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IN SEARCH OF CROSS-BORDER E-COMMERCE TRADE DATA

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In Search of Cross-border E-commerce Trade Data

This technical note is based on a study commissioned by UNCTAD and prepared by lead consultant Michael Minges, with contributions and guidance from Torbjörn Fredriksson, Diana Korka and Scarlett Fondeur of UNCTAD. It includes comments received from Paul Donohoe and José Ansón of UPU. The note was prepared by UNCTAD as a contribution to a joint effort by the World Trade Organization (WTO), the Universal Postal Union (UPU) and UNCTAD to improve the availability of statistics on cross-border e-commerce.

1 Introduction

This report explores possible sources of data for gauging cross-border e-commerce. Business-to-Business (B2B) e-commerce accounts for the dominant share of global e-commerce and is therefore also likely to be the most important component of cross-border sales online (UNCTAD 2015a). However, as data on B2B e-commerce are generally scarce, attention is also given to consumer-oriented shopping (i.e. Business to Consumer (B2C) and Consumer-to-Consumer (C2C) (see Box 1.1).

In general, there is scant information on cross-border e-commerce. Most estimates of e-commerce do not make a clear distinction between whether it is domestic or international. What official statistics that exist are typically derived from either enterprise surveys or consumer surveys. The former can capture B2C and B2B e-commerce, while consumer surveys capture B2C and C2C transactions.

There are various definitions of e-commerce. This report uses the one adopted by the Organization for Economic Cooperation and Development (OECD):[1]

> *"...the sale or purchase of goods or services, conducted over computer networks by methods specifically designed for the purpose of receiving or placing of orders. The goods or services are ordered by those methods, but the payment and the ultimate delivery of the goods or services do not have to be conducted online. An e-commerce transaction can be between enterprises, households, individuals, governments, and other public or private organisations. To be included are orders made over the web, extranet or electronic data interchange. The type is defined by the method of placing the order. To be excluded are orders made by telephone calls, facsimile or manually typed e-mail.*"

Box 1.1: Types of e-commerce

- **Business-to-business (B2B).** B2B accounts for the bulk of the value of e-commerce. It can involve online versions of traditional transactions related to goods that are subsequently sold to consumers via retail outlets. It can also involve the provision of goods and services to support other businesses, for example because of outsourcing and offshoring. There are various specialized B2B platforms, typically catering to certain industries or value chains.
- **Business-to-consumer (B2C).** B2C involves sales by "pure play" e-commerce enterprises to consumers and by traditional bricks-and-mortar retail or manufacturing firms that add an online sales channel. There is a wide range of channels to reach consumers, including social networks, crowdsourcing platforms, dedicated e-commerce websites, mobile applications and more. The products sold may be physical goods as well as digital products and services.
- **Consumer-to-consumer (C2C).** C2C e-commerce can be seen as a modern version of the classified advertising section in a newspaper or an auction. It covers online marketplace platforms (e.g. eBay or Taobao), and sales within online communities, consumer blogs and chat rooms.
- **Business-to-government (B2G):** B2G transactions are similar to B2B, except that the buyer in this case is a government entity, such as when it makes requests to bid through public e-procurement.

Source: UNCTAD, 2015a.

Further distinctions can be made by type of product, target market, and device used in placing orders. E-commerce may involve physical goods, services purchased online but delivered in person, as well as intangible products (goods and services) that can be delivered digitally.

[1] http://www.oecd-ilibrary.org/sites/sti_scoreboard-2011-en/06/10/index.html?contentType=&itemId=%2Fcontent%2Fchapter%2Fsti_scoreboard-2011-64-en&mimeType=text%2Fhtml&containerItemId=%2Fcontent%2Fserial%2F20725345&accessItemIds=

This report reviews the availability of data related to cross-border e-commerce from the perspective of official statistics, as well as from private sector sources, such as company reports and market research. One challenge with data from private sources is lack of detail on the methodology used, for example about whether both goods and services are included. Various proxies that might be linked to cross-border e-commerce are examined for their possible relevance. The report concludes with observations about developments in cross-border e-commerce and recommendations for improving and enhancing its statistical measurement.

2 Official statistics on cross-border e-commerce

This section looks at official sources on e-commerce statistics compiled by government agencies and others, and that have some element of cross-border information. First, it looks at both enterprise survey data (supply side) and consumer survey data (demand side). These two survey types help highlight each a different aspect of cross-border e-commerce. Typically enterprise surveys capture e-sales by resident firms to foreign consumers and enterprises (B2B and B2C). Individual surveys capture e-purchases of residents from foreign businesses or individuals (B2C and C2C). The section ends by introducing two additional comprehensive official data sources which can be interesting proxies for cross-border e-commerce: balance of payments statistics and statistics on postal shipments.

2.1 Enterprise survey data

A significant number of countries undertake enterprise surveys, some of which include questions or modules on ICT use. In line with the recommendations by the Partnership on Measuring ICT for Development, typical questions related to e-commerce are whether enterprises received or placed orders over the Internet. Such orders may relate to both B2C and B2B e-commerce, and include both domestic and international transactions.

Some enterprise surveys also enquire about the value of orders received or placed over the Internet. Ideally, this would include the amount of such sales broken down by B2B and B2C, as well as distinguishing between domestic and cross-border orders. Unfortunately, many countries that collect data on business e-commerce sales do not include questions about the share or value of cross-border transactions. This is especially the case among developing countries.

Given that B2B accounts for the bulk of e-commerce worldwide and is likely to have the greatest impact on international trade, enterprise surveys may offer the greatest potential for improving the availability of more reliable estimates of cross-border e-commerce.

Enterprise surveys should offer the opportunity to compare data on cross-border ecommerce with data on enterprise exports. This could be achieved by either including e-commerce-related questions in surveys on trade by enterprises or by including a question related to trade in existing e-commerce surveys.

Below are a few examples of existing official e-commerce statistics with a cross-border element. All the examples refer to data from developed countries.

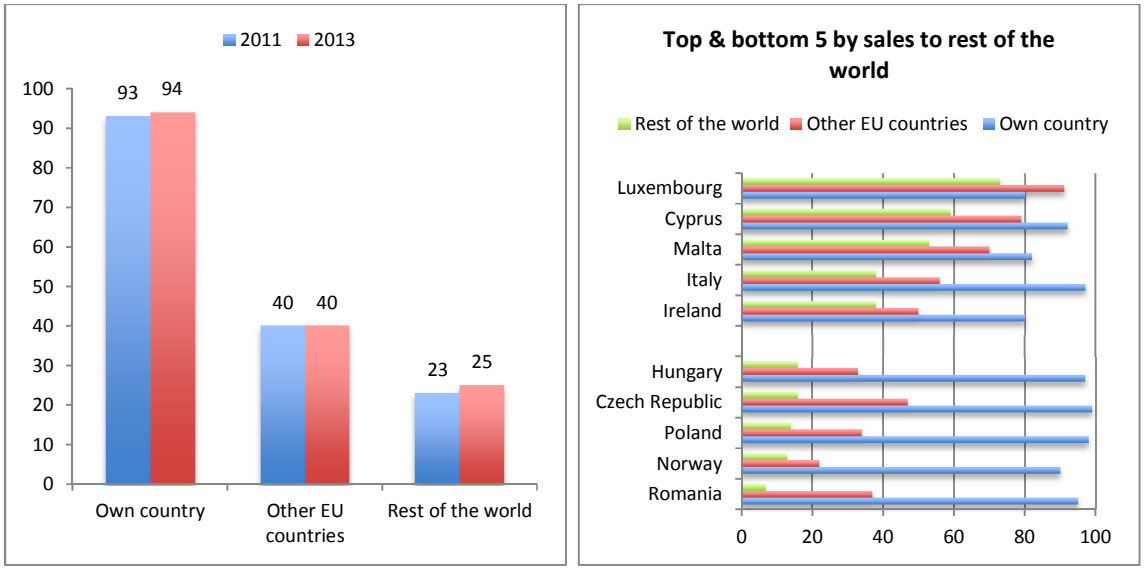
2.1.1 Examples of data collected from enterprise surveys

Eurostat disseminates every two years data on whether enterprises have carried out sales overseas using the Internet (Figure 2.1). The data refer to the proportion of enterprises that has conducted such sales (received such orders) but do not provide information on the corresponding value. The data refer to total Internet sales, and do not distinguish between B2B and B2C. As regards the cross-border aspect, the survey collects information on the destination of e-sales to own country, to other EU countries and to the rest of the world.

Some two fifths of EU enterprises that sell over the Internet have sales to the EU while a quarter has online sales to the rest of the world. The proportion did not change much between 2011 and 2013. With

the exception of Italy, smaller economies are most active in selling to the rest of the world. Some minor adjustments to the EU ICT in enterprises survey would allow for distinguishing between overseas B2B and B2C sales. This is discussed below.

Figure 2.1: Proportion of enterprises selling cross-border (as a share (%) of enterprises with e-commerce sales), Europe



Note: Refers to all Internet sales (B2B and B2C) over the last 12 months for enterprises with 10 or more employees excluding the financial sector.
Source: Adapted from Eurostat.

Statistics Canada compiles e-commerce data from three data sets, each of which capturing a different side of the cross-border aspect, however without providing a total figure of cross-border e-commerce.[2] Two of the datasets were obtained from enterprise surveys and the third from a survey of individuals (Table 2.1).

The *Survey of Digital Technology and Internet Use* is an enterprise survey that provides data on the proportion of overseas Internet sales of all Canadian enterprises.[3] This refers to both B2B and B2C sales and is broken down by sales to the United States and to the rest of the world.

The *Annual Retail Trade* and *Annual Non-store Retail Surveys* are enterprise surveys that report retail e-commerce trade and are limited to the retail sector. However, the amount spent by *foreign* consumers on Canadian online shops is not available.[4]

The *Canadian Internet Use Survey* captures consumer online spending on goods and services originating from both home and abroad, however no estimate is published of the cross-border proportion. No estimate is provided for C2C either.

[2] http://www.statcan.gc.ca/daily-quotidien/140708/dq140708b-eng.htm

[3] http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=3580230&&pattern=&stByVal=1&p1=1&p2=31&tabMode=dataTable&csid=

[4] http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=0800026&pattern=080-0011%2C080-0012%2C080-0013%2C080-0023%2C080-0025%2C080-0026&tabMode=dataTable&srchLan=-1&p1=-1&p2=-1

Table 2.1: Different surveys and e-commerce estimates with a cross-border element, Canada, 2012

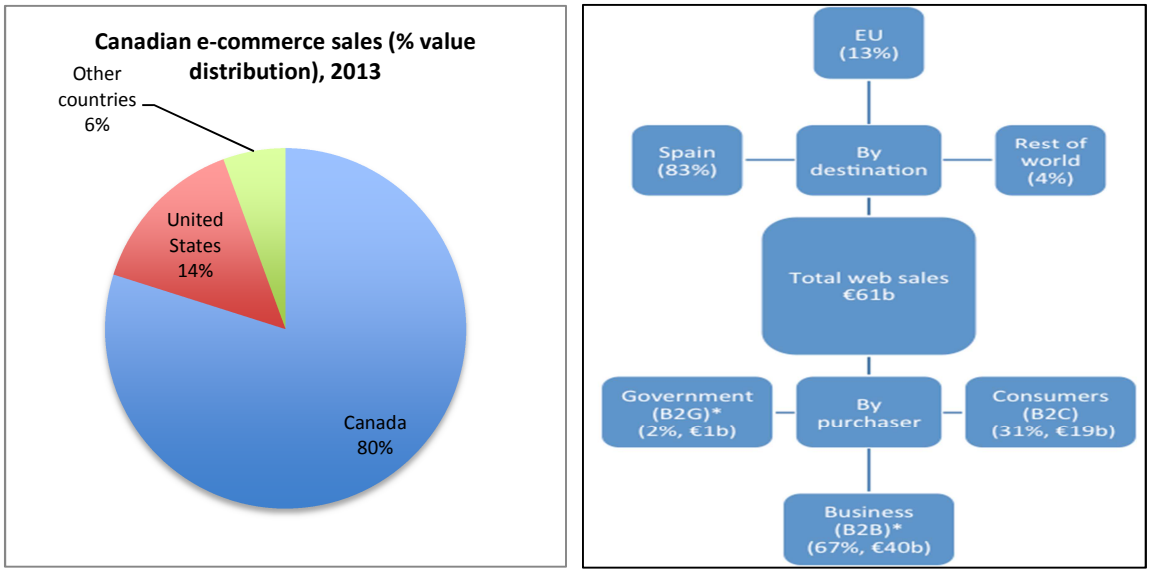
Survey	Amount (C$ bn)	Description
Annual Retail Trade Survey and the Annual Non-store Retail Survey (sector-specific enterprise survey)	7.7	Retail e-commerce sales are defined as the purchase or commitment to purchase goods or services over the Internet. The figures include sales by retailers that sell both through a store and their website in addition to retailers that operate with no physical presence. Internet purchases from non-Canadian retailers and sites are excluded. E-commerce sales by Canadian retailers to international parties are included. An enterprise may be classified to the retail trade even if establishments within are actually part of another sector such as wholesaling or manufacturing.
Survey of Digital Technology and Internet Use (enterprise survey)	13.4	This figure includes online sales to consumers and businesses in any country and differs from data from retail trade surveys because it is conducted at the enterprise level.
Canadian Internet Use Survey (survey of individuals)	18.9	Reports on types of products purchased and the value of e-commerce by individual Canadians. The estimate includes purchases by individual Canadians from any country and of any type of item including those that are not captured in retail sales such as travel arrangements or entertainment tickets.

Source: Based on Statistics Canada and most recent data available: http://www.statcan.gc.ca/daily-quotidien/140708/dq140708b-eng.htm.

Based on the surveys mentioned above, it is estimated that Canadian enterprises in 2012 made C$ 13.4 bn in Internet sales. The share of foreign consumers (businesses and individuals) was about 20% (Figure 2.2, left).

In the case of data compiled by the national statistics agency in Spain, total web sales of enterprises with 10 or more employees can be broken down by destination (Spain, EU, rest of the world) (Figure 2.2, right). Data are also available on the value of total web sales by purchaser (consumer, business or government).

Figure 2.2: Canadian e-commerce sales by destination, 2013 and Spanish e-commerce web sales by destination and purchaser, 2014-15



Note: * This only includes web sales and therefore is only part of the total for B2B and B2G.
Source: Adapted from Statistics Canada and Instituto Nacional de Estadística (INE), Spain.

The Japanese Ministry of Economy, Trade and Industry (METI) is the only known *official* source for data on the value of bilateral B2C trade for selected destinations. METI reported that total B2C sales between Japan, China and the United States for 2014 amounted to US$21 billion (Table 2.2). For example, Japanese consumers purchased almost ten times more (in value) from the United States than from Chinese shopping web sites, whereas the split between US and Chinese consumers was roughly equal. One factor driving United States residents to purchase from Asian web sites is the large diaspora--there were 2.5 million Chinese born and over 300,000 Japanese born US residents in 2014.[5] Asian e-commerce companies are stepping up efforts to tap into these consumers through English web sites and logistics and shipping partnerships.[6]

Table 2.2: Cross-border B2C trade between Japan, China and the United States, 2014, US$ million

Purchases from web sites in→ Consumers in↓	**Japan**	**USA**	**China**	**Total**
Japan		$1,786	$186	**$1,973**
USA	$4,604		$3,089	**$7,692**
China	$5,735	$5,949		**$11,683**
Total	**$10,339**	**$7,735**	**$3,275**	**$21,349**

Note: Converted to US$ using 2014 annual average exchange rate.
Source: Adapted from METI 2015.

2.1.2 Towards improving the comparability of data on trade and cross-border e-commerce

The examples above show that in developed economies a small but significant proportion of enterprises sell online to customers abroad and foreign customers make up for a significant proportion of Internet sales. However based on available data it is not possible to directly assess the proportion of cross-border e-commerce in trade statistics.

Supply side enterprise surveys could be revised to capture both export sales as well as cross-border e-commerce sales. For example, Eurostat's enterprise survey could be adapted to include a few questions about the proportion of e-commerce sales to domestic and overseas customers and about the proportion of total sales to domestic and overseas customers (Table 5.1).

Alternatively exiting linked trade and business register data collection initiatives, such as the trade by enterprise characteristics enterprise survey could be adapted to include a few questions on e-commerce (domestic and abroad).

2.2 Consumer survey data

Many countries conduct surveys of households and individuals to obtain data on consumption patterns. Where such surveys include data on online shopping, they typically cover B2C and C2C e-commerce, domestic and cross-border. However, they do not capture information on B2B transactions.

2.2.1 Examples of data collected from consumer surveys

Eurostat collects data on the proportion of overseas online purchases made by Internet users in EU countries. A distinction is made between online purchases from another EU member and from non-EU countries. It is assumed that these are retail purchases. Another important assumption is that Internet users are aware that the site is actually overseas and not a site owned by a foreign company based in their own

[5] U.S. Census Bureau, 2014 American Community Survey 1-Year Estimates http://factfinder.census.gov/bkmk/table/1.0/en/ACS/14_1YR/S0201//popgroup~762|770.

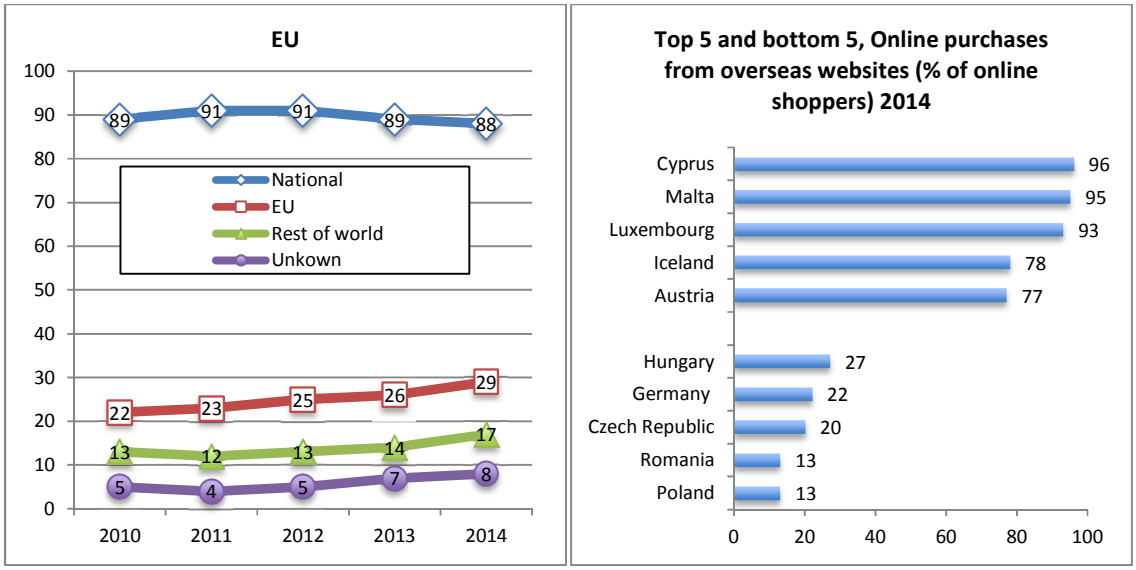
[6] South China Morning Post. 2014. "Time for Amazon to Move over? China's Alibaba Takes on the World," September 10. http://www.scmp.com/news/china/article/1589639/alibaba-taps-chinese-diaspora-global-reach-it-takes-amazon.

country. The latter point is relevant given that e-tailers, such as Amazon, or marketplaces, such as eBay, also have overseas sites. Data are not collected on the value of purchases made online.

The proportion of online shoppers purchasing from national sites (88% in 2014) did not fluctuate much over the past five years. The proportion purchasing from other EU sites grew seven percentage points between 2010 and 2014, from 22 to 29 percent. Some eight percent of online shoppers in the EU did not know where the online shop was located.

There are huge country differences within the EU. Over 90% of online shoppers in Cyprus, Malta and Luxembourg buy from foreign web sites compared to only 13% in Poland and Romania (Figure 2.3). The high proportion of shoppers to foreign web sites in many of the EU's smallest countries suggest consumers may be substituting for limited or higher priced domestic retail options.

Figure 2.3: Percentage of online shoppers by location of web shop, EU



Note: Last 12 months.
Source: Adapted from Eurostat.

The *Canadian Internet Use Survey* has estimates on consumer online spending broken down by domestic and foreign sites with the latest data being from 2009 (Table 2.1).[7]

2.3 Balance of payments statistics

Overseas e-commerce should technically in the balance of payments statistics be captured as either a good or service import or export (Box 2.1). However, in practice this is often not the case. Digital products purchased over the Internet are intangible and often not declared to customs.

Shipments below a certain amount may also not be captured in trade statistics. In New Zealand, the national statistics office has identified these as under-covered areas. Goods more than NZ$1,000 are recorded as overseas merchandize trade while amounts less than that are not. Around NZ$150 million is imported with a declared value of between NZ$ 400-999. This figure has not changed much over the years possibly suggesting that most overseas goods purchased online by New Zealanders are valued at less than NZ$ 400, and therefore do not have to be declared. The statistical office is exploring ways to

[7] http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/comm23-eng.htm.

estimate the value of these goods as well as sales of digital products purchased over the Internet from overseas.[8]

Digital trade is a novel term but, most studies that build on balance of payments statistics refer to trade in ICT related or enabled services rather than cross-border exports of digital products (Mandel 2014). ICT services (i.e., not ICT-enabled services) are captured in the balance of payments with the categories covering communications, computer services and information services. It should be noted that the *Partnership on Measuring ICT for Development* recommends that information services should be excluded from "ICT services".[9]

According to the definitions employed, the category for communications refers to "transactions between residents and nonresidents...such services comprise postal, courier, and telecommunications services (transmission of sound, images, and other information by various modes and associated maintenance provided by/for residents for/by nonresidents)". For computer and information services they refer to "...resident/nonresident transactions related to hardware consultancy, software implementation, information services (data processing, data base, news agency), and maintenance and repair of computers and related equipment."[10] The extent to which these services might include e-commerce differs. Communications transactions relate to payments for transmission and not content. While some categories such as courier services might be relevant in the context of e-commerce, data are hardly ever available at this level of detail. Even when they are, some countries such as the United States, home to two of the largest courier services in the world, include courier data in the broader category of airfreight.[11] Some computer and information services might relate to downloadable software or newspapers but as in the case of courier services these could also be classified as intellectual property transactions or personal, cultural and entertainment services. Classifications of digital music, books and related products differ depending on whether they are licensed, purchased, rented, etc.

In short, balance of payments classifications can be hard to interpret with the same item a candidate for multiple categories depending on legal rather than practical use and as noted, data useful for cross-border e-commerce analysis are part of broader categories and rarely broken out.

Figure 2.4 illustrates data for the components of ICT services.[12] Note that with a shift to a newer version of balance of payments classification recent *international* data on the breakdown between communications and computer and information services will no longer be easily available.

[8] http://www.stats.govt.nz/browse_for_stats/economic_indicators/balance_of_payments/BalanceOfPaymentsYearEnded_HOTPYe31Mar12Corrected/Data%20Quality.aspx#ecom.

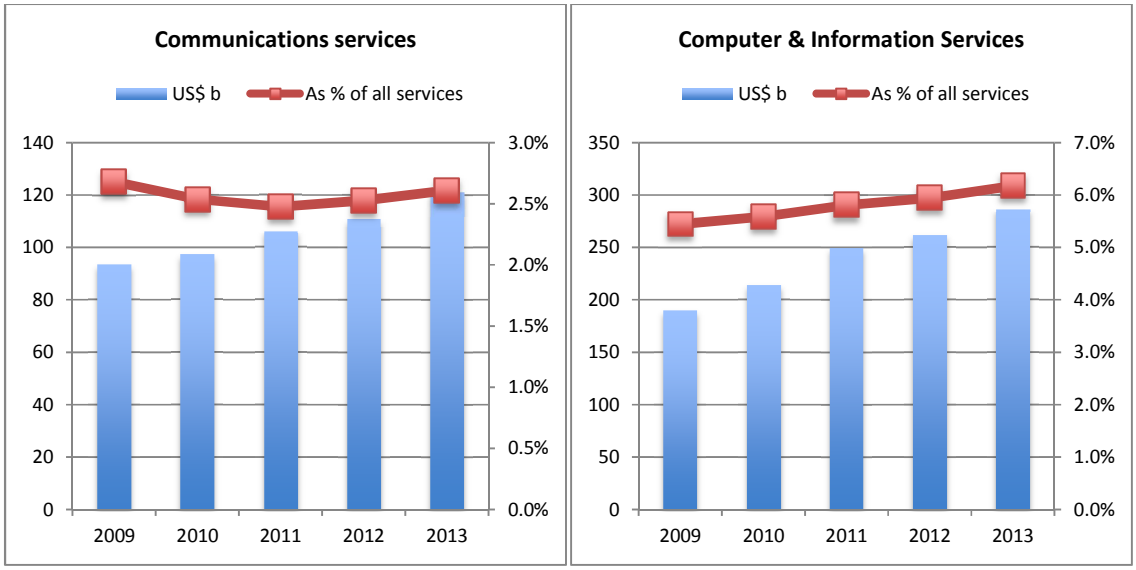
[9] See UNCTAD 2015b.

[10] https://www.imf.org/external/pubs/ft/bopman/bopman.pdf.

[11] http://www.bea.gov/iTable/iTable.cfm?ReqID=62&step=1#reqid=62&step=6&isuri=1&6210=4&6200=160

[12] With the revision of the Balance of Payments classification, the communications, computer and information services are not available separately in the WTO database after 2013.

Figure 2.4: Information and communications services trade



Source: Adapted from WTO.

Box 2.1: Digital trade in the balance of payments

Postal and courier services

10.82 Postal and courier services cover the pick-up, transport, and delivery of letters, newspapers, periodicals, brochures, other printed matter, parcels, and packages...Postal services are subject to international agreements, and the service entries between operators of different economies should be recorded on a gross basis.

10.84 Courier services include express and door-to-door delivery...Excluded are the movement of mail carried by air transport enterprises (recorded under transport, air, freight)...

h. Charges for the use of intellectual property n.i.e.

10.137 Charges for the use of intellectual property n.i.e. include:

(a) Charges for the use of proprietary rights (such as patents, trademarks, copyrights, industrial processes and designs including trade secrets, franchises). These rights can arise from research and development, as well as from marketing; and

(b) Charges for licenses to reproduce or distribute (or both) intellectual property embodied in produced originals or prototypes (such as copyrights on books and manuscripts, computer software, cinematographic works, and sound recordings) and related rights (such as for live performances and television, cable, or satellite broadcast).

10.138 The production of books, recordings, films, software, disks, and so forth is a two-stage process of which the first stage is the production of the original and the second stage the production and use of copies of the original. The output of the first stage is the original itself over which legal or de facto ownership can be established by copyright, patent, or secrecy. The owner of the asset may use it directly to produce copies that give the purchaser a license to use. Alternatively, the owner may issue a license to other producers to reproduce and distribute the content. The payments made by the licensee to the owner may be described in various ways, such as fees, commissions, or royalties...In contrast to temporary rights to use, outright sales of patents, copyrights, and industrial processes and designs are included under research and development services (discussed in paragraph 10.147). Similarly, temporary rights for computer software and audiovisual originals are treated differently from outright sales ...

Computer services

10.143 Computer services consist of hardware- and software-related services and data-processing services... Computer services include:

(c) noncustomized (mass-produced) software downloaded or otherwise electronically delivered, whether with a periodic license fee or a single payment;

(d) licenses to use noncustomized (mass-produced) software provided on a storage device such as a disk or CD-ROM with a periodic license fee (noncustomized software on storage devices with licenses that convey perpetual use is included in goods; see paragraph 10.17(c) and Table 10.4);

Information services

10.146 Information services include news agency services, such as the provision of news, photographs, and feature articles to the media...Also included are direct nonbulk subscriptions to newspapers and periodicals, whether by mail, electronic transmission, or other means; other online content provision services; and library and archive services. ...Downloaded content that is not software (included in computer services) or audio and video (included in audiovisual and related services) is included in information services.

k. Personal, cultural, and recreational services

10.161 Personal, cultural, and recreational services consist of (a) audiovisual and related services and (b) other personal, cultural, and recreational services.

Audiovisual and related services

10.162 Audiovisual and related services consist of services and fees related to the production of motion pictures (on film, videotape, disk, or transmitted electronically, etc.), radio and television programs (live or on tape), and musical recordings.

10.163 Included are amounts receivable or payable for rentals of audiovisual and related products, and charges for access to encrypted television channels (such as cable and satellite services).

10.164 Mass-produced recordings and manuscripts that are purchased or sold outright or for perpetual use are included under audiovisual and related services if downloaded (i.e., delivered electronically). However, those on CD-ROM, disk, paper, and so forth, are included in general merchandise. Similar products obtained through a license to use (other than when conveying perpetual use) are included in audiovisual and related services, as is the use of other online content related to audio and visual media. (See paragraph 10.166 for the treatment of originals.) The principles for the timing for related audiovisual and related services, such as for music and film copyrights and for master recordings, are the same as those for other types of intellectual property, as discussed in paragraph 10.139.

10.165 Charges or licenses to reproduce or distribute (or both) radio, television, film, music, and so forth are excluded from audiovisual and related services and included in charges for the use of intellectual property n.i.e.

Source: https://www.imf.org/external/pubs/ft/bop/2007/pdf/bpm6.pdf

2.4 Postal shipments

Given that many online purchases of goods require delivery, there is an important link between postal shipments and e-commerce. This section includes data on postal shipments, an official data source compiled by the postal system. Private sector data from other parcel service providers are referred to in chapter 3 on private data sources.

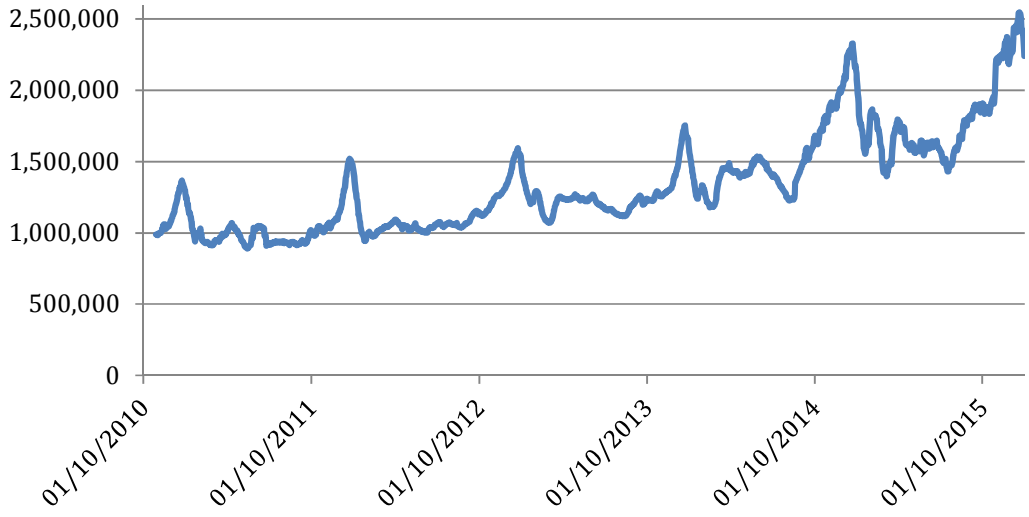
Since 1875, the UPU has been compiling official statistics, through its annual official statistical survey, on the number of postal items (letters, packets, parcels and express mail) as well as postal payment and other electronic postal transactions handled both domestically and internationally, covering 192 member countries, and operated by national postal operators. Merchandise ordered on-line can be transported and delivered through international Parcel services, as well as through international Letter-post services including small packets up to 2 kilograms, and Express Mail Services (EMS). From 2016 onwards, the revised UPU annual survey will start covering the other parcel delivery operators, mostly from the private sector, and thus cover the whole parcel and express delivery market.

Besides its traditional UPU postal statistics, the UPU also officially collects transactional and operational data through the real-time consolidation of international postal tracking information systems. According to UPU, in 2013, the number of international tracked postal items monitored in the postal networks reached 397 million, and in 2014 the total number of international tracked postal shipments was 460 million, corresponding to a year-on-year growth of 15.9 %. The growth further accelerated in 2015 with a total number of 568 million international postal shipments, or a 23.3 % year-on-year growth rate.

Postal as well as parcel delivery statistics are a relevant and very granular proxy for analyzing cross-border e-commerce involving physical goods. This granularity makes postal tracking data very unique compared to other official statistics sources. Indeed, official tracking data does not only enable a high-frequency monitoring of global volumes and tonnage transported (on a daily basis as can be seen in figure 2.5), but also offers a measure of bilateral flows between countries in real-time conditions that can be related to (and correlated with) other major global flows networks, such as international trade or Internet data flows.[13] In 2015, UPU's official tracking systems data was covering 201 countries and territories, in turn representing more than 23,000 postal connections between countries and millions of postal routes within countries, including many regions in the periphery of socio-economic activities.

Given the uneven access and use of international e-commerce services within many developing and developed countries, the capacity of building up international e-commerce proxy indicators at the regional and local levels is critical for policy makers in this area. International postal tracking data can be disaggregated within countries up to the postcode (zipcode) level, ensuring the collection of data on e-commerce-related shipments for several hundred millions of delivery points. Intermediate levels of geographic disaggregation include traffic between any airport in the world as well, enabling the distinction between the hubs and spoke of the international e-commerce ecosystem.

Figure 2.5: Daily parcel tonnage transported through the international postal system (total number of daily kilograms from 1 October 2010 to 31 December 2015)



Source: Universal Postal Union (2010 to 2015).

[13] See the comparative analysis of global flow networks in "The International Postal Network and Other Global Flows As Proxies for National Wellbeing" by Hristova, Rutherford, Anson, Luengo-Oroz and Mascolo (2016). In: http://arxiv.org/pdf/1601.06028v2.pdf.

While postal data seems invaluable for monitoring e-commerce in many respects as mentioned above, a careful analysis needs to take into account a number of aspects of the data. First and foremost, although there is operational evidence on international postal flows being increasingly driven by e-commerce transactions, not all international parcel shipments are the result of e-commerce. Moreover, there are a number of other challenges presented by the data which make it difficult to compare statistics from the postal system with those from private providers in the postal market. As a result, the number of parcels being shipped abroad because of e-commerce can only be roughly approximated in the current circumstances. However, given UPU's efforts in redesigning its official postal and delivery annual statistics and its combination with real-time tracking data, the abovementioned caveats will be most likely mitigated over the coming years. In the meantime, some important inferences can already be made about the volume and growth of international parcel shipments in chapter 3.

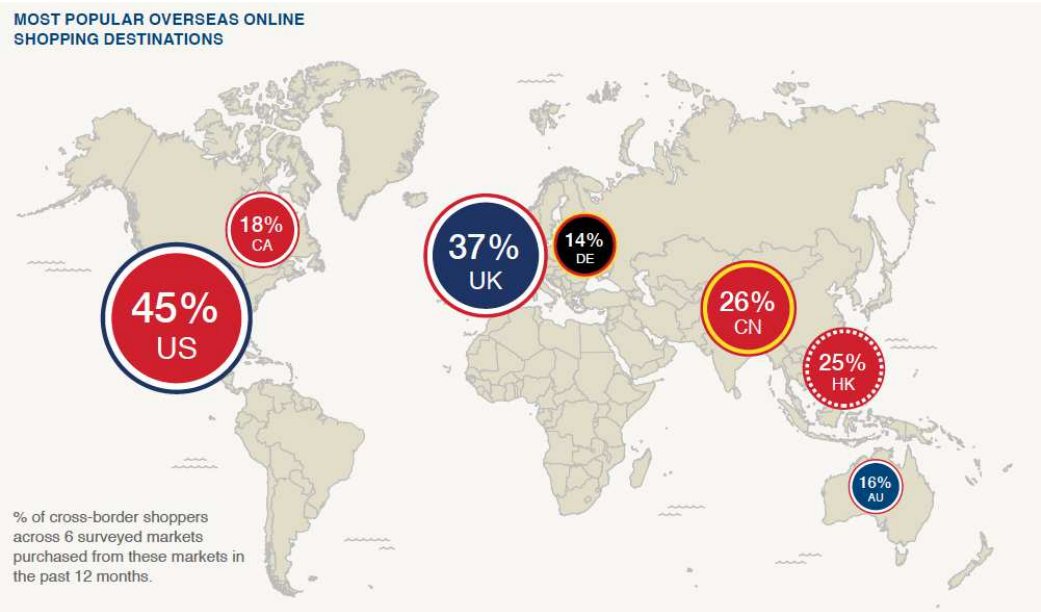
3 Private sector data on cross-border e-commerce

3.1 Data from e-commerce companies

Some data on cross-border activities are available from large companies engaged in e-commerce. These data provide a different perspective than the cross-border purchases or sales reported by statistical agencies.

Given the paucity of official statistics, some private sector organizations have stepped in to provide estimates on the demand side of cross-border e-commerce. For example, a study by PostNord of consumers in the Nordic countries quantified the number of shoppers and the amounts of online retail spend both domestically and overseas for the year 2014. It surveyed over 5,000 consumers in Denmark, Finland, Norway and Sweden. PayPal, the online payment company, in 2013 commissioned Nielsen, a consultancy, to survey over 6,000 online shoppers in six countries. The study estimated the total number of shoppers who buy online overseas as well as the amount they spent (Figure 3.1 and Table 3.1).

Figure 3.1: Most popular overseas online shopping destinations among six countries, 2013



Note: The six surveyed countries are Australia, Brazil, China, Germany, United Kingdom and United States.
Source: PayPal 2015.

Table 3.1: Cross-border online shoppers and estimated sales, selected countries, 2013/14

PayPal 2013					PostNord 2014			
	Shop foreign sites (m)	**Overseas online spend (US$ b)**	**Per shopper (US$)**			**Shop foreign sites (m)**	**Overseas online spend (US$ b)**	**Per shopper (US$)**
Australia	6.3	6.3	999		Denmark	1.0	1.0	1,013
Brazil	5.3	1.1	209		Finland	1.1	1.3	1,134
China	18.0	35.1	1,952		Norway	1.5	1.7	1,118
Germany	14.1	10.1	716		Sweden	1.6	1.7	1,050
UK	15.9	13.3	836		**Nordic**	**5.2**	**5.6**	**1,081**
US	34.1	40.6	1,191					
TOTAL	**94**	**107**	**1,137**					

Note: Data for PayPal study include airline tickets. Data for PostNord study refer to physical products only.
Source: Adapted from PayPal 2015 and PostNord 2015.

The e-commerce estimates available vary depending on the types of transactions included (B2B, B2C, C2C), the type of revenue reported, the accounting method used and the globalization strategy of the companies. In general, data reported on international transactions refer to sales by overseas subsidiaries rather than exports.

For example, there are significant differences between e-commerce companies that operate a market place, in which case their revenues are related to "listing fees", and those that are retailers, in which case revenues include the value of the products they sell. The top 10 companies by retail e-commerce revenues are shown in table 3.2. Their combined online Gross Merchandize Value (GMV) is estimated to account for roughly half the global retail e-commerce market.

Table 3.2: Top ten companies by retail e-commerce revenue, 2014

			Total		**International**			
		Fiscal year end	**US$ m**	**% of total sales**	**US$ m**	**% total e-commerce sales**	**GMV (US$ m)**	**Note**
1	Amazon (US)	Dec. 2014	83,391	94%	33,307	40%	83,391	E-commerce revenue includes "media" & "electronics & other merchandise". International sales are from international websites. It includes export sales from these sites but not from North American sites.
2	JD.com Inc. (China)	Dec. 2014	18,535	100%	<1%	<1%	41,937	
3	Walmart (US)	Jan. 2015	12,200	3%	3,440	28%	12,200	International estimated on basis of contribution to overall revenue.
4	Apple (US)	Sep. 2014	10,200	6%	6,355	62%	10,200	iTunes Store only. International estimated on basis of contribution to overall revenue.
5	AliBaba (China)	Mar. 2015	9,921	81%	285	3%	394,257	
6	eBay (US)	Dec. 2014	8,817	49%	4,633	53%	82,954	E-commerce revenue refers to "Marketplaces". International estimated on basis of contribution to overall revenue.
7	Otto Group (Germany)	Feb. 2015	8,622	54%	3,051	35%	8,622	
8	cnova (Neth.)	Dec. 2014	4,619	100%	2,499	54%	6,005	
9	Best Buy (US)	Jan. 2015	3,533	9%	…	11%	3,533	International estimated on basis of contribution to overall revenue. Figure only provided for domestic online revenue.
10	Rakuten (Japan)	Dec. 2014	3,431	61%	468	14%	22,141	E-commerce revenue refers to "Internet services".
	TOTAL		**163,269**	**19%**	**54,038**	**33%**	**665,240**	

Note: Excluding companies principally involved in the food industry.
Source: Adapted from company reports.

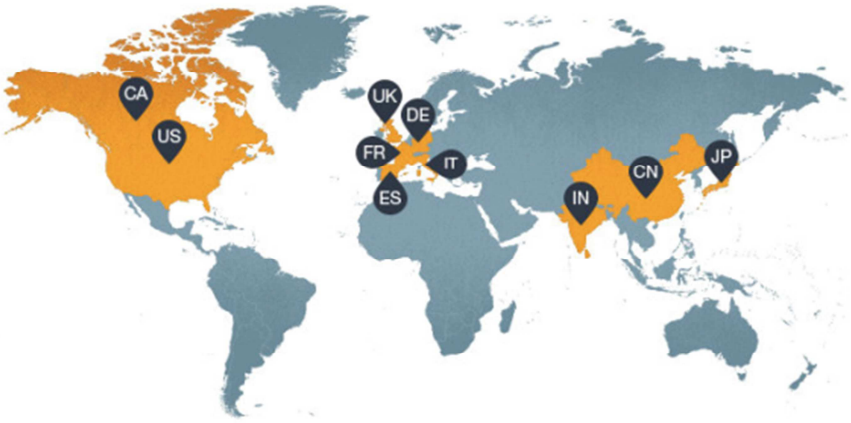
The list of the top ten companies in table 3.2 includes those where the core business is e-commerce (e.g., Amazon, JD.com, AliBaba and cnova) and for which most or all revenue derives from this segment. Others are traditional retailers where e-commerce still forms a relatively small portion of total revenue (e.g., Walmart, Best Buy). Note that Apple does not disclose its total online revenue so the figures shown are only for its online music store.

There is another striking difference in the way the companies derive their cross-border e-commerce revenues. Several companies get over half of their estimated retail e-commerce from international subsidiaries (e.g., Apple, eBay and cnova). By contrast, for the top Chinese e-commerce companies, only a fractional amount is related to international undertakings.

The companies' globalization strategies vary. Most are setting up country specific websites. Amazon, ranked first in the list by revenue, has ten branded international websites (Figure 3.2). Similarly, Walmart and eBay have a number of branded overseas web sites. Others, including the Otto Group and cnova, own a number of international online shops operating under different names. Rakuten, one of Japan's leading e-commerce firms, has been rebranding its overseas properties.

Chinese e-commerce firms have pursued different international strategies. JD.Com remains focused on the domestic market. Alibaba has pursued a unique business model for Chinese consumers who want to purchase foreign products and foreigners who want to buy from Chinese retailers. It launched Tmall as a marketplace for overseas retailers who want to penetrate the Chinese market. Meanwhile, its AliExpress website is available in six languages to serve overseas consumers.[14] Alibaba is the only example among the leading B2C companies with significant B2B operations. These include both domestic and international wholesale platforms. Its international B2B platform generated US$761 million in revenue in 2014 with membership fees accounting for 88% and marketing services for the remaining 12%. Alibaba does not report the GMV of its B2B platform. One source estimated Chinese cross-border B2B e-commerce sales at US$680 billion in 2014.[15]

Figure 3.2: Amazon's worldwide marketplaces, 2015



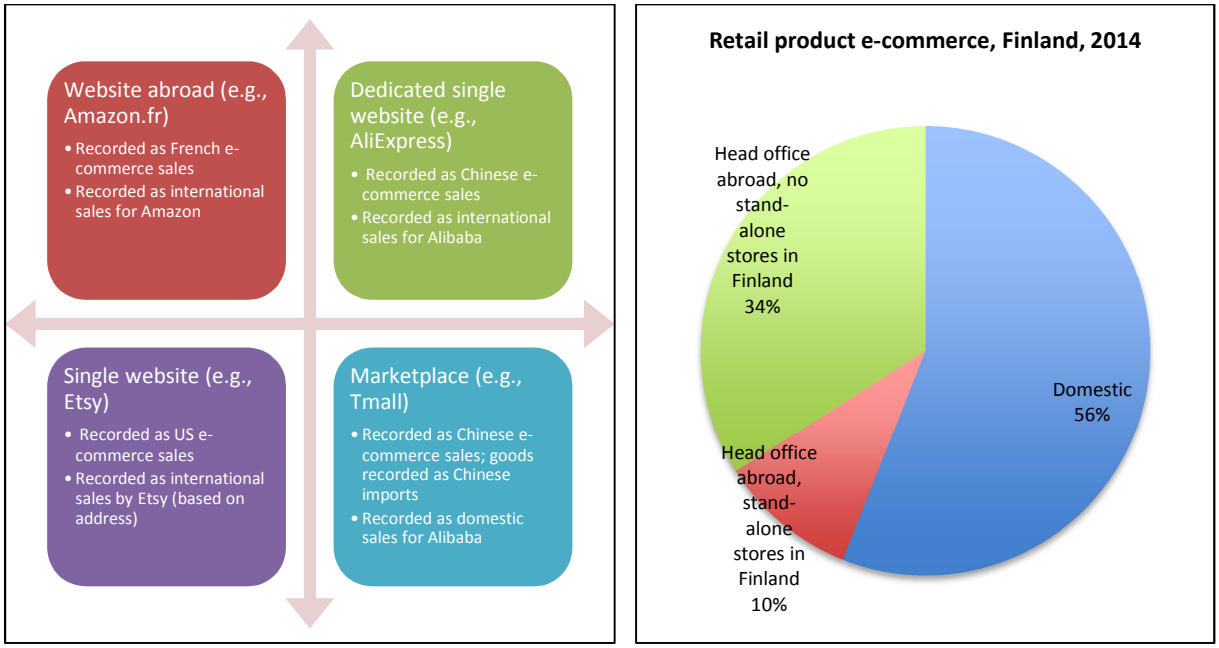
Source: http://services.amazon.com/global-selling/international-marketplaces.htm

The internationalization strategies of e-commerce firms can be classified into four categories: i) single standalone web sites, ii) dedicated web sites targeted at overseas buyers, iii) customized web sites in different countries and iv) establishing a market place for foreign retailers. They have different implications for how cross-border e-commerce trade may be measured at the country and company level

[14] AliExpress' revenue grew 88% in the 2014 fiscal year with strong sales from buyers from the Russian Federation, Brazil and the United States.
[15] https://www.internetretailer.com/2015/04/13/b2b-e-commerce-sales-reach-16-trillion-china-2014.

(Figure 3.3, left). Data for Finland show the contribution of the different categories to retail e-commerce revenues (Figure 3.3, right).

Figure 3.3: Measurement impact of different international e-commerce strategies



Source: Left chart UNCTAD; right chart Kurjenoja 2015.

3.2 Other private sector data related to measuring cross-border e-commerce

This section explores other selected indicators and proxies that might be relevant to analyze trends in cross-border e-commerce. This includes statistics on parcel shipments from private service providers, Internet traffic, payments and services trade.

3.2.1 Parcel delivery

As mentioned in chapter 2, statistics on parcel shipments are a relevant proxy for analyzing trends in cross-border e-commerce. Data from the private sector confirm the rapid growth rates reported by the postal system in relation to e-commerce. For example French online shopping is estimated to have triggered 400 million parcel deliveries in 2014 (Fevad 2015). UPS, the global logistics company, in 2014 reported an 11% increase in deliveries on "Cyber Monday", one the day when online stores offer special discounts.[16] Package delivery firms are particularly keen about cross-border e-commerce given the higher margins with international shipping. A number of companies have commissioned cross-border e-commerce studies to understand opportunities and barriers (ComScore 2015, Forrester 2014, PostNord 2015).

Though an attractive proxy, not all international parcel shipments are the result of e-commerce. A number of other data aspects complicate comparability. For example, private sector data sometimes include letters with parcels or letter post could also include small packets; courier firms often use their proprietary names for traffic statistics that are occasionally vague about the nature of shipment; and data are often arbitrarily separated by factors such as whether parcels are insured, whether they are express, etc. As a result, it is difficult to answer how many parcels are shipped abroad because of e-commerce. Except for international postal tracking systems, further bilateral data that would be essential for analyzing cross-border e-

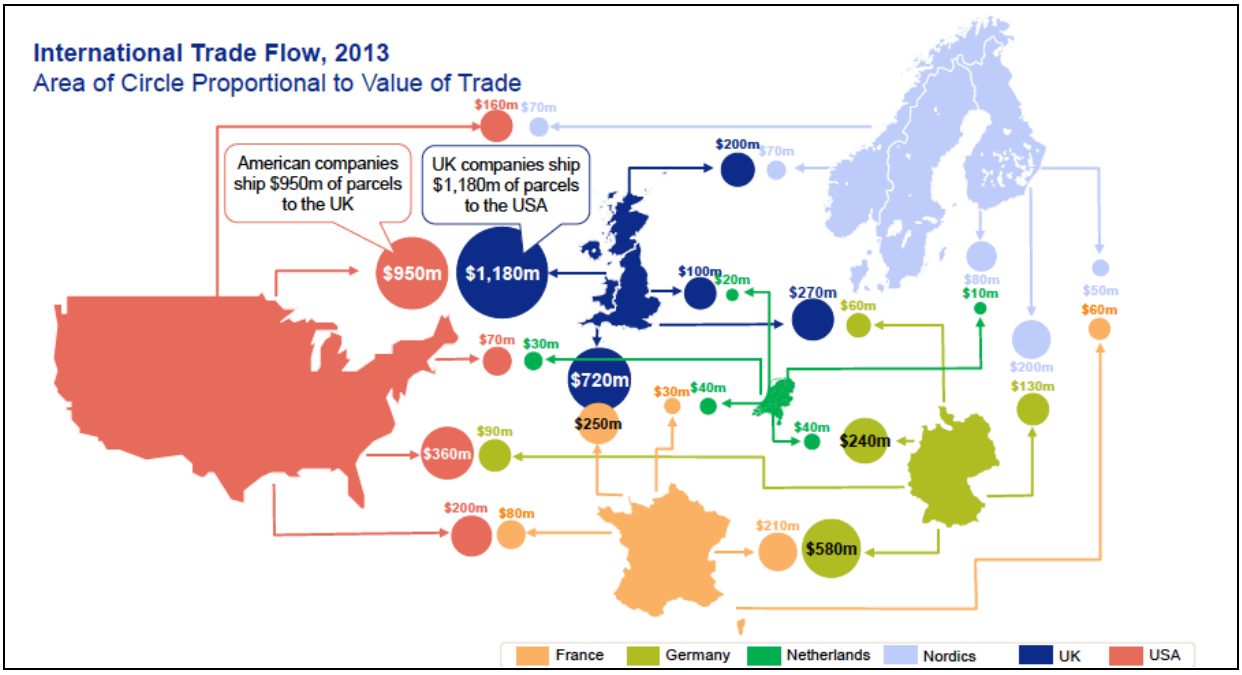
[16] http://www.investors.ups.com/mobile.view?c=62900&v=203&d=1&id=2012923.

commerce are rarely available for private operators and when they are, they are generally related to volume (number of parcel items or tonnage) rather than value. Despite these limitations, some inferences might be made about the volume and growth of international parcel shipments. The main carriers of international parcels are national postal agencies and the four leading express delivery companies (DHL, FedEx, TNT, and UPS).[17]

Data from for national postal agencies from the Universal Postal Union (UPU)) and operating figures for the four express companies suggest that there were just over one billion international shipments in 2014, up ten percent over the previous year.[18]

One study looked at the *value* of cross-border parcel shipments rather than the *number* of shipments to estimate inter-country online sales (OC&C 2014). It found that the biggest parcel market was between the United Kingdom and the United States (Figure 3.4). However, the source of data is not specified and seems somewhat curious. For example, total postal and courier exports from the United Kingdom in 2013 were stated to be US$1.8 billion and total imports US$1.3 billion. Per the OC&C data, the United States would be the destination for 64% of the United Kingdom's total postal and courier exports and 75% of its imports, a figure that seems high. According to United States statistics, total airfreight imports from the United Kingdom, a figure which includes courier services, were US$348 million in 2013, far less than what the OC&C study reported. There is no detailed description of how OC&C derived its e-commerce estimates from the parcel shipments.

Figure 3.4: Value of international parcel shipments, selected countries, 2013



Source: OC&C 2014.

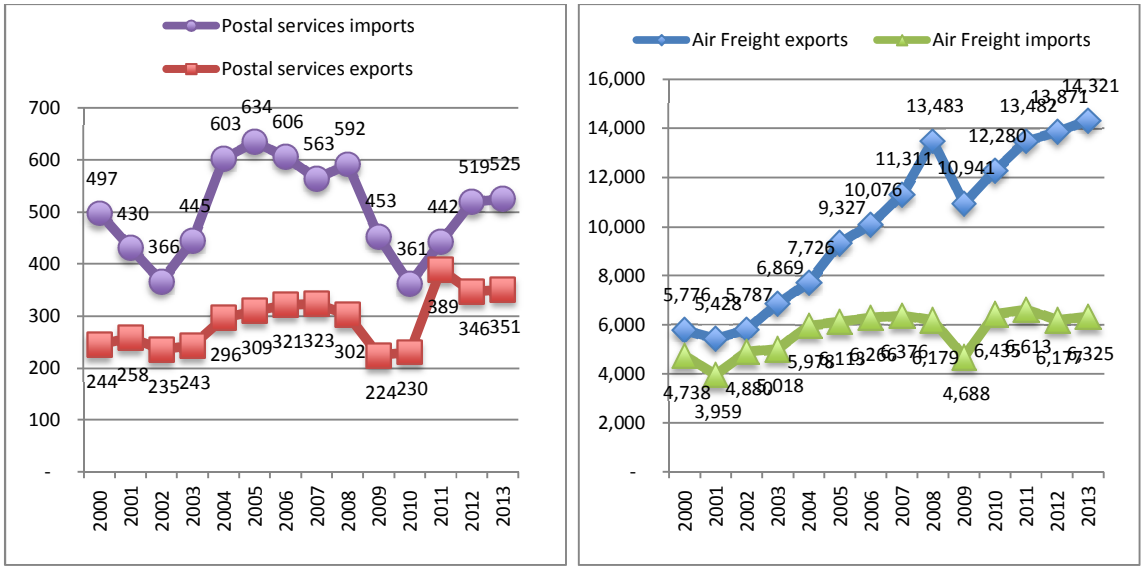
[17] The four leading express firms are represented by the Global Express Association. See: http://www.global-express.org/index.php?id=2. Note that FedEx has made an offer to purchase TNT. See: http://www.tnt.com/corporate/en/data/press/2016/01/fedex-and-tnt-express-jointly-confirm-further-extension-of-acceptance-period-for-public-offer.html.

[18] UPU data refer to international tracked post items, for DHL data refer to "time definite international items", data for FedEx and UPS refer to "international export packages" (with FedEx data applying to fiscal years ending May) and data for TNT refer to "international consignments." Statistics for the express companies are reported on an average daily basis and annualized using their business days per year multipliers.

Data on trade in airfreight services from balance of payments statistics are another potential source of information on the value of courier shipments. However it is not possible to separate out pure express parcels, which presumably account for a substantial portion.

Data on airfreight and postal services imports and exports for the United States are shown in figure 3.5. They show three tendencies. First, trends are susceptible to the economic climate, with the value of all shipments dropping after the 2007 financial crisis. Second, airfreight exports –including both B2B and B2C goods sales – have grown much faster than other transport modes. They increased at an annual rate of 35% between 2000 and 2013 compared to 13% for postal service exports, 10% for airfreight imports and 2% for postal service imports. Third, while the United States runs an annual deficit in postal services it has a huge surplus in airfreight. One explanation could be that it parallels the rise in cross-border e-commerce and the US' role as a leading e-commerce shopping destination. The PayPal study mentioned above notes that the United States is the leading e-commerce location selling to 45% of online shoppers in five countries.

Figure 3.5: United States postal service and airfreight trade, 2000-2013, US$ millions



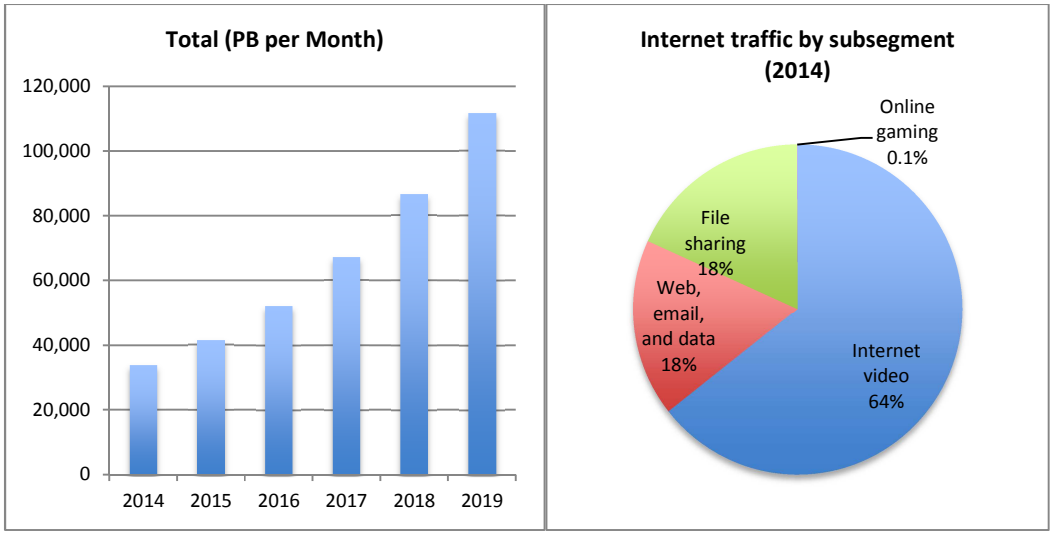
Source: Adapted from Bureau of Economic Analysis.

3.2.2 Internet traffic

Online shopping is instigated over the Internet so the volume of data traffic generated might provide some indication of e-commerce trends especially with regard to services and digital products. However, e-commerce transactions *per se* use very little bandwidth. Video accounted for over 60% of world Internet traffic in 2014 and given issues with legal digital cross-border sales it can be assumed that most of this is being used for free. Web, email and data accounted for 18% (Figure 3.6).

Despite the relatively minor proportion of online shopping transactions in total Internet traffic, trends in bilateral flows might provide insights into cross-border e-commerce trade. While statistics on bilateral Internet traffic might not be a very good proxy for e-commerce transactions per se (actual orders conducted online), they might provide a good indication on existing bilateral exchanges of information on goods and services, which typically precede and follow actual e-commerce transactions.

Figure 3.6: Consumer Internet traffic

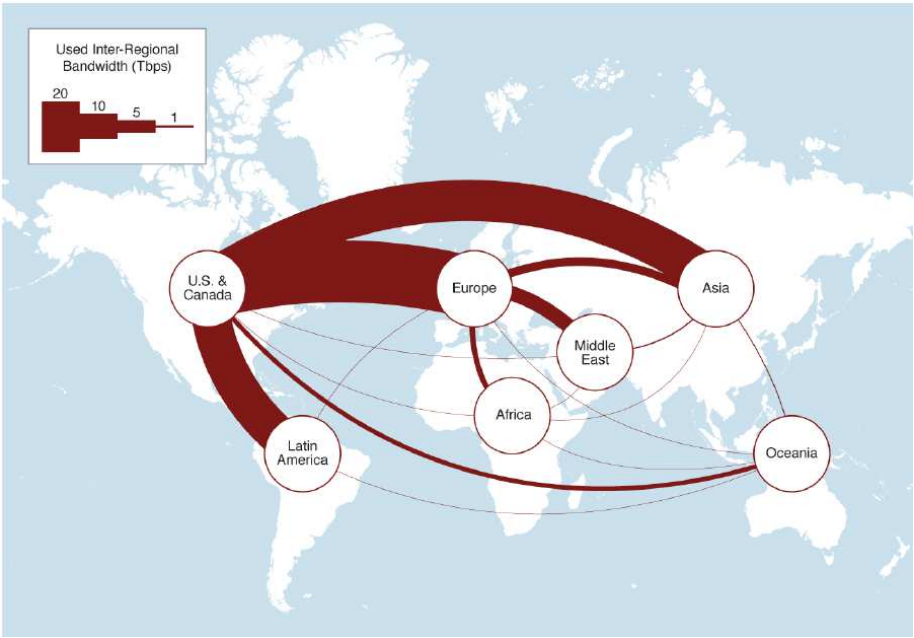


Source: Adapted from Cisco VNI, 2015.

Market research firm TeleGeography reckons that international bandwidth increased 44 percent in 2014 to 211 Tbps (including international Internet, private networks and switched voice traffic).[19] Reflecting the important role of the United States in the Internet economy, routes between North America with Europe, Asia, and Latin America have the highest capacity, each exceeding 15 Tbps (Figure 3.7).

While aggregated international bandwidth could possibly suggest trends in global e-commerce trends related to services and digital products, its use is more relevant for bi-lateral flows. One challenge with using bi-lateral Internet bandwidth is that very few countries publish the data.

Figure 3.7: Used international bandwidth, Tbps, 2014



Source: TeleGeography.

[19] https://www.telegeography.com/page_attachments/products/website/research-services/global-bandwidth-research-service/0005/9474/gb15-exec-sum.pdf.

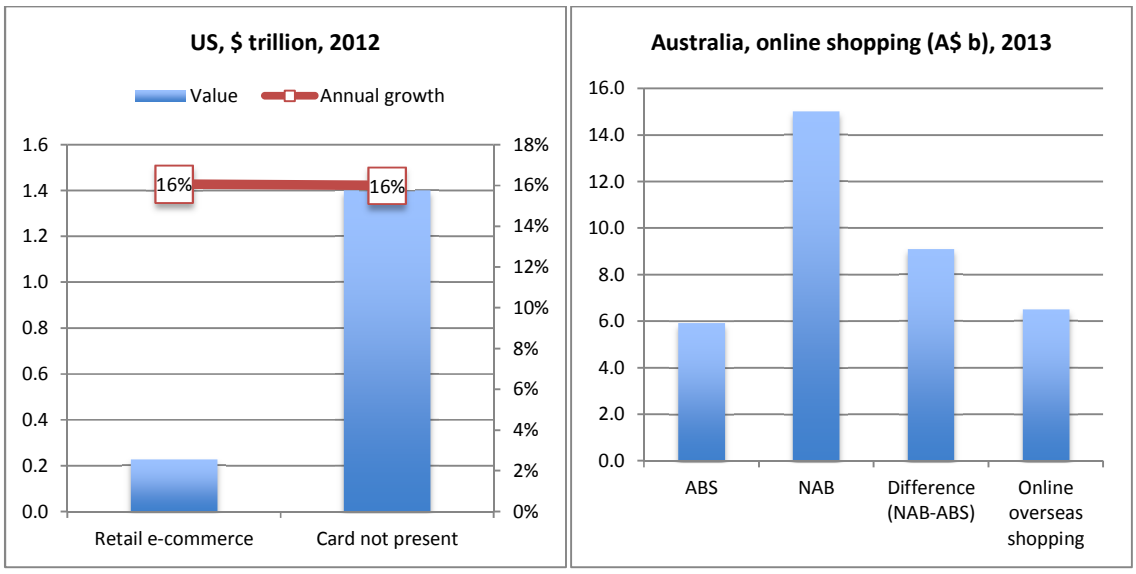
3.2.3 Payments data

For B2B e-commerce transactions, electronic funds transfers are the most important form of payment. There is a need for better data on such payments, however.

Credit card usage might give some indication of B2C e-commerce growth in some markets. The credit card industry uses the term "card not present" to refer to transactions that are made when the card is not physically present. This is the situation when purchases are made over the Internet but can also apply in other cases (giving information over the telephone or by fax). The United States Federal Reserve Bank reported the value of "card not present" transactions to be US$1.4 trillion in 2012, up 16.3 percent over the previous year. Though this figure is more than six times greater than retail e-commerce sales, the growth rates were similar (Figure 3.8, left). A time series of "card not present" transactions is not available so it is not possible to test the relation to e-commerce growth over a larger time period.

Payment data might be a proxy for cross-border trade when contrasted with enterprise reported figures on online retail sales. The National Australia Bank (NAB) analyses daily non-cash transactions to compile monthly figures for online retail spending.[20] The figure for the twelve months ending February 2014 – A$15 billion – was two and half times greater than the figure compiled over the same period by the Australian Bureau of Statistics (ABS) for total online retail trade (including services) in the country (A$5.9 billion) (Figure 3.8, right).[21] The difference might be explained by cross-border shopping. The NAB figure appears to include it whereas the ABS figure refers to online retail sales made by Australian companies. According to one source, Australians purchased A$6.5 billion of products (including airline tickets) from overseas websites in 2013 (PayPal 2015).

Figure 3.8: Card not present, US and Australia online shopping, 2013



Payments might be useful as a predictor of overall e-commerce in a country and as the case of Australia illustrates, possibly explain cross-border e-commerce flows. Though a number of countries compile payments data, the granularity is currently insufficient or definitions of what the data mean are vague, thus restricting their usage as an indicator of e-commerce trends.

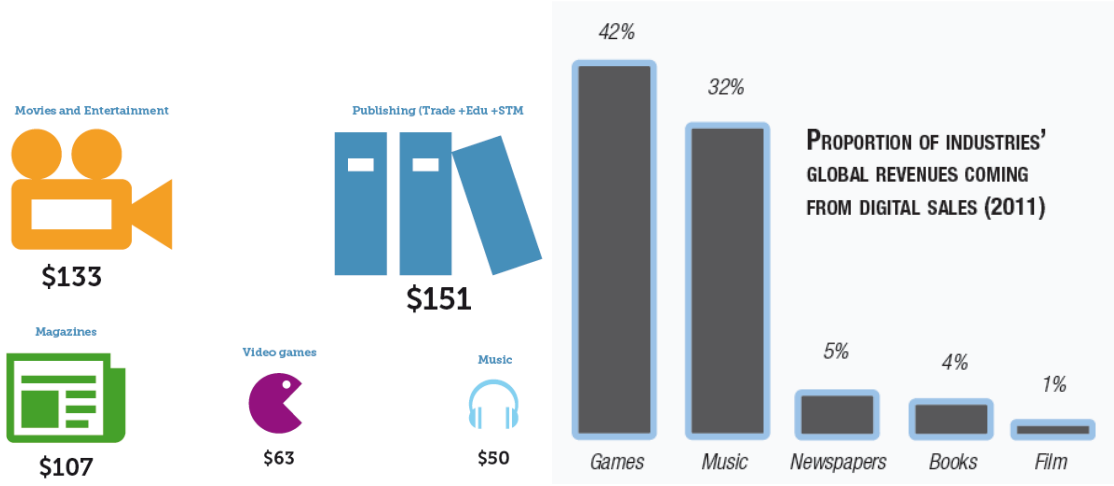
[20] http://business.nab.com.au/online-retail-sales-index-in-depth-report-january-2015-9980/.

[21] http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/8501.0Appendix1Aug%202015?opendocument&tabname=Notes&prodno=8501.0&issue=Aug%202015&num=&view=.

3.2.4 Digital trade

Digital trade can be defined as trade in purely digitized products that can be downloaded or streamed over the Internet. This includes audio, video, print, gaming and computer software products (Figure 3.9). Digitization has affected the way these types of products are traded with different impacts depending on the industry. In 2011, over 40% of global revenues for electronic games came from digital sales and the corresponding figure for music was almost a third. On the other hand, digital sales for books, newspapers and film accounted for a small proportion. It is difficult to obtain trade data on these products, particularly since they are often amalgamated under generic trade categories. It is becoming even more difficult to track trade in digital products as they become electronically downloaded or streamed with bits traversing space from seller to consumer, evading customs and other statistical counting mechanisms. This makes it increasingly important to obtain data from suppliers of such products.

Figure 3.9: Publishing and entertainment industries global revenue (US$ b), 2012 and proportion of revenue from digital sales, 2011



Source: IPA 2015 and IFPI 2015.

Digital sales are growing across all industries. According to the International Federation of the Phonographic Industry (IFPI), digital sales of music were worth US$6.9 billion in 2014, accounting for the same proportion as physical sales (Figure 3.10, top left). Data from the United States show that online sales of video games surpassed physical product sales in 2014 (Figure 3.10, top right). Similarly, digitally delivered films and TV shows account for the largest proportion of home entertainment spending in the United States and are the only distribution channel that is growing (Figure 3.10, bottom left). E-books are more recent but available data suggest they have already captured over 10% of the publishing market in the US and UK (Figure 3.10, bottom right).

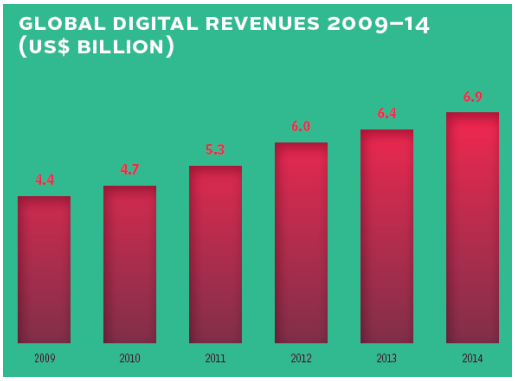
Growth in digital sales somewhat mirrors consumer demand. Data from the EU show that while the proportion of consumers buying digital products online has not changed much, those having them delivered online has increased (Figure 3.11). Unfortunately, there is no information whether the purchases are domestic or cross-border.

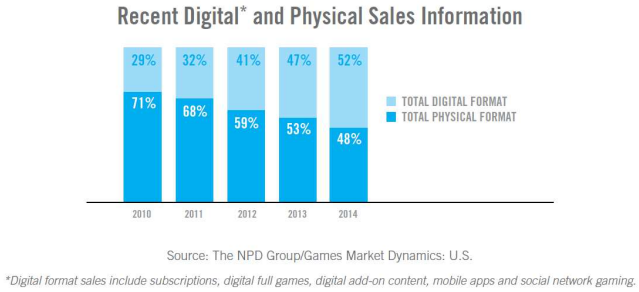
There are a range of copyright, licensing and other legal issues with entertainment products affecting legal cross-border sales over the Internet. As a result, in many instances such products are only available for digital online purchase in the country of the purchaser. This has led to the rise of "national" digital stores. For example, according to IFPI, there are over 400 online music stores in over 150 countries. Ironically, though the online store may not be physically present in the country, consumers can be prohibited from using their digital purchases in another country.[22] Given such restrictions, there would appear to be

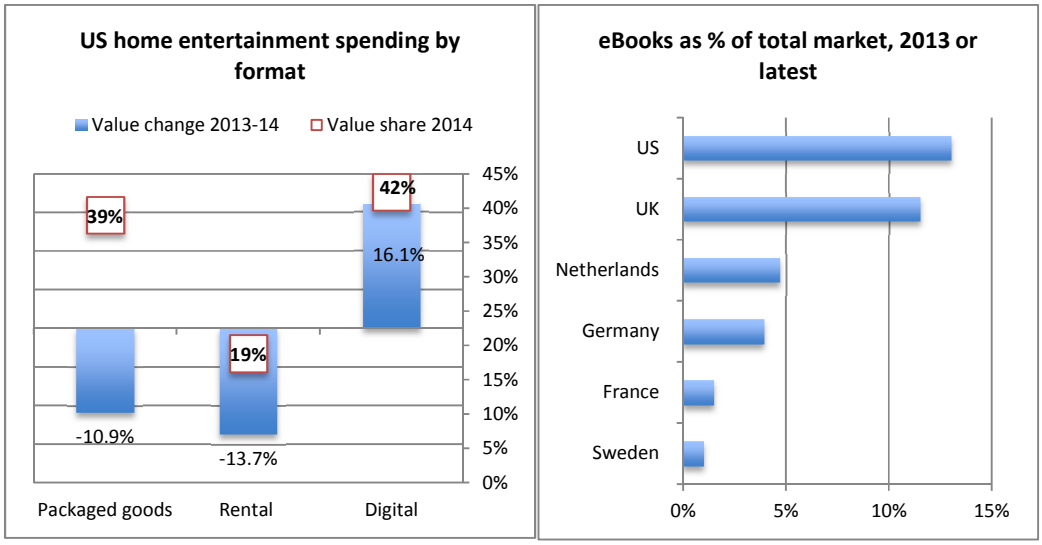
[22] http://www.macworld.com/article/2029991/crossing-borders-with-the-itunes-store.html.

limited legal cross-border but significant illegal trade in digital products. According to one study, over 40 percent of software installed on personal computers around the world in 2013 was illegal.[23]

Figure 3.10: Digital share of publishing and entertainment industries

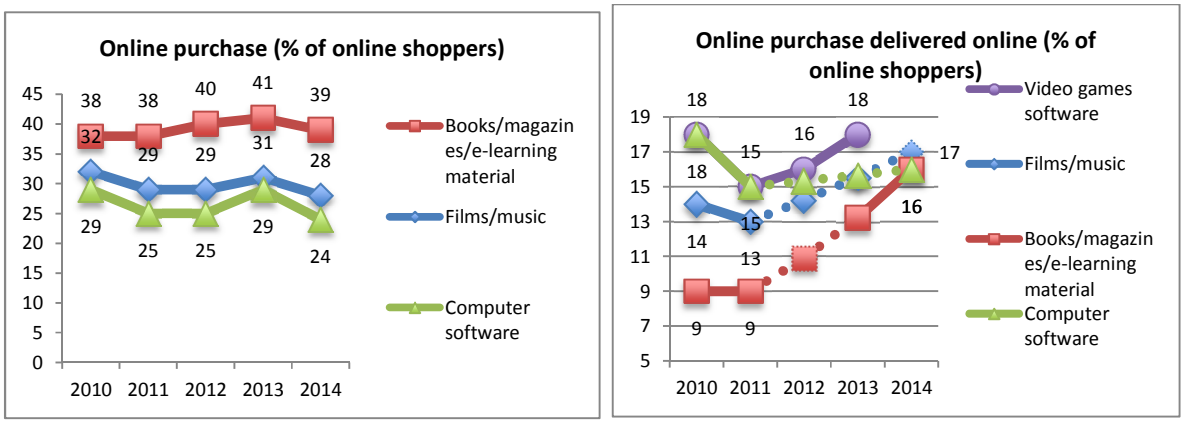






Source: Adapted from IFPI, EA, DEG and Wischenbart.

Figure 3.11: Online purchase of digital products and digital deliveries, EU



Note: In the right chart, estimates for missing data are shown by dashed lines.
Source: Adapted from Eurostat.

[23] Business Software Alliance. 2014. *BSA Global Software Survey*. http://globalstudy.bsa.org/2013/.

4 Cross-border e-commerce estimates

The best method for estimating the value of cross-border e-commerce may be to survey the sellers on the amount of overseas sales. As mentioned above, however, there are still few enterprise e-commerce surveys capturing the value of e-commerce. Only some of these surveys provide separately information on cross-border sales. There are no official national data on the value of overseas e-commerce sales broken down by B2B or B2C. Despite the paucity of data, several organizations have made cross-border B2C estimates, based on consumer surveys or some assumed ratio between users that have purchased abroad and the total value of their purchases.

While more official data are becoming available on the value of overall retail e-commerce (Table 4.1), with seven of the top ten economies reporting data compiled by government agencies, official statistics on the value of cross-border e-commerce are virtually non-existent. Some governments also compile demand side data on the number of individuals that buy from foreign websites (offering insights into B2C and C2C) but very few collect data on the actual value of transactions. Only the Japanese METI publishes some data on the value of cross-border B2C e-commerce. A few national e-commerce industry associations publish data on the value cross-border B2C e-commerce trade.

Table 4.1: Online shoppers and revenue, top 10 economies by value, 2014

Economy	Online shoppers (% of Internet users)		Number of online shoppers (m)	Shop overseas site (% of online shoppers)	Source	Type	B2C sales $m		Per shopper (US$)	Source	Type
China	56		361	...‡	CNNIC	QG	$453		$1,253	NBOS	Gov
United States	79	*	167	...‡	USC	AC	$298			Census Bureau	Gov
United Kingdom	85		36	34	ONS	Gov	$171		$4,702	IMRG	IA
Japan	57		57	...	MIC	Gov	$121		$2,116	METI	Gov
France	56		23	39	INSEE	Gov	$76		$3,319	Fevad	IA
Germany	70		41	22	Destatis	Gov	$56		$1,358	GTAI	Gov
Korea (Rep.)	51		21	10	KISA	Gov	$43		$2,038	KOSIS	Gov
Taiwan	30		5	...	TWNIC	QG	$26	*		III	QC
Spain	49		13	48	INE	Gov	$19	*		ONTSI	QC
Canada	56	†	14	84	Statistics Canada	Gov	$19	†	$1,400	Statistics Canada	Gov

Note: * 2013. † 2012. ‡ Available from non-official sources. QC= Quasi-government. AC=Academic. Gov = Government. IA = Industry Association.

There are some estimates of B2C cross-border e-commerce compiled by market research firms (Table 4.2). According to the Ecommerce Foundation, 309 million online shoppers purchased from overseas websites in 2014 spending US$328 billion. US e-commerce sites were the most popular with 47% of those who buy cross-border making a purchase from a US seller. Express courier UPS has estimated cross-border retail e-commerce (most likely only goods) pegging it at US$80 million in 2014, significantly lower than the Ecommerce Foundation. UPS reckons that cross-border B2C sales will rise to US$330 million by 2020, accounting for 11% of the total (up from 6.5% in 2014).

PayPal conducted a study across six of the world's largest e-commerce markets (China, United States, United Kingdom, Germany, Australia and Brazil) reporting that US$105 billion would be spent on cross-border B2C with 94 million shoppers using overseas web sites (Marcus 2015). It projected this would rise to 130 million cross-border shoppers generating US$307 billion in 2018. Meanwhile, OC&C Strategy Consultants calculated cross-border sales for six countries they estimate account for half of global e-commerce. The estimate is derived from cross-border parcel shipments (implying it only refers to goods) and reckons that cross-border e-commerce accounted for 8% of total sales in 2013.

Table 4.2: Industry analysts' estimates of cross-border B2C e-commerce revenues and shoppers

Company	Year	B2C e-commerce sales (US$ b)			Online Shoppers (m)			Forecast								
								Year	B2C e-commerce sales (US$ b)				Online Shoppers (m)			
		Total	Cross-border		Total	Cross-border			Total	Cross-border			Total	Cross-border		
				% of total			% of total				% of total	CAGR			% of total	CAGR
Accenture/ AliResearch	2014	1,589	233	15%	1,316	309	23%	2020	3,394	994	29%	27%	2,114	943	45%	20%
Ecommerce Foundation	2014	1,943	328	17%	1,139	309	27%									
OC&C (6 countries)†	2013	313	25	8%				2020	722	130	18%					
PayPal (6 countries)‡	2013		105			93.7		2018		307		24%		130		7%
UPS/ ComScore	2014	1,316	80	6%				2020	3,089	330	11%	27%				

Note: † US, UK, France, Germany, Netherlands & "Nordics" which according to OC&C accounted for over half of global B2C e-commerce. ‡ Australia, Brazil, China, Germany, UK & US.
Source: UNCTAD, based on Alizila 2015, Ecommerce Foundation 2015, OC&C 2014, PayPal 2015, comScore 2015.

There are significant differences and discrepancies between the data sets and between those that break out individual country data and other sources. For example, the value share of cross-border e-commerce varies from 6% to 17% between the various estimates with cross-border e-commerce ranging between US$80 billion and US$328 billion. One reason could be related to the data coverage, whether it includes services, something most of the estimates are not clear on. Generally, there are many more estimates on B2C than on B2B e-commerce.

5 Conclusions and recommendations

As this report shows, official and market research data on cross-border B2C e-commerce trade are starting to emerge. However, the quality, methodology and transparency differ, inhibiting cross-country benchmarking, particularly in the case of studies by market research firms. Of particular concern is the use of demand side surveys as they tend to overstate the perception of domestic retail e-commerce revenues if cross-border sales are not adjusted for. Further, web-based consumer surveys may not be nationally representative and consumers generally have a poor recall over specific types of questions such as countries purchased from (indeed there is a relatively high proportion of users who do not know the origin of web sites they are shopping from) and amounts spent.[24] As a result, cross-border data suffer from the same issues as regular e-commerce data where the concepts, definitions and sources vary widely between and within countries (see discussion on Canada above). And more importantly B2B e-commerce is likely to be much more significant for international trade in both goods and services.

Given multinational company strategies and market forces it is not clear that cross-border e-commerce will grow at rates forecast by market studies. The strategy of many multinationals is to set up online shops overseas. Sales from these shops would therefore not be considered as overseas and thus not cross-border. Further, domestic online shops are likely to intensify steps to regain market share from overseas shops. Also, as noted, foreign retailers are launching their own overseas web sites. If domestic retailers are

[24] http://www.warc.com/Pages/Search/WordSearch.aspx?q=AID:102078&Filter=ALL%20OF%20WARC&Area=ALL%20OF%20WARC.

losing business because of lower prices, they will compete by reducing theirs, at least to where it does not make sense for buyers to purchase overseas due to shipping costs and import duties. Indeed the biggest barrier to shopping abroad is the total cost and this will be harder to deal with than the problems facing domestic sites to become more competitive on pricing and product selection. Achieving major reductions in international shipment costs or customs procedures is unlikely in the short run.

Therefore, over time, it seems likely that open marketplaces and international subsidiaries will increasingly meet demand for overseas products. Hence, cross-border demand is unlikely to grow significantly except for certain niche products and in countries where there is not a well-developed online shopping market.[25] In the latter case, this would be mainly developing nations. Here, it is not clear if the value of cross-border shipments will be significant given lower purchasing power, smaller Internet penetration and undeveloped logistics.

In terms of official statistics on cross border e-commerce, the optimum method would be through supply side enterprise surveys. It seems straightforward to ask domestic retailers for the value of such sales. The earlier example from Japan implies this is already done for a few markets and as Spain shows, it is just a question of going one step further with existing tools. For example, Eurostat's ICT in Enterprises survey need only a few questions about the proportion of e-commerce sales to domestic and overseas customers (Table 5.1). This could similarly be applied to questions asked to enterprises about purchases. In the medium term, a more comprehensive e-commerce module could be envisioned that includes a disaggregation of B2C and B2B by countries sold to so trade matrices can be constructed, that incorporates smaller sellers and that includes the cross-border GMV of C2C marketplaces.

[25] For example, cross border transactions reportedly comprise 40% of Malaysia's e-commerce sales with one reason cited as the lack of local e-commerce options. See: http://www.specommerce.com.s3.amazonaws.com/dl/fs/141124_fs_malaysia_12_things_you_need_to_know_2.pdf.

Table 5.1 Suggested enhancements to Eurostat COMMUNITY SURVEY ON ICT USAGE AND E-COMMERCE IN ENTERPRISES, e-Commerce sales

Module I: e-Commerce

(Scope: enterprises with computers)

e-Commerce is the sale or purchase of goods or services conducted over computer networks by methods specifically designed for the purpose of receiving or placing of orders.

The payment and the delivery of the goods or services do not have to be conducted online.

e-Commerce transactions **exclude** orders made by manually typed e-mail messages.

e-Commerce Sales

In the following questions please report separately for web sales and EDI-type sales.

Web sales

Web sales are sales made via an online store (web shop), via web forms on a website or extranet, or via "apps".

I1. ⋆[13]	**During 2014, did your enterprise *receive* orders for goods or services placed via a website or "apps"?** (excluding manually typed e-mails) (Filter question)	Yes ☐	No ☐ -> go to I6[14]
I2. ⋆[15]	**Please state the value of the turnover resulting from orders *received* that were placed via a website or "apps" (in monetary terms, excluding VAT), in 2014.** If you can't provide this value, **Please indicate an estimate of the percentage of the total turnover resulting from orders *received* that were placed via a website, in 2014.**	(National currency) _____ ___ ___ ___ %	

I3.	**Please provide a percentage breakdown of the turnover from orders *received* that were placed via a website or "apps" in 2014 by type of customer.** (estimates in percentage of the monetary values, excluding VAT)	⇒Breakdown by domestic & overseas
	a) **B2C** (Sales to private consumers)	␣ ␣ ␣ %
	b) **B2B** (Sales to other enterprises) and **B2G** (Sales to public authorities)	␣ ␣ ␣ %
	c) TOTAL	**1 0 0** %

I4. ⋆[16]	**During 2014, did your enterprise *receive* orders placed via a website or "apps" by customers located in the following geographic areas?**	Yes	No
	a) Own country	☐	☐
	b) Other EU countries	☐	☐
	c) Rest of the world	☐	☐

[13] For indicators D10, D11 of the benchmarking framework
[14] Routing to Question I6 that is optional or I7 if I6 is not asked
[15] For indicator D9 of the benchmarking framework
[16] For indicator D12 of the benchmarking framework (biennial - 2015)

I5.	**Which of the following means of payment are accepted for sales via a website or "apps"?** *-Optional*	Yes	No
	a) Online payment, i.e. payment integrated in the ordering transaction (e.g. credit, debit card, direct debit authorisation, via 3rd party accounts)	☐	☐
	b) Offline payment, i.e. payment process is not included in the ordering transaction (e.g. cash on delivery, bank transfer, cheque payment, other not online payment)	☐	☐

I6.	**Did any of the following obstacles limit or prevent your enterprise from selling via a website or "apps"?** [17] *-Optional*	Yes, I agree	No, I disagree
	a) The enterprise's goods or services were not suitable for web sales	☐	☐
	b) Problems in web sales related to logistics (shipping of goods or delivery of services)	☐	☐
	c) Problems in web sales related to payments	☐	☐
	d) Problems in web sales related to ICT security or data protection	☐	☐
	e) Problems in web sales related to the legal framework	☐	☐
	f) The cost of introducing web sales was, or would have been, too high compared to the benefits	☐	☐

EDI-type sales

EDI-type sales are sales made via EDI-type messages (EDI: Electronic Data interchange) meaning:

- in an agreed or standard format suitable for automated processing (e.g. (EDI (e.g. EDIFACT), XML (e.g. UBL), *[please add national examples]*)
- without the individual messages being typed manually

I7. *[18]	**During 2014, did your enterprise *receive* orders for goods or services placed via EDI-type messages?** (Filter question)	Yes ☐	No ☐ -> go to I10

I8. *[19]	**Please state the value of the turnover resulting from orders *received* that were placed via EDI-type messages (in monetary terms, excluding VAT), in 2014.**	(National currency) _____
	If you can't provide this value, **Please indicate an estimate of the percentage of the total turnover resulting from orders *received* that were placed via EDI-type messages, in 2014.**	⇒Breakdown by domestic & overseas ___ ___ ___ %

I9. *[20]	**In 2014, did your enterprise *receive* orders placed via EDI-type messages by customers located in the following geographic areas?**	Yes	No
	a) Own country	☐	☐
	b) Other EU countries	☐	☐
	c) Rest of the world	☐	☐

[17] Please note that respondents go through I6 by responding either "Yes" or "No" to I1
[18] For indicator D10, D11, D3 of the benchmarking framework
[19] For indicator D9 of the benchmarking framework
[20] For indicator D12 of the benchmarking framework (biennial - 2015)

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