 15 percent find that payment systems are an obstacle (Figure 18). In addition, more small and medium firms list these two issues as obstacles compared to large firms.

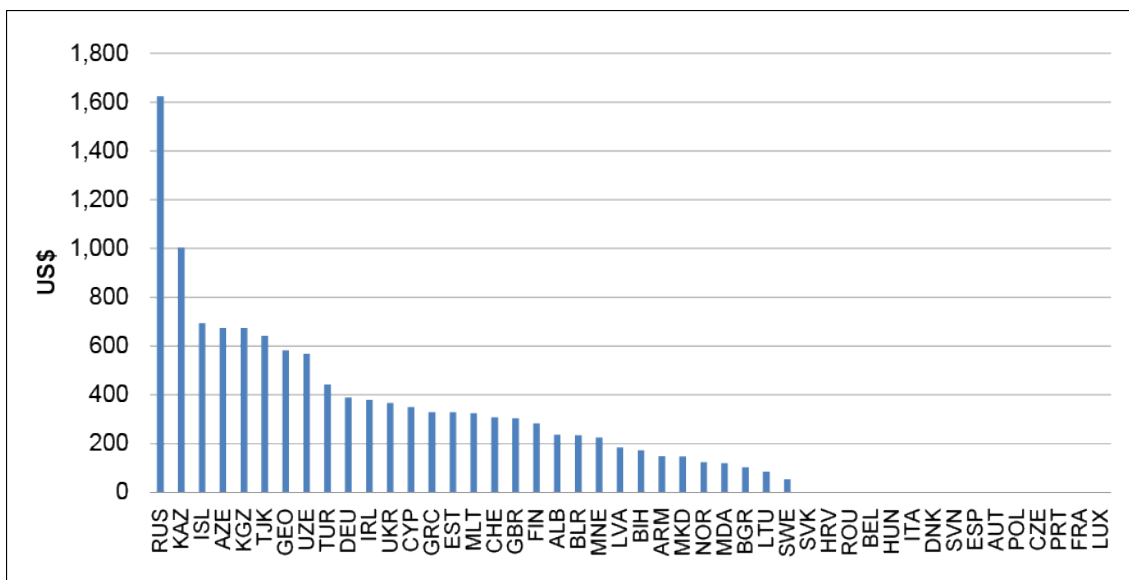


**Figure 18: Poor Logistics and Payment Systems are Obstacles to E-commerce Sales**



Source: Eurostat.

**Figure 19: High Costs of Exporting in Some ECA Countries**



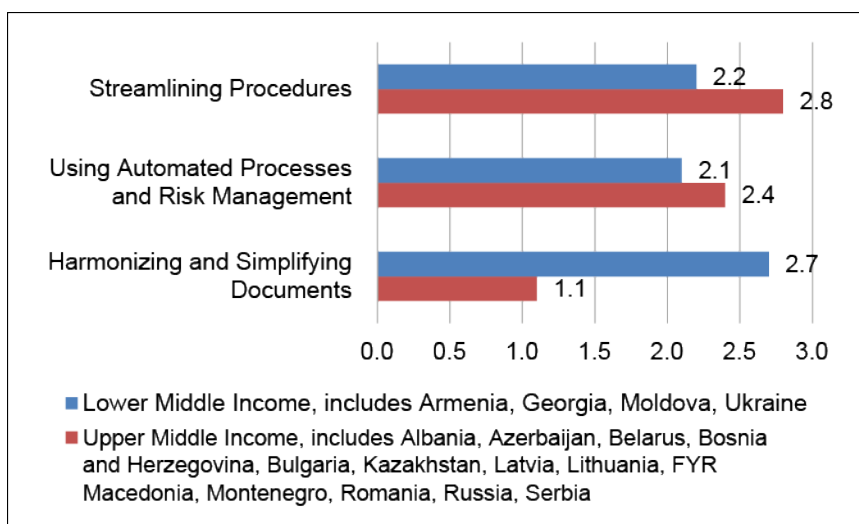
Source: Own Calculations using World Bank Doing Business Survey.

Note: The total costs to export includes the costs of border and documentation compliance. The Doing Business survey assumes that the costs are based on shipping one 15 metric tons of container of auto part (HS 8708) for each country.

After establishing logistics infrastructure and payment systems, transitioning countries have to focus on trade facilitation measures, which refers to the administrative requirements surrounding exports and imports. Border and documentation requirements associated with exporting a container are lower in transitioning countries than in emerging economies (for example, US\$1,004 in Kazakhstan and US\$1,625 in the Russian Federation), but not insignificant. For example, these costs total US\$330 in Estonia and Greece, US\$350 in Cyprus and US\$443 in Turkey (Figure 19). By

contrast, these costs are close to zero in many Western European countries. For ECA countries, streamlining procedures is the trade facilitation measure with the largest impact on trade flows, and could reduce trade costs by 2.2 to 2.8 percent (Figure 20).<sup>39</sup> Trade facilitation improvements can also increase online trade. eBay introduced a global shipping program (GSP) that handles the shipping and custom clearance for eBay sellers. Sellers selected for the program had 2.7 percent more exports than sellers not selected and the extension of the program to all sellers increased exports by 1.27 percent and product variety by 1 percent.<sup>40</sup>

**Figure 20: Enhancing Trade Facilitation in ECA Countries Can Reduce Trade Costs (%)**



Source: Moisé and Sorescu (2013).

There are many areas of trade facilitation a transitioning country can undertake: providing more information about customs procedures and requirements to firms, simplifying of regulations, increasing institutional capacity in the customs agency, simplifying customs procedures to reduce paperwork and improving the risk assessment procedures to reduce inspection times. Countries should examine the costs of trading from a supply chain perspective – at what stage of purchase, export or transport do firms encounter higher costs – to determine which trade facilitation measure they should tackle. Countries can leverage ICT to modernize customs agencies and procedures. One example is Albania, which employed the Automated System for Customs Data (ASYCUDA) to improve its risk management and inspection processes from 2007 to 2012. While this example is about improving import processes, it does highlight how trade facilitation and ICT can improve trade outcomes. Before 2006, the Albania customs agency subjected all shipments to physical inspections but after using ASYCUDA, the inspection rates of imports dropped from 43 to 12 percent and the share of imports taking more than one day to clear customs dropped by half to

<sup>39</sup> Moisé and Sorescu (2013).

<sup>40</sup> Hui (2015). The eBay sellers were selected randomly, so that this is likely the exogenous impact of the program rather than reflecting a selection bias

7 percent. The reduction in customs clearance time increased the value of imports by seven percent.<sup>41</sup>

Some transitioning countries have low costs of exporting but low levels of e-commerce activities. These countries can reduce the focus on trade facilitation measures and increase the focus on having a pro-competitive business environment to encourage more firms to engage in e-commerce. The EU member countries in the transitioning country category (Croatia, Hungary, Italy, Luxemburg, Poland, and Slovakia) have negligible costs of exporting, but less than 25 percent of their firms sold goods or services online in 2015. These countries can improve their business environment by introducing more pro-competitive policies and easing entry barriers to allow more local and foreign entrants. Competitive pressures can motivate firms to adopt new technologies and processes. The entry barriers in the service sectors of these countries are among the highest in ECA: in particular, Italy, Luxembourg and Poland have the highest score in the OECD's measure of barriers to entrepreneurship in the service sectors. Lower foreign barriers in the service sectors will force incumbents to compete with foreign entrants, who are more likely to bring new technology and operational processes.

A key issue with the enabling environment is that many e-commerce firms face complicated regulations when they enter the market. Some e-commerce firms may sell services and products such as health services and cosmetics that are regulated by government agencies for public health and safety reasons. Government agencies, however, may not be familiar with the operations of online companies. In particular, there are e-commerce companies that are intermediaries between merchants and customers, and sell a variety of different products and services on their websites. In these cases, a government unfamiliar with the e-commerce business model may subject the company to many different regulations, imposing an unnecessary and possibly prohibitive administrative burden on the company. One of the first e-commerce companies in FYR Macedonia, Grouper.mk, faced these issues when it started. Similarly, a Swedish online travel agency needed to fulfil onerous establishment requirements set by the Irish authorities before it could market its travel services online to Irish consumers.<sup>42</sup>

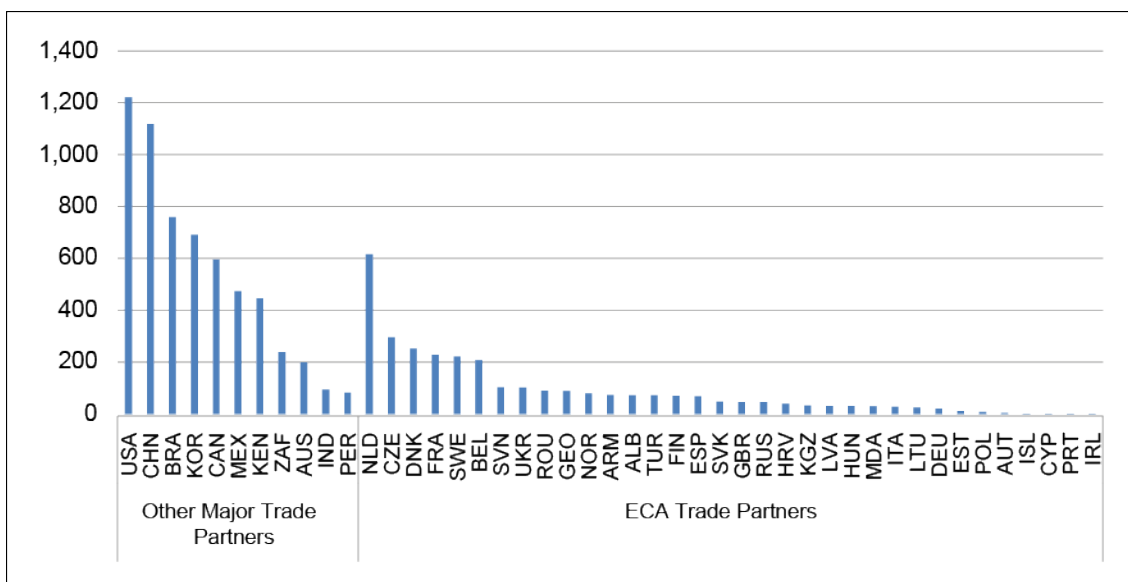
After facilitating the exports of their firms, transforming countries should focus on the trade barriers their firms face in the importing countries. Firms can face many trade barriers: while high tariff rates are no longer an issue in many countries, firms exporting physical goods face NTMs such as technical regulations and conformity assessment. Small-sized firms are the worst affected by NTMs, as they often lack the resources and capacity to deal with them. One group of NTMs involves technical barriers to trade (TBTs), which are regulations and standards that establish specific product characteristics (size, functions, and performance) and labeling or packaging requirements before the product can be imported. Intra-EU exports do not face TBTs, but the ECA countries that are not within the EU will have to meet the EU technical regulations. Within ECA, the Netherlands, Czech Republic and Denmark have the highest numbers of TBTs imposed in 2015 (Figure 21). An ECA firm is also likely to face many TBTs if it chooses to export to other major markets outside of ECA. For example, the United States imposed over 1,200 TBTs and PRC imposed over 1,100 TBTs in 2015.

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<sup>41</sup> Fernandes, et al. (2015) described the IT improvements in Albania using the updated ASYCUDA package, which has a risk management module allowing customs authorities to improve their risk management systems and inspection processes.

<sup>42</sup> Kommerskollegium (2011).

**Figure 21: ECA Firms will Face Many Trade Barriers in Major Trading Partners**



Source: WITS Database.

ECA firms exporting online services also face restrictions in entering markets, as countries may not recognize the foreign firm or subject the firm to onerous domestic regulations. Countries may have offered access to certain service sectors under its commitments in the WTO General Agreement on Trade in Services (GATS) but the GATS was negotiated in the time when the Internet was not prevalent (pre-1995).<sup>43</sup> There are WTO cases where a country denied access to a foreign online services provider even though it committed to open up that service sector in the GATS.<sup>44</sup> A study of French firms finds that they are less likely to export services to highly regulated markets and the deterrence of regulations is still present in EU countries where there is no discrimination between the EU firms.<sup>45</sup> EU countries have tried to ban the online sale of services from other EU countries: Germany tried to ban the online sale of over the counter pharmaceuticals; and Hungary tried to ban the online sales of contact lenses because it required the sale of contact lenses to be in a physical store with a minimum of 18 square meters.<sup>46</sup> These countries argued that the requirement was applied equally on all firms, but the bans go against the EU principle of free movement of goods and services. These countries were unsuccessful and it took a legal case to settle this issue which creates uncertainty and costs for exporting firms. Finally, export of services over the Internet can be complicated by issues of intellectual property (IP), where countries cannot access content from other countries as they are under different IP regimes. Countries have to be cognizant of the issues firms may face when exporting services online and either pre-emptively handle these issues in trade agreements or provide support to firms when they face such barriers in the importing country.

<sup>43</sup> The definition of online services is unclear in the access commitments as it can be Mode 1 services (the cross border supply of services where the service is delivered to a country from another country) or Mode 2 services (services consumed outside the individual's country).

<sup>44</sup> See the WTO dispute settlement case (no. DS285) regarding the provision of online gambling services by Antigua and Barbuda to the United States.

<sup>45</sup> Crozet et al. (2015).

<sup>46</sup> Kommerskollegium (2011).

Transforming countries may face a difficult task of reducing the barriers to digital trade in the importing countries, depending on a country's bargaining power and the trade partner's interests. These issues can be handled bilaterally between countries but for many ECA countries, it is better to approach the issue at the international or regional level. The WTO has been working on issues of NTMs, and has created a lot of momentum behind the trade facilitation agenda, especially with the conclusion of the WTO Trade Facilitation Agreement in 2013. This agreement raises the issue of good trade facilitation practices and will help to reduce the costs firms face from NTMs. Unfortunately, international efforts for access to services sectors has been slower at the international level. Since the transforming countries are all within the EU, they can use the EU working groups and discussion forums to address barriers to services trade. If the issue concerns an EU firm accessing other non-EU markets, these countries can rely on the regional grouping to provide bargaining power, especially with larger trading partners like the United States.

Even though the focus has been on firms and the supply-side issues of digital trade, countries should also examine if there are demand-side issues. Consumers may lack the trust to purchase things online either because they do not trust the online merchants or they do not trust the payment systems. Online marketplaces such as eBay have instituted rating systems and other programs to increase the consumers' trust of online sellers.<sup>47</sup> The lack of consumer protection legislation can make consumers particularly reluctant to purchase from foreign sellers, as may be difficult to obtain refunds or protection against fraud by overseas sellers. The EC recognizes that these demand-side issues are also important and are being tackled in the EU Digital Single Market agenda.

## 6. NEW CHALLENGES IN DIGITAL TRADE

The increase in data flows that accompany digital trade flows presents new challenges for firms. Service exports that are delivered over the Internet are essentially data flows on the Internet infrastructure. Goods exports also often require significant data flows: firms are using consumer data to manufacture more customized goods, provide customer service and complete online transactions. Even physical shipments rely on data flows, as these shipments have data packets that contain information about the good and customer and provide traceability of the goods through the Internet of things (IOT). There are, however, barriers to these data flows that can impede the free flow of digital trade. Countries are erecting new barriers to data flows amidst concerns about privacy and security. These concerns may be legitimate but some countries are using these barriers to protect local firms.

Many countries are erecting new barriers to cross-border data flows, even as data flows increase with more digital trade. Firms need a free flow of data to operate across national borders, especially as production processes become more fragmented and goods and services become more digitized. Large multinational firms will have to transfer data within the firm to control and coordinate their international operations: manage their workers and production processes, transfer technical and marketing data, supervise and maintain an efficient supply chain, and control the financial payments and transactions. The emerging exports of digitally-enabled services and digital goods such as music, books and media content will increase the need for a free flow of data. There are, however, new concerns that countries are imposing barriers on cross border

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<sup>47</sup> Lendle et al. (2012) find that eBay reduces the information frictions and increases trust for online buyers.

data flows and preventing sensitive information from leaving the national borders.<sup>48</sup> Some barriers imposed are legitimate. For example, EU citizens have concerns about privacy and data misuse, and the EC has implemented strict regulations concerning how and where this data is handled. The EU has recently concluded the new Privacy Shield Framework with the United States to govern trans-Atlantic data transfers that aims to meet privacy concerns. But other countries may impose barriers because of a need to protect local industries. A study that simulated the effects of these data barriers on the local economy estimates that data barriers can reduce GDP and exports by 1.7 percent each.<sup>49</sup>

The cross-border nature of data flows presents new challenges for ECA countries that are interested in promoting more digital trade. Within their own borders, ECA countries have to balance their citizens' concerns about privacy and security and the private sector's need for free flow of data to participate in digital trade and GVCs.<sup>50</sup> Storing the data locally may not be more secure compared to storing the data in dedicated secure servers overseas. When faced with barriers on data flows imposed by other countries, ECA countries can ensure that they have strong regulations that protect data following internationally recognized principles, such as the OECD's Privacy Guidelines and its Declaration on Cross Border Data Flows and the APEC's Privacy Framework. Barriers to data flows can also be approached in international and regional agreements, such as the Trans-Pacific Partnership Agreement which includes an e-commerce chapter with provisions that protect the flow of data.

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<sup>48</sup> Chander and Le (2015) provides a good summary of data nationalism examples in France, Germany, Russian Federation and other countries.

<sup>49</sup> Bauer et al (2014).

<sup>50</sup> UNCTAD (2016) has a set of policy guidance for countries in this area.

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