Non-paper

Trade and Development Board
Working Group on Measuring
E-Commerce and the Digital Economy
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Measuring domestic and cross-border e-commerce

Review of progress and pending challenges in measuring domestic and cross-border e-commerce 2016-2019

I. Introduction

1. The Intergovernmental Group of Experts (IGE) on E-commerce and the Digital Economy, at its third session in April 2019, recognized the need for enhancing the availability of official statistics on e-commerce and the digital economy, especially in developing countries, in support of evidence-based policymaking. In view of the scarcity of official statistics on domestic and cross-border e-commerce, the IGE decided that the first meeting of the WG would discuss the current availability of such statistics and possible ways to improve it.

2. In line with its terms of reference, the WG will aim to contribute to and advance cooperation on measuring e-commerce while avoiding duplication with other relevant, ongoing work. During discussion of this item, the WG will hear from international organizations and individual organizations on their experiences in trying to measure e-commerce. The WG may refer to the *UNCTAD Technical Note on ICT for development no. 6: "In Search of Cross-Border E-Commerce Trade Data"* (2016), which contains an overview of the state of play of cross-border e-commerce measurement as at 2016, while this background document provides an overview of main developments in the area of e-commerce measurement since then.

3. The WG is invited to consider the following guiding questions for its discussion:
- What are possible sources for statistics on e-commerce and their respective advantages and disadvantages?
- What are the main barriers to collecting statistics on domestic and cross-border e-commerce?
- What are good practices from countries that can be emulated?
- What could UNCTAD do to help countries produce e-commerce statistics that are internationally comparable?

II. On measuring e-commerce in the digital economy

4. The digital economy continues to evolve rapidly, affecting most economic activities. While this creates opportunities for businesses worldwide to reach new markets, not all

countries or enterprises are able to take advantage of these opportunities. There is a significant digital divide as well as an e-commerce divide between developed and developing countries. E-commerce specially is concentrated in a handful of countries. The largest e-commerce market by far is the United States, and combined with China, they account for about half of the 1.3 billion online shoppers in the world. While business-to-business (B2B) e-commerce dominates, accounting for 88% of all online sales in 2017, B2C is growing faster, increasing by 22% to reach $3.9 trillion in 2017. In terms of B2C, China has the largest volume of sales and buyers.[1]

5. The growing prevalence of domestic e-commerce should be reflected in a larger share of transactions in an economy, while cross-border e-commerce undoubtedly contributes to international trade. However, measuring both kinds of e-commerce remains a challenge. There are few official statistics on the value of e-commerce, particularly from developing countries. The lack of such statistics represents a barrier to the formulation and implementation of evidence-based policies related to the digital economy. Private enterprises also need up-to-date and comparable e-commerce statistics to make business and investment decisions.

6. The digital divide and the e-commerce divide are mirrored by the gap in the availability of e-commerce statistics. And what data is available varies in scope, comparability and timeliness. Furthermore, definitions and methodology need to be further harmonized to improve comparability.

7. For the purposes of this background document and the discussions during the Working Group, the definition of e-commerce will be the one used by OECD, which has been widely adopted by international organizations and individual countries:[2]

"An e-commerce transaction 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 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 organizations. 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."

III. Supply-side data

8. Supply side indicators on domestic and cross-border e-commerce may be produced from data obtained through enterprise surveys, economic censuses and national accounts.

Enterprise surveys and economic census

9. The UNCTAD core indicators on e-commerce are limited to two basic indicators on whether the enterprises are placing or receiving orders online. The 2009 edition of the UNCTAD *Manual for the Production of Statistics on the Information Economy*, provide guidance on how to include these indicators in enterprise surveys. It is anticipated that the the forthcoming 2020 edition will have an expanded section on the measurement of e-commerce.

[1] https://unctad.org/en/pages/newsdetails.aspx?OriginalVersionID=2034
[2] https://stats.oecd.org/glossary/detail.asp?ID=4721

10. The G20 toolkit for measuring the digital economy[3] published in 2018 considers e-commerce as part of the "Jobs and Growth" metrics. Such metrics look at the ways in which digital technologies contribute to economic growth and employment creation. The e-commerce indicators refer to the enterprises engaged in sales via e-commerce.[4]

11. In the Republic of Korea, the collection of e-commerce data is conducted by the Korea Association of ICT Promotion (KAIT) and covers B2B, B2G and B2C. A series of surveys, including one specifically of "online shopping malls" goes into types of industry, prices and value of sales, as well as types of transaction and payment and delivery methods. International companies and the financial sector are excluded.[5] This is complemented by consumer survey data on Internet shopping practices.

12. In Brazil, the 2017 ICT survey of enterprises included 3 main indicators on e-commerce: (i) enterprises purchasing over the Internet, (ii) enterprises selling over the Internet (disaggregated by type of online channel), and (iii) barriers to enterprises engaging in online sales.[6]

13. Some indicators on business activities carried out online can complement data on e-commerce, such as "enterprises delivering products or services in digital format via the Internet". Enterprises having a web presence may also serve as a proxy.

14. The European Commission's Digital Economy and Society Index (DESI) has e-commerce indicators as part of the dimension of "Integration of Digital Technology".[7] The DESI Index includes e-commerce indicators as part of the dimension of "Integration of Digital Technology", which looks also at business digitization. Regarding e-commerce, the index measures the percentage of small and medium-sized enterprises (SMEs) selling online, e-commerce turnover as a percentage of total turnover of SMEs, and the percentage of SMEs selling online across borders. The source of data are enterprise surveys conducted by countries and reported to Eurostat.

15. During the UNCTAD E-Commerce Week in April 2017, a session on measurement discussed how to improve the availability of data on e-commerce and e-commerce readiness in developing countries. It concluded that, while there is a good deal of data on many of the elements of e-commerce readiness, the measurement of the value of e-commerce itself is a significant challenge. The main gaps included the relative lack of official e-commerce data in developing countries, the scarcity of measures of B2B e-commerce, and specific measures of cross-border (as opposed to domestic) e-commerce. Private data on e-commerce has much to add, but is not easy or cheap to access.

16. Since 2017, UNCTAD, UPU, OECD and WTO have been working together with a view to finding better ways of measuring cross-border e-commerce. The collaboration has the ambitious goal of trying to find out the share of cross-border e-commerce in total international trade, if possible, broken down by industry, gender, product (good/service), and final demand. The UNCTAD E-Commerce Weeks have served as forum to present progress, which to date has been relatively slow.[8]

[3] http://www.oecd.org/g20/summits/buenos-aires/G20-Toolkit-for-measuring-digital-economy.pdf
[4] The toolkit also refers to "e-consumers" (online purchasers), but this is a variable obtained from household surveys.
[5] See http://www.oecd.org/korea/2092929.pdf, and http://www.kait.or.kr/eng/
[6] https://www.cetic.br/pesquisa/empresas/publicacoes
[7] https://ec.europa.eu/digital-single-market/en/desi
[8] https://unctad.org/en/pages/MeetingDetails.aspx?meetingid=1323

IV. Demand-side data

Surveys of households and individuals

17. In 2018, the International Telecommunications Union (ITU) started to compile data on the demand side of e-commerce, collected by countries through household surveys. The demand-side indicators refer to: (i) types of goods and services purchased; (ii) mode of payment; (iii) method of delivery; and (iv) barriers for not ordering online. The latest version of the ITU Manual for Measuring ICT Access and Use by Households and Individuals (forthcoming) will include a description of the indicators and definitions. The ITU Expert Group on Household indicators decided not to include an indicator on location of the seller, as it was considered to be difficult for individuals to answer accurately. Another variable that is rarely collected through household surveys relates to the value of e-commerce purchases, since respondents are often unable to recall that information accurately.

18. Although individual members of households might also sell goods and services through consumer-to-consumer (C2C) e-commerce,[9] the main interest in e-commerce measurement for the household sector is in use of the Internet for purchasing. In addition to the ITU indicator on individuals "online purchasing and selling of goods or services", household surveys could collect additional information, including the nature of goods and services purchased or sold, the monetary value of those purchases or sales, the monetary value of online payments and/or barriers to purchasing or selling over the Internet. That said, the ITU expert group has recognized some conceptual and data collection challenges for e-commerce measurement.

19. The World Bank's Global Findex database is the most comprehensive data set on how adults (age 15+) save, borrow, make payments and manage risk. It also contains an indicator on whether adults "Used the internet to buy something online in the past year". The survey for the Global Findex database is conducted every three years, the latest data being for 2017.[10]

20. Some developing countries have begun to include e-commerce questions in household surveys and population censuses. For example, in Brazil, the ICT in Households Survey 2018 had a module on e-commerce, measuring 20 indicators.[11] A module in a dedicated ICT survey allows for the collection of richer information on the transactions themselves as well as on related activities (for example, are online shoppers also doing market research online). The survey identified the channels used for online purchases and found that "a significant portion of purchases were made through social networks and messaging applications" in addition to marketplace platforms and store websites.

21. Kenya will include an e-commerce question in its 2020 household census, on whether individuals have ordered goods online. The scope for including e-commerce questions in a census is very limited, since such questions should be basic and very few, so as not to burden respondents of a questionnaire that covers many areas. This makes it difficult to collect data on type of goods and services purchased, mode of payment, method of delivery, or barriers for not ordering online.

22. The e-commerce data collected through household surveys can be co-related with data from enterprise surveys or supplement them for policy making purposes. They can provide

[9] Also referred to as peer-to-peer (P2P) e-commerce, and in some instances as the sharing economy.
[10] https://globalfindex.worldbank.org/
[11] https://www.cetic.br/publicacao/pesquisa-sobre-o-uso-das-tecnologias-de-informacao-e-comunicacao-nos-domicilios-brasileiros-tic-domicilios-2018/

insights on how e-commerce is being understood by consumers and about the B2C experience (such as barriers), which may not be obtained through business surveys. In Brazil, respondents were not including certain services (such as ordering taxis or media streaming) in their responses to the question on "purchasing or ordering goods or services", so a new indicator was defined specifically for such services. Household data can also provide insights on the blind spot of C2C e-commerce.

IV. National Accounts data

23. In 2016, the OECD surveyed countries on national accounts compilation practices regarding the digital economy. The IMF extended the survey to 11 non-OECD countries in 2017. The survey found that only a third of the respondent countries collected data on online purchases, and five collected separate data on cross-border e-commerce transactions. Ghana, India, Jamaica and Malaysia reported that they include data on e-commerce in compilation of their national accounts. Although, most respondents to the IMF survey viewed e-commerce as important, it would seem the measurement of e-commerce and the digital economy still must be considered a priority in order to receive adequate resources to produce official statistics.

24. Attempts have also been made to measure domestic e-commerce as part of a satellite account approach to measuring the digital economy. The creation of a satellite account for the digital economy first requires agreeing on a definition of the digital economy. For example, the United States Bureau of Economic Analysis (BEA) includes the following in its definition of the digital economy: (i) the digital enabling infrastructure needed for a computer network to exist and operate; (ii) the digital transactions that take place using that system ("e-commerce"); and (iii) the content that digital economy users create and access ("digital media").[12] However, current BEA estimates only include goods and services that are "primarily digital" and exclude C2C e-commerce (i.e. the sharing economy). The inability to measure the sharing economy is also noted by the G20 toolkit and the IMF.[13] While there are no obvious solutions to this blind spot in e-commerce measurement, the satellite account approach might yield some progress in the future.

25. A few countries have begun to report statistics on value added in e-commerce. In Mexico, for example, rather than a breakdown by B2B or B2C, e-commerce value-added data are provided for retail and wholesale trade, with a single aggregate for all other service industries.[14] In terms of value added, e-commerce in Mexico contributes a higher share of GDP than does the ICT sector. The country has developed an ICT satellite account that includes online platforms, which has allowed the country to estimate the contribution of e-commerce to GDP, the value added of e-commerce, and the share of e-commerce to GDP by industry (ICT and non-ICT industry).[15] Between 2010 and 2017, the contribution of e-commerce value added to GDP grew from 4.6 per cent to 6.3 per cent.

[12] https://www.bea.gov/data/special-topics/digital-economy
[13] https://www.imf.org/en/Publications/Policy-Papers/Issues/2018/04/03/022818-measuring-the-digital-economy
[14] https://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=2466
[15] https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=319&bul_id=UWpOUFBQSjk2TDhJNXFwUFhJZHNEUT09&menu_id=TE5CRUZCblh4ZTZMODZIbmk2aWRRQT09

V. Other sources of data

26. Other sources of data can complete the picture when measuring domestic and cross-border e-commerce, such as administrative data generated by customs, or big data from postal traffic.

27. Published in 2018, the WCO Cross-Border E-Commerce Framework of Standards considers measurement and analysis of cross-border e-commerce as key for policy making and risk management in customs.[16] Measurement of cross-border e-commerce through customs data would only cover shipments of goods. The variables to be measured still need to be defined, and customs organizations need to agree on the treatment of shipments that fall below *de minimis* values (so-called low value items), since this threshold varies among countries and entails expedited border clearance (i.e. different data requirements). While providing a partial picture of cross-border e-commerce, such data could provide important information on trade flows, as well as on the impact of rules and regulations governing duties. Customs administrations should work with relevant government agencies in close cooperation with e-commerce stakeholders to accurately capture, measure, analyse and publish cross-border e-commerce statistics in accordance with international statistical standards and national policy, for informed decision making. Some WCO member countries have suggested that this could include adapting customs forms to identify shipments coming from e-commerce platforms, as well as the automation of data collection.

28. Postal as well as parcel delivery statistics are a relevant and granular proxy for analyzing cross-border e-commerce involving goods. This granularity makes postal tracking data unique compared to other official statistics sources. Indeed, official tracking data do not only enable high-frequency monitoring of global volumes and tonnage transported (on a daily basis, but also offers a measure of bilateral flows between countries in real-time conditions that can be related to (and correlated with) other global flows networks, such as international trade or Internet data flows. Data from the Universal Postal Union (UPU) on the volume of international postal traffic can offer additional insights. They show, for example, that developing countries, especially in Asia and Oceania, are becoming increasingly important participants in cross-border trade. Moreover, global deliveries of small packets, parcels and packages have surged, most likely due largely to e-commerce transactions.[17]

29. There are also data on e-commerce available from the private sector. These include data produced by consultancy firms, e-commerce platforms, payment providers and other private sector companies. large companies engaged in e-commerce. These data often provide a different perspective than the e-commerce purchases or sales reported by statistical agencies.

VI. E-commerce readiness indexes

30. In addition to measures of trade flows of digital and physical goods and services, of the value and volume of e-commerce, and of supply and demand of e-commerce, there are also measures of e-commerce readiness. E-commerce readiness can be understood as the ability of stakeholders in an economy to engage in e-commerce, based on the enabling environment. For example, the UNCTAD B2C E-commerce Index assesses e-commerce

[16] http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/facilitation/activities-and-programmes/ecommerce/wco-framework-of-standards-on-crossborder-ecommerce_en.pdf?db=web
[17] https://unctad.org/en/PublicationsLibrary/ier2017_en.pdf

readiness by looking at four indicators that are highly related to online shopping and for which there is wide country coverage.[18] The indicators are shown in the table below:

Indicator	Source
1. Account ownership at a financial institution or with a mobile-money service provider (% of population ages 15+)	World Bank (Findex survey, carried out every 3 years)
2. Internet users per 100 inhabitants	ITU
3. Postal Reliability Index	UPU
4. Secure Internet servers (per 1 million people, normalized)	Netcraft

31. The *eTrade for all* initiative also publishes individual country profiles that present 19 eTrade Ready indicators[19] that refer to the seven policy areas covered by the initiative, as shown by the table below. Data on these indicators can also be accessed from the World Bank's TC360 database.[20]

Indicator	Policy Area	Source
Rank in UNCTAD B2C E-Commerce Index	E-Commerce Assessment	World Bank (Findex survey, carried out every 3 years)
Rank in ITU ICT Development Index	E-Commerce Assessment	ITU
Rank in WEF Networked Readiness Index	E-Commerce Assessment	UPU
Internet users per 100 inhabitants	ICT Infrastructure and Services	ITU
Fixed broadband subscriptions per 100 inhabitants	ICT Infrastructure and Services	ITU
Active mobile broadband subscriptions per 100 inhabitants	ICT Infrastructure and Services	ITU
Fixed broadband Internet tariffs, PPP $/months	ICT Infrastructure and Services	ITU
Debit card used in the past year	Payments	World Bank
Credit card used in the past year	Payments	World Bank
Mobile phone or the internet used to access a financial institution account in the past year	Payments	World Bank
Percent of population having mail delivered at home	Trade Logistics	UPU
Postal reliability index	Trade Logistics	UPU
Days to clear direct exports through Customs	Trade Logistics	World Bank
Availability of legislation on electronic transactions	Legal and Regulatory Framework	UNCTAD Global Cyberlaw Tracker
Availability of legislation on consumer protection	Legal and Regulatory Framework	UNCTAD Global Cyberlaw Tracker
Availability of legislation on privacy and data protection	Legal and Regulatory Framework	UNCTAD Global Cyberlaw Tracker
Availability of cybercrime legislation	Legal and Regulatory Framework	UNCTAD Global Cyberlaw Tracker
Percent of firms using e-mail to interact with clients/suppliers	Skills Development	World Bank
Percent of firms identifying access to finance as a major constraint	Financing for e-Commerce	World Bank

[18] The UNCTAD B2C E-Commerce Index 2018 covers 151 countries and is available at https://unctad.org/en/Pages/DTL/STI_and_ICTs/ICT4D-Technical-Notes.aspx

[19] https://etradeforall.org/resources/countryprofiles/

[20] https://tcdata360.worldbank.org/subtopics/etrade?country=BRA

32. Such measures of e-commerce readiness provide a snapshot of the enabling environment at a given time and could be charted to assess progress in overcoming certain barriers to engaging in e-commerce. While they are not directly measuring domestic and cross-border e-commerce, they may be considered when analysing the larger context of e-commerce trends. They could help explain levels of e-commerce adoption in countries.

VII. Looking ahead and the role of the Working Group

33. In 2017, participants at the UNCTAD E-Commerce Week proposed several possible steps to improve the measurement of e-commerce, as follows: (i) increasing use of existing surveys of economic activity and customs declarations to collect data on e-commerce, by the inclusion of a few additional questions; (ii) making creative use of data gathered by the private sector, including "big data" in the hands of financial and transport firms and Internet trading platforms, as well as postal data, as an input into public data collection; (iii) availing additional resources for capacity building in developing-country statistical agencies to develop the ability to collect e-commerce data; and (iv) continued partnership by all relevant stakeholders in the measurement agenda.

34. In 2019, the OECD published its Measurement Roadmap for the Future,[21] which set out three ways to improve the measurement of e-commerce through international initiatives: (i) to improve the quality of the data collected through ICT use surveys; (ii) the inclusion of e-commerce questions in other surveys that may be better suited to measuring e-commerce volumes (such as structural business surveys); and (iii) international organizations could facilitate cooperation with private sources of data, in particular big data sources (such as from financial entities on payments).

35. The UNCTAD Working Group on Measuring E-Commerce and the Digital Economy may consider recommending that UNCTAD, in collaboration with other relevant organizations, take the lead in developing guidelines for member States on how to measure domestic and cross-border e-commerce, and how to leverage sources of data that are complementary to survey-based statistics, such as data on postal traffic from the UPU or Customs data from the WCO.

36. Such work would make effective use of the network of experts attending the UNCTAD Working Group on Measuring E-Commerce and the Digital Economy and could also be linked to policy discussions of the Intergovernmental Group of Experts on E-commerce and the Digital Economy. The working group may consider inviting selected member States with experience in measuring e-commerce to lead this endeavour and report to the next session of the working group.

[21] https://www.oecd-ilibrary.org/docserver/9789264311992-en.pdf?expires=1574773437&id=id&accname=ocid195767&checksum=EEF788CA7BFF0C7BFF54307BF183693B