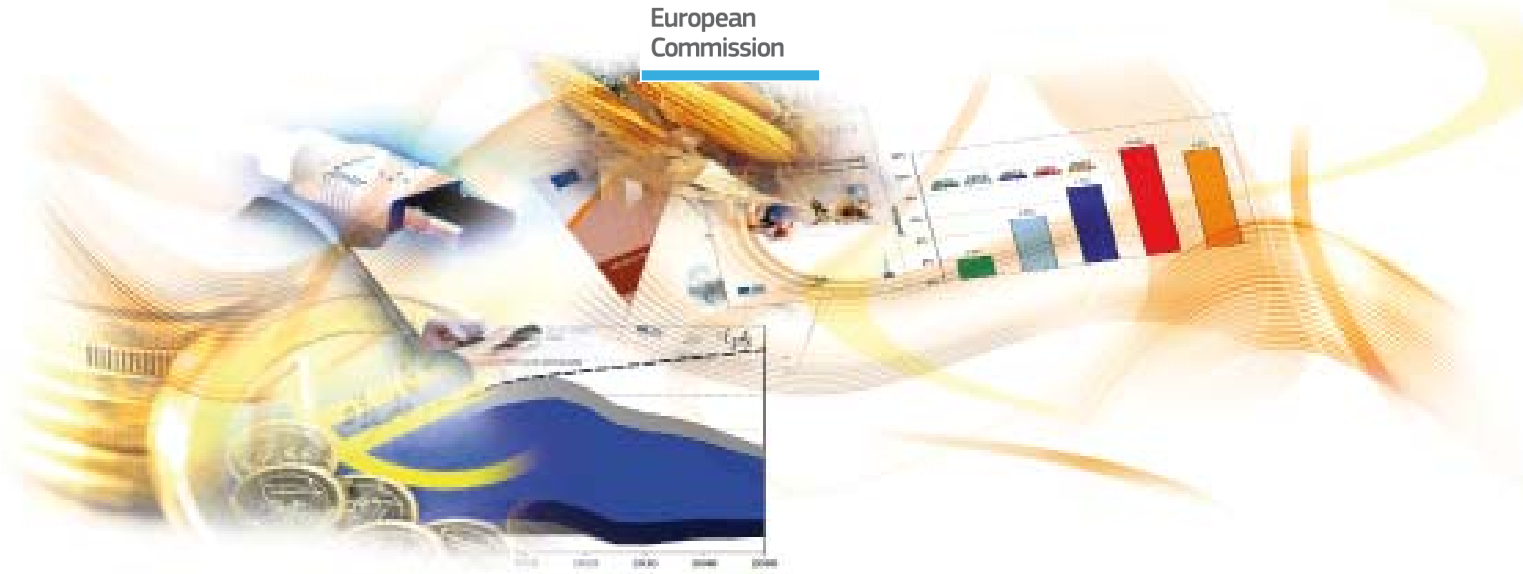




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What does Economic Research tell us about Cross-border e-Commerce in the EU Digital Single Market?

A Summary of Recent Research

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Abstract

This working paper presents a non-technical summary of the latest economic research studies on cross-border e-commerce in the EU and elsewhere, and combines this with findings from older research on this subject. It compares online with offline cross-border trade and investigates the differences in drivers and impediments to both. It also looks into research findings regarding consumer motives for shifting from offline to online trade and explores possible sources of increased consumer benefits that result from this shift. Finally, it flags issues for further research. The main purpose of this working paper is to bring the findings from recent research together in a coherent framework and make it accessible to stakeholders and decision-makers involved in EU policy-making on the Digital Agenda for Europe and the EU Digital Single Market.

1. Policy background

One of the most important EU economic policy domains is its Single Market policy that seeks to eliminate barriers to cross-border flows of goods, services, capital and labour between the 27 EU Member States. In the digital age, these "four freedoms" should be extended to cover digital products: hence, the notion of a Digital Single Market (DSM) as a policy priority in the DAE.¹ EU Single Market rules should be updated to encompass digital technologies. Despite the promise of digital technology for a border-free world where geographic distance can be overcome with a mouse click, there is a perception that a variety of regulatory obstacles, interoperability problems and market segmentation strategies still stand in between online consumers and their potential suppliers across the border.

The Digital Agenda for Europe (DAE) is the European Commission's policy programme set up to help Europe's citizens and businesses to get more benefits out of digital technologies. The DAE includes regulatory initiatives to modernise the legal framework to achieve a DSM. It also sets targets for e-commerce:² 50% of the population should be buying online by 2015, 20% should buy cross-border and 33% of SMEs should conduct online purchases by this date. According to the EU Digital Scoreboard (2012), 43 percent of online citizens were doing e-commerce and 10 percent were involved in cross-border transactions in 2011. According to IPTS estimates, total EU e-commerce reached around 240 billion € in 2011, of which 44 billion € was cross-border trade between EU Member States and 6 billion € imports from outside the EU. This compares to offline trade between EU Member States (for the same goods) of about 490 billion €. Online cross-border trade in the EU accounts for some 8.7 percent of all intra-EU offline trade (for the same goods).

The European Commission adopted an [e-Commerce Communication](#)³ in January 2012 that contains 16 actions aimed at doubling the volume of e-commerce in Europe by 2015. This includes proposals to streamline postal delivery, initiatives in the area of card, electronic and mobile payments and an overall strategy on internet security in Europe.

¹ For further details, see <http://ec.europa.eu/digital-agenda/en/our-goals/pillar-i-digital-single-market>

² For details, see <http://ec.europa.eu/digital-agenda/en/pillar-i-digital-single-market/action-9-updating-ecommerce-directive>

³ See "Communication on e-commerce and other online services" at http://ec.europa.eu/internal_market/e-commerce/communications/2012/index_en.htm

The JRC/IPTS Digital Economy Research Programme provides policy relevant research support to the DAE. The research questions that it addresses include: how much online cross-border trade is there in the EU Digital Single Market? What do the data tell us about drivers and impediments to cross-border trade and what can policy makers do to reduce obstacles? A major obstacle to research on e-commerce is the scarcity of official statistics in the EU. Most e-commerce data are held by private companies that are active in online trade. Recently, researchers have been able to get some (partial) access to these data and use them for analytical work on the patterns of cross-border e-commerce, both in the EU and elsewhere in the world. In December 2012, the IPTS brought these economic researchers together in a workshop in Brussels to compare data and findings and attempt to draw some preliminary policy conclusions from that research. This paper summarizes the papers that were presented at this workshop and combines them with findings from earlier papers. It also explores areas for further research on e-commerce.

2. Is it easier to trade online than offline?

While there is a very large body of studies on traditional offline cross-border trade in goods and services, very few researchers have looked into online cross-border trade, mainly because of the absence of data. The main question is whether electronic online trade lives up to the promise of "the death of distance" (Cairncross, 1997)? Can it overcome geographical distance-related trade costs and other trade barriers with a mouse click? Or are there other barriers that emerge with online trade? Some earlier research suggested that distance is not entirely dead on the internet. Blum & Goldfarb (2006) analyze cross-border internet click-stream traffic and find that geographical distance still plays a role for taste and culture-dependent products. Distance reduces the likelihood of a shared cultural context. Hortaçsu et al. (2009) are the first to look at online trade in physical goods, using data on intra-US online trade from eBay and cross-border US-Mexico trade from MercadoLibre. They conclude that distance still has an impact on trade, though less so in online than in offline transactions.

Three new studies on online cross-border trade became available recently. Lendle, Olarreaga, Schropp & Vezina (2012) compare the impact of distance on online cross-border trade on eBay and on offline international trade flows. Using the same set of 62 countries and the same basket of goods for online and offline trade, they find the effect of distance to be on average 65 percent smaller on the eBay online platform than offline. Distance effects vary considerably by product

category. The reduction in distance costs is explained by a reduction in information costs and trust frictions that are enabled by means of online technology. Remote countries that are little known, with weak institutions, high levels of income inequality, inefficient ports, and little internet penetration benefit the most, as online markets help overcome government and offline market failures.

Cowgill & Dorobantu (2012) use domestic and cross-border data from Google AdWords that tracks clicks on ads and various types of conversion of this click into a purchase or other valuable online actions. They also find a reduction in distance-related trade costs by about two thirds. However, in line with Blum & Goldfarb (2006), their results also show that cultural distance, measured by (the absence of) a shared language and religion, matters. The trade costs related to cultural distance may increase six to tenfold when moving from offline to online trade. To assess the net impact of these increases and decreases in online trade costs (compared to offline costs), the authors estimate the "border effect" (McCallum, 1995) or home bias: to what extent do consumers have a natural preference for domestic over cross-border purchases? They find that the border effect is very much alive in online trade and can in some estimates turn out to be even stronger than offline.

Gomez, Martens & Turlea (2013) use data from an EU e-commerce consumer survey to construct a dataset of online B2C domestic and cross-border trade in goods between the 27 EU Member States. In line with the above studies, they find a strong reduction of about one third in geographical distance-related trade costs when EU consumers move from offline to online trade. At the same time, the trade costs associated with crossing language barriers double for online trade. The net effect of these positive and negative changes in trade costs results in an online border effect that remains similar in magnitude compared to offline trade in the EU. The authors also examine the role that e-commerce enabling infrastructure plays in facilitating cross-border e-commerce such as the cross-border interoperability of payments systems and the cost-efficiency of parcel delivery systems. Sophisticated online payments systems such as PayPal have a positive impact on cross-border trade. The role of parcel delivery costs is less clear, though this may be due to data limitations. Anson & Hebble (2012) confirm that trade friction variables such as distance and language turn out to be relevant in international parcel delivery as well, thereby offering an independent confirmation of the importance of these variables. A possible weakness in this survey-based study is that consumers may not always know whether they are doing a

domestic or a cross-border online transaction. Websites have many ways to obfuscate the actual point of supply of the products sold online.

Note that the direct comparison of online and offline trade patterns has some limitations. The above studies make sure to compare the same final consumer goods in offline and online trade. However, the organization of the supply chain is different. Online cross-border trade is essentially business-to-consumer (B2C) trade while offline trade is carried out on a business-to-business (B2B) basis between companies and wholesalers who distribute the goods in domestic markets. B2C is a marginal phenomenon in offline markets. These differences may affect home bias. There is to our knowledge no research yet on online cross-border B2B trade.

Einav et al (2012) use eBay data for trade across state borders in the US to examine how differences in sales taxes between states affect cross-border trade patterns. They find that a one percentage point increase in a state's sales tax decreases online purchases from home-state retailers by 3-4 percent. EU cross-border e-commerce may be subject to similar effects because of differences in VAT rates across member states.

The DAE also includes a policy target to bring a third of all SMEs online to do their procurement. In another study, Lendle et al. (2012b) demonstrate how the eBay platform facilitates exports for SMEs. It uses eBay sellers' data in five countries to replicate existing research on offline firm-level exports and compare this with online exporters on eBay. They show that fixed costs for cross-border trade on eBay are very low compared to offline trade. SME sellers on eBay are more specialized than offline sellers, almost all of them export to other countries and to more destinations than offline exporters. Reductions in marketing costs on the eBay platform may be part of the explanation. However, trade costs associated with regulatory differences do not necessarily differ between offline and online platforms. eBay underlined that it draws sellers' attention to the need to respect regulation. The empirical evidence presented here shows that there may be strong benefits for SMEs in bringing their sales online because it opens up a much wider export market at lower marketing costs.

3. Consumer benefits from online trade

Even if home bias in cross-border e-commerce remains high that should not worry us too much. The ultimate objective of the cross-border e-commerce facilitation actions proposed under the

DAE is to increase consumer welfare, not cross-border trade in itself. Welfare effects may occur through several channels.

Trade costs constitute a first transmission channel. The above-cited studies converge around the conclusion that online trade results in a substantial reduction in distance-related trade costs. This makes it relatively cheaper to buy foreign products. Online trade increases the geographical catchment area both for suppliers and consumers. This increases online competition and reduces online prices. However this may, in turn, put downward pressure on the price of all supplies, both online and offline and domestic as well as foreign. Over the last decade, many researchers have focused on the consumer welfare impact of this price effect (Brynjolfsson, Hu & Smith, 2003; Goolsbee, 2001). Recently, Lendle et al (2012) estimate the consumer welfare gains from an across-the-board reduction in offline trade costs to the level prevailing in online trade at a whopping 29 percent on average. As online trade has become more prevalent and offline suppliers have felt the pinch from online competition, online and offline prices may tend to converge however. An online price comparison report carried out on behalf of the European Commission (CMSC, 2011) could not find evidence in support of sustained differences between online and offline prices for identical products. This may be an indication that competition between online and offline markets is becoming more effective and that price differences are not necessarily the main sources of consumer benefits. On the other hand, we should bear in mind that online trade cost reductions may be (partially) undone by new sources of online trade costs, as some of the above studies demonstrated.

A second channel for consumer benefits is the increase in variety of goods available – actually a derived effect from trade cost reductions. The wider range of online product variety is a source of consumer welfare: consumers get better access to the things they actually want (Dixit & Stiglitz, 1977). Some studies look into variety-related consumer welfare gains from online trade but the research literature on this subject is sparse and mostly at product level. Following the methodology developed by Brynjolfsson, Hu & Smith (2003), a study by Civic Consulting (2011) on behalf of the European Commission estimates that, in the current fragmented EU DSM and with an online market share of 3.5 percent of total sales, consumer welfare gains from lower online prices could reach 2.5 billion Euro and 9.2 billion € from increased online choice, or a total of 11.7 billion €. If internet sales would increase to 15% of total sales, total welfare gains could increase to over 200 billion € per year.

Last but not least, consumer welfare may increase because transactions costs or information costs for consumers diminish when moving online. Transaction costs have two sides. First, there is a real costs (and potential cost savings) side. Local shops may offer a lot of variety, but to assemble all that information, including product reviews, takes a lot of consumer time and effort in the offline world, much more than online. Time gains from online transactions are insufficiently studied. Few papers look into this question (Brynjolfsson & Hu, 2012; Goolsbee & Klenow, 2008; Cooper, 2013 forthcoming). Second, there is the more qualitative consumer risk perceptions or trust aspect. This usually has a negative impact: risk perceptions hold consumers back from going online. Again, the role of risk perceptions in consumer motivations is insufficiently studied.

4. Some policy conclusions and suggestions for further research

4.1. The above-cited studies on patterns of cross-border e-commerce come to very similar conclusions. Overall, cross-border e-commerce significantly reduces distance-related trade costs, mainly because information costs are reduced. However, other culture-related trade costs play a more prominent role online, including the cost of overcoming linguistic and cultural barriers. On balance, there is no evidence yet that suggests that consumer preference for domestic over foreign purchases is lower online than offline. The promise of the "death of (geographical) distance" may to some extent be replaced by a strengthening of cultural and linguistic distance. Online infrastructure components such as an efficient parcel delivery system and interconnected electronic payments systems may somewhat reduce trade costs and facilitate cross-border e-commerce but they are unlikely to fundamentally change the observed behavioural patterns.

The EU Digital Agenda has set a number of policy targets for e-commerce in terms of the use of online trade. By 2015, the EU would like to have 50 percent of its citizens buying online and 20 percent engaged in cross-border online trade. Reaching the first target will largely depend on consumers feeling comfortable in online activities and their trust in online transactions. The second target however is very much determined by the extent of home bias in consumer preferences. The cultural barriers that attenuate the beneficial impact of reduced distance costs in online trade fall largely outside policy makers' reach. Policy instruments such as improved connectivity between online payment systems and promoting efficient parcel delivery systems offer the best route towards achieving that policy target.

The EU DSM remains segmented by regulatory barriers and sometimes by deliberate geo-blocking by suppliers. This reduces price competition and the variety of goods available to consumers. Geo-blocking is often related to copyright protected goods. For example, national copyright management systems facilitate this form of market segmentation. The absence of full harmonization of national consumer protection legislation in EU Member States may also explain why suppliers are hesitating to produce a range of varieties of the same product for different markets. More research is required to explore these drivers of market segmentation.

4.2. Reduced online trade costs, compared to offline trade, could be an important source of consumer benefits. However, even if the shift from offline to online transactions would not fundamentally affect the balance of trade costs or consumer preferences for domestic suppliers, there are other sources of consumer welfare benefits to be expected from this shift. Increased price competition in online and offline markets, increased variety of supply and consumer choice available through online suppliers, and reductions in consumer transaction costs (time gains, transport costs) could still constitute important sources of welfare gains. Some preliminary and partial estimates point in that direction but there is still some way to go to build up robust empirical evidence in this regard.

Policy measures to promote online trade should not just seek to increase the volume of cross-border e-commerce per se but to boost the consumer welfare impact of cross-border e-commerce. The European Commission's Communication on e-commerce (2012) proposes measures to boost price transparency, to increase the variety of online supply by reducing regulatory barriers and to improve consumer confidence in online transactions. More research on these issues would be welcome.

4.3. The December 2012 e-commerce workshop concluded the first year of e-commerce research activity under the JRC/IPTS Digital Economy research programme. It brought together a small network of researchers working on cross-border e-commerce. It demonstrated the progress made recently in datasets that document cross-border e-commerce trade in the EU and elsewhere and provided a first set of empirically validated explanations for the observed trade patterns. In 2013-2014, the IPTS will continue its research activities on cross-border e-commerce in the EU Digital Single Market. We aim to produce more detailed cross-border e-commerce estimates, moving from the macro-economic to the product or sector level and exploring possible differences in trade patterns across sectors. We also aim to further refine the

research into drivers and barriers to e-commerce, looking at consumer risk perceptions and further explore the role of parcel delivery systems, online payments systems, fiscal, legal & regulatory issues. Finally, we would like to produce more robust estimates on the economic impact of the shift from offline to online trade. The comparison of home bias in offline and online cross-border trade needs more research before this question can be effectively addressed.

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Abstract

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