

ITU EXPERT GROUP ON HOUSEHOLD INDICATORS (EGH)

BACKGROUND DOCUMENT 1

IMPROVING THE MEASUREMENT OF E-COMMERCE ACTIVITIES¹

SUMMARY

The rapid growth and globalization of e-commerce elevates the need for more information on individuals' online shopping behavior.

The 4th meeting of the Expert Group on ICT Household Indicators held in 2016 discussed data needs relating to cross-border e-commerce and the potential to use household surveys to improve the availability of information related to e-commerce activities. The meeting decided to continue the discussion in the EGH forum on whether new e-commerce indicators should be added to the list of ICT household indicators to be collected annually by ITU. Priorities were given to a few e-commerce indicators based on the OECD model survey.

During 2017, the following indicators were discussed in the EGH online forum:

- Type of goods and services purchased online;
- Location of the seller;
- Payment channels of the purchases
- Reasons individuals do not purchase online and
- Method of delivery.

Comments received from the online forum: Brazil (Cetic.br), Spain, Kenya, Rwanda, Uruguay, Canada, Kenya

Preliminary conclusion:

- Improving the measurements of e-commerce activities is crucial to better understand the digital economy.
- There are large data gaps on the value of e-commerce, especially relating to cross-border e-commerce.
- While the response categories of some indicators may need adjustments, it is recommended to include all e-commerce indicators except the indicator on location of seller (cross-border e-commerce), which has shown to be difficult for individuals to answer accurately. However, it is recommended to include an indicator on cross-border e-commerce once the accuracy of such an indicator can be improved.

Points for discussion:

- Countries and experts are encouraged to provide feedback on the proposals to add indicators on e-commerce in the ICT household indicators to be collected by ITU on an annual basis.
- Countries and experts are encouraged to provide feedback on the response categories for each indicator. Are any adjustments necessary to the list of response categories?
- Are there any other e-commerce indicators which would be important to add to the list of ICT household indicators?

¹ This document was prepared by Fredrik Eriksson, ITU.

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I. Background: The growing importance of measuring E-commerce

The digitalization of the economy is developing at a rapid pace, affecting everything from the labour market to the production and distribution of goods and services. New digital opportunities are changing the way people live, communicate and do business. These rapid changes pose challenges to the entire international statistical system ranging from how to more accurately capture some of the new features of digitalization in the GDP, to how to better understand the ways the increasing flow of data can be harvested for official statistics. The Expert Group on ICT Household Indicators can contribute to tackling some of these challenges by developing methodologies and improving the availability of data on how households and individuals access and use the Internet.

The digitalization of the economy is also changing our consumption patterns moving gradually from the off-line to the on-line environment. The growth of e-commerce reflects this trend and it is growing at a remarkable rate across the world. In 2015, the total e-commerce market was valued at USD 25 trillion, of which business-to-consumer (B2C) e-commerce was estimated at USD 3 trillion with China surpassing the United States as the largest market for B2C e-commerce.² Online retailers and platforms facilitating e-commerce, such as Amazon and Alibaba, are growing rapidly and are now considered some of the most valuable companies in the world in terms of market value. In addition, online sales by traditional retailers, such as Walmart, are rising rapidly with the shift in consumer behavior.

The OECD definition of e-commerce places emphasis on the order of the goods or service being received or made electronically, irrespectively of the type of good or service purchased, and methods of payment and delivery. The OECD definition of E-commerce is described in box 1.

Box 1. OECD Definition of E-commerce

“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.”

In addition to the strong growth of e-commerce related to purchases of tangible goods, such as books, electronic appliances or clothes, in many countries, the increasingly growth of online purchases of services and intangible (or digital) goods delivered electronically, such as applications, music, movies, games and other forms of entertainment, has created the need to measure the dynamics of this type of e-commerce. Measuring both tangible and intangible online purchase is vital in order to better understand the new digital economy.

A parallel trend is related to the globalization of e-commerce activities, i.e. cross-border e-commerce, meaning tangible and intangible goods or services that are ordered in one country and delivered to the purchaser in different a country either using physical delivery services or electronically via downloading

² http://unctad.org/meetings/en/Presentation/dtl_eWeek2017p25_TorbjornFredriksson_en.pdf

a digital file containing an application, a music, video, etc. The growing number and value of these types of transactions relating to the digitalization of trade pose a challenge to existing statistical frameworks used to produce indicator on e-commerce activities.

Increasing data availability and improving measurements of e-commerce activities are crucial to understand the digital economy and several international organizations are working together to fill some of these data gaps. While the digitalization of the economy requires updated statistical frameworks in different areas, household surveys can play an important role to fill some of these data gaps, in particular to better understand individuals' changing consumption pattern, a vital component in the digital economy.

The International Telecommunication Union (ITU) collects annually data on households and individuals' access and use of the Internet. Household indicator HH9, *the proportion of individuals using the Internet, by type of activity*, includes several response categories relating to individuals' overall participation in various e-commerce activities.³ While this information is useful to get an estimate of the number of individuals who are using the Internet for these purposes, no information exists on the scope of participation, e.g. value and number of purchases, or the type of good or service that is traded.

The European Union Survey on ICT usage in households and by individuals, managed by Eurostat, has included, for several years, a special module to collect more in-depth information on individuals' participation in e-commerce activities. The OECD model survey, which is largely consistent with the Eurostat model questionnaire, also includes several questions to better understand:

- Type of goods and services purchased online;
- Frequency of purchases;
- Location of the seller;
- The value of the purchases;
- Payment channels of the purchases; and
- Reasons individuals do not purchase online.

As a result, while more detailed information exists on e-commerce participation in developed countries, there are still significant data gaps in the amount of information available for developing countries. However, considering the experiences and existing modules already developed by Eurostat and the OECD, opportunities exist to fill some of the data gaps.⁴

At the 4th meeting of the Expert Group on ICT Household Indicators, participants discussed data needs relating to cross-border e-commerce and the potential to use household surveys to improve the

³ Household indicator HH9 include response categories such as: *purchasing or ordering goods or services, selling goods or services, using services related to travel or travel-related accommodation, Internet banking and streaming or downloading images, movies, videos or music; playing or downloading games*. For more information, see the The Manual for Measuring ICT Access and Use by Households and Individuals, available at: <http://www.itu.int/en/ITU-D/Statistics/Pages/publications/manual2014.aspx>

⁴ See Annex A for Module G on e-commerce in the OECD model survey, which was used as a starting point for the discussions. See Annex B for module D of the 2016 Eurostat Model Questionnaire.

availability of information related to e-commerce activities. While there are many important indicators relating to e-commerce activities, the EGH meeting in 2016 prioritized a few indicators for consideration to be included in the list of ICT household indicator and collected by ITU on an annual basis. However, it is important to note that other relevant indicators could also be considered for future inclusion. The indicators currently for discussion are presented in section II.

In conclusion, the significant growth of e-commerce activities creates new data needs which go beyond simply understanding the proportion of individuals purchasing or selling goods and services online.

II. Proposal for new E-commerce indicators

The EGH in 2016 agreed that information on e-commerce was highly relevant for policy-making and that more data could be collected through stand-alone surveys or additional questions to existing household surveys. Four indicators were of particular interest for inclusion in the list of ICT household indicators collected annually by the ITU; however, it was recommended to continue the discussion in the EGH forum in 2017. Based on the discussions in the EGH forum during 2017, an additional indicator on the method of delivery has also been raised as a potential indicator for inclusion in the list of ICT household indicators. The five indicators for consideration are:

- Types of goods and services purchased online;
- Location of sellers (national and foreign);
- Payment channels for online purchases;
- Reasons for not purchasing online; and
- Method of delivery.

The following section provides more information on these five indicators.

Indicator 1: Type of goods and services purchased online

Both module G on e-commerce in the OECD Model Survey and Eurostat Model Questionnaires include questions on the types of goods and services purchased online, but with some differences regarding the response categories.

The following types of goods and services purchased online are included in the OECD model survey and include the following response categories:

- Books, magazines or newspapers;
- Clothing, footwear, sporting goods or accessories;
- Computer equipment or parts (including peripheral equipment);
- Computer or video games;
- Computer software (includes upgrades and paid apps; not games);
- Cosmetics;
- Financial products (including shares and insurance);
- Food, groceries, alcohol or tobacco;
- ICT services (excluding software);
- Medicine;
- Movies, short films or images;
- Music products;
- Photographic, telecommunications or optical equipment;
- Tickets or bookings for entertainment events (sports, theatre, concerts, etc.); and
- Travel products (travel tickets, accommodation, vehicle hire etc.).

Target population: individuals who purchased products over the internet.

In addition, Eurostat's module on use of e-commerce has over the years also included other categories, such as:

- Household goods (e.g. furniture, toys, etc.; excluding consumer electronics); and
- E-learning material.

Arguments for inclusion:

- Information on the type of goods and services purchased online is important to assess consumer behavior and the degree of digitalization of sales of products; and
- Data series already exists for many developed countries.

Arguments against inclusion:

- The large number of response categories increases the burden on the respondent;
- The list of products is not exhaustive and limited to certain products and services. New (or country-specific) types of goods and services may require further revision to the response categories, making cross-country comparisons and/or comparisons over time difficult; and
- Having a long list of products which is only applicable to individuals purchasing online may lead to low quality of the estimates.

- The list does not distinguish between tangible and intangible goods, e.g. both the purchase of a CD and a subscription for a digital music-streaming service, e.g. Spotify, would count as music product.

Conclusion:

Because of the policy relevance of this indicator, it is recommended to include an indicator on type of goods and services purchased online in household surveys and in the list of household indicators to be collected annually by ITU. However, further work may be needed to revise the list of goods and services in accordance with current online market trends. Countries may also need to add additional response categories on type of goods and services based on local needs and consumption patterns.

Indicator 2: Location of sellers: national or foreign

The OECD model survey and the Eurostat Model Questionnaire both include questions on location of seller. The OECD model survey includes the following three response categories relating to the location sellers:

- Country of residence;
- Abroad; and
- Don't know.

Target population: individuals who purchased products over the Internet.

Eurostat's module on e-commerce separates the category "Abroad" into:

- Sellers from other EU countries; and
- Sellers from the rest of the world.

Arguments for inclusion:

- The information on cross-border e-commerce is highly important for policy making and for measuring digital trade; and
- There are large data gaps in terms of cross-border e-commerce. The increasing volume of cross-border e-commerce also amplifies the need for more and better data.

Arguments against inclusion:

- It has proven difficult for individuals to determine the exact location of the seller considering many vendors have local websites in local languages and charging in local currencies which may lead to a misunderstanding if the seller is located in the country or abroad. As such, the accuracy of the estimates could be questioned; and
- Considering the pressing data need for information on cross-border e-commerce, countries and international organizations are currently working on findings new ways of measuring cross-border e-commerce. As such, improved measurements may result from this work in the future.

Conclusion:

Because of the difficulties in accurately tracking the location of seller, it is currently not recommended to include this indicator neither in household surveys nor in the list of household indicators to be collected annually by ITU. However, because of the importance of measuring cross-border e-commerce, countries and experts are encouraged to explore new options to better understand the share of e-commerce which contributes to trade flows across countries.

Indicator 3: Payment channels for online purchases

The OECD model survey includes a question on mode of payment of e-commerce activities. It includes the following response categories (multiple choices possible):

- Credit card online;
- Debit card or electronic bank transfer online;
- Online payment service (e.g. PayPal, Google Checkout);
- Prepaid gift card or online voucher;
- Points from rewards or redemption program (e.g. Air Miles); and
- Other (e.g. cash, bank check by post, etc.).

Target population: individuals who purchased products over the Internet.

Considering the fast rate of technology and increase in the supply and demand of mobile payment systems, as well as the differences in preferred payment methods across regions, it has also been suggested in the EGH forum to include further response categories. Some proposals for response categories include:

- Mobile payments (payments made from one mobile to another mobile or to till number or pay bill number);
- Mobile banking payments (payments done from the mobile phone linked to the bank accounts of the provider/seller); and
- Cash on delivery: include payments of goods once they have been received by cash.

Argument for inclusion:

- Method of payment can contribute to better understand the preferences by consumers purchasing online. As such, the information can be used to link up with the most popular type of payment provider, e.g. using alternative data sources, and thus may also contribute to improve the measurement of the value of e-commerce.

Argument against inclusion:

- New methods of payment may arise and future revisions may be needed; and
- The large number of response categories increases the burden on the respondent.

Conclusion:

It is recommended to include this indicator in the list of household indicators to be collected annually by ITU. Method of payment is a useful indicator to expose the current market conditions and to measure the technological transition towards new digital payment channels.

Indicator 4: Reasons for not purchasing online

The OECD model survey includes a question on reasons for not purchasing online. It includes the following response categories (multiple choices possible):

- Not interested;
- Prefer to shop in person;
- Security concerns (e.g. about giving debit or credit card details);
- Privacy concerns (e.g. about giving personal details);
- Trust concerns (e.g. about warranties, receiving or returning products); and
- Lack of confidence, knowledge or skills.

Target population: individuals who did not purchase over the Internet.

Additional response categories may be needed, e.g. relating to issues or problems relating to the logistics, such as the delivery/return of the goods or services, or not being able to pay over the Internet.

Argument for inclusion:

- An indicator on the reasons for not purchasing online is important from the angle of measuring the digital divide and to measure the trust of individuals in the system.

Argument against inclusion:

- The list is not exhaustive and further elaboration on response categories may be needed; and
- The large number of response categories increases the burden on the respondent.

Conclusion:

Because of the policy relevance of this indicator in relation to measuring the digital divide, it is recommended to include an indicator on the reasons for not purchasing online in household surveys and in the list of household indicators to be collected annually by ITU. However, further work may be needed to revise the list of response categories to ensure the different options are relevant for all types of countries and market conditions.

Indicator 5: Method of delivery

The OECD model survey does not include a question relating to the method of delivery; however, the importance of measuring digital content is rising. Other indicators on e-commerce do not capture the distinction between tangible and intangible (digital) goods. Examples of response categories could be (multiple choices possible):

- Delivery directly to the buyer using regular postal services or other forms of delivery;
- Picked up from point of sale or service point;
- Online / electronic delivery by downloading or through an application, software or other device (e.g. in-app purchases, streaming services etc.);

Target population: individuals who purchased products over the Internet.

The response categories above are examples for comments.

The Eurostat model questionnaire 2017 included a question on the type of products purchased over the internet for private use from sellers from other EU countries or from the rest of the world. In this question one of the response categories were *products downloaded or accessed from websites or apps*, i.e. a merger of the two examples categories above on goods delivered electronically. The same question in the Eurostat questionnaire had separated services into *travel, accommodation or holiday arrangements* and *other services*.

Argument for inclusion:

- An indicator on the delivery of the goods and services is useful to get information on the number of people buying digital content.

Argument against inclusion:

- The response categories have not yet been defined and may need further work.

Conclusion:

It is recommended to include this indicator in the list of household indicators to be collected annually by ITU. Method of delivery complements the indicator on method of payment and could be an important new source of information on the share of e-commerce delivered electronically.

III. Conclusions

E-commerce is growing in importance across the world; however, there remain large data gaps at an international scale on how and what type of goods and services individuals shop online, especially in developing countries. In order to improve the measurement of the global digital economy, it is imperative to deepen ITU's data collection on households' and individuals' access and use of the Internet in the area of e-commerce.

It is thus recommended to add new indicators on e-commerce to the list of ICT household indicators to be collected annually by ITU.

- Countries and experts are invited to comment on the indicators considered for inclusion and their response categories.
- Countries and experts are also encouraged to highlight other indicators relating to e-commerce which could be further explored for future inclusion.

Annex A: OECD Model Survey on ICT Access and Usage by Households and Individuals: 2nd revision

Module G: E-Commerce

<p>G1.</p>	<p>Most recent occurrence of online purchases (% of individuals buying online and frequency)</p>	<p>Population: Internet users (within the last 12 months).</p> <p>Most recent occurrence refers to:</p> <ul style="list-style-type: none"> a. During the last 3 months; b. 3 months to one year ago; c. More than one year ago; d. Never
<p>G2.</p>	<p>Types of goods and services purchased online (% relevance of each item-type in list)</p>	<p>Population: individuals who purchased products over the internet</p> <p>Types of goods and services include:</p> <ul style="list-style-type: none"> a. Books, magazines or newspapers b. Clothing, footwear, sporting goods or accessories c. Computer equipment or parts (including peripheral equipment) d. Computer or video games e. Computer software (includes upgrades and paid <i>apps</i>; not games) f. Cosmetics g. Financial products (including shares and insurance) h. Food, groceries, alcohol or tobacco i. ICT services (excluding software) j. Medicine k. Movies, short films or images l. Music products m. Photographic, telecommunications or optical equipment n. Tickets or bookings for entertainment events (sports, theatre, concerts, etc.) o. Travel products (travel tickets, accommodation, vehicle hire etc.)
<p>G3.</p>	<p>G3. Orders placed online in the last three months (% relevance of each bracket) [Note: apps can be distinguished from website]</p>	<p>Population: individuals who purchased products over the Internet.</p> <p>Number of orders can be grouped according to the following brackets:</p> <ul style="list-style-type: none"> a. 1 or 2; b. 3 to 10; c. 11 to 20; d. More than 20.

G4.	Location of sellers: national or foreign (% distribution)	Population: individuals who purchased products over the Internet. Location includes: a. country of residence; b. Abroad; c. Don't know.
G5.	Amount spent on online purchases (% of buyers by value brackets)	Population: individuals who purchased products over the Internet. Amounts can be expressed in national currency (total) or based on brackets defined as [% of Gross National Income per capita], e.g. [less than 5%], [5 and up to 10%], [10 to 20%], [20% or more] (Don't know).
G6.	Payment channels for online purchases (% of buyers by channel)	Population: individuals who purchased products over the Internet Multiple choices possible. Channels include: a. credit card online; b. Debit card or electronic bank transfer online; c. Online payment service (e.g. PayPal, Google Checkout); d. Prepaid gift card or online voucher; e. Points from rewards or redemption program (e.g. Air Miles); f. Other (e.g. cash, cheque by post, etc.).
G7.	Reasons for not purchasing online (% relevance of each reason)	Population: individuals who did not purchase over the Internet. Multiple choices possible. Reasons include: a. Not interested; b. Prefer to shop in person; c. Security concerns (e.g. about giving debit or credit card details); d. Privacy concerns (e.g. about giving personal details); e. Trust concerns (e.g. about warranties, receiving or returning products); f. Lack of confidence, knowledge or skills.

Annex B: European Union Survey on ICT usage in households and by individuals: 2016 Eurostat Model Questionnaire

Module D: E-Commerce

D1.	<p>When did you last buy or order goods or services for private use over the Internet? (filter question)</p>	<p>a. Within the last 3 months [-> go to D2]</p> <p>b. Between 3 months and a year ago [-> go to D2]</p> <p>c. More than 1 year ago [-> go to D9 / if 'more than a year ago' in B1 -> go to G1]</p> <p>d. Never bought or ordered [-> go to D9 / if 'more than a year ago' in B1 -> go to G1]</p>
D2.	<p>What types of goods or services did you buy or order over the Internet for private use in the last 12 months? (tick all that apply)</p>	<p>a. Food or groceries</p> <p>b. Household goods (e.g. furniture, toys, etc; excluding consumer electronics)</p> <p>c. Medicine</p> <p>d. Clothes, sports goods</p> <p>e. Computer hardware</p> <p>f. Electronic equipment (incl. cameras)</p> <p>g. Telecommunication services (e.g. TV, broadband subscriptions, fixed line or mobile phone subscriptions, uploading money on prepaid phone cards, etc)</p> <p>h. Holiday accommodation (hotel etc.)</p> <p>i. Other travel arrangements (transport tickets, car hire, etc)</p> <p>j. Tickets for events</p> <p>k. Films, music</p> <p>l. Books, magazines, newspapers (including e-books)</p> <p>m. e-learning material</p> <p>n. Video games software, other computer software and software upgrades</p> <p>o. Other</p> <p>[-> go to D3]</p>
D3.	<p>From whom did you buy or order goods or services for private purpose over the Internet in the last 12 months? (tick all that apply)</p>	<p>a. National sellers</p> <p>b. Sellers from other EU countries</p> <p>c. Sellers from the rest of the world</p> <p>d. Country of origin of sellers is not known [-> go to D4]</p>
D4.	<p>How many times did you order or buy goods or services over the Internet for private use in the last 3 months? (for respondents who answered</p>	<p>_____ times (please provide an estimate) or (tick one)</p> <p>a. 1-2 times</p> <p>b. 3-5 times</p> <p>c. 6-10 times</p> <p>d. >10 times</p>

	"in the last 3 months" in question D1)	[-> go to D5]
D5.	<p>How much as an estimate did you spend buying or ordering goods or services over the Internet (excluding shares or other financial services) for private use in the last 3 months?</p> <p>(for respondents who answered "in the last 3 months" in question D1)</p>	<p>_____ euro (or national currency converted in euro) or (tick one)</p> <p>a. less than 50 euro b. 50 to less than 100 euro c. 100 to less than 500 euro d. 500 to less than 1000 euro e. 1000 euro and more f. don't know</p> <p>[-> go to D6]</p>
D6.	<p>Did you encounter any of the following problems when buying or ordering (optional) goods or services over the Internet for private use in the last 12 months?</p> <p>(tick all that apply or j)</p>	<p>a. Technical failure of website during ordering or payment b. Difficulties in finding information concerning guarantees and other legal rights c. Speed of delivery slower than indicated d. Final costs higher than indicated (e.g. higher delivery costs, unexpected transaction fee) e. Wrong or damaged goods/services delivered f. Problems with fraud encountered (e.g. no goods/services received at all, misuse of credit card details, etc.) g. Complaints and redress were difficult or no satisfactory response after complaint h. Foreign retailer did not sell to my country i. Others j. I have not encountered any problem</p> <p>[-> go to D7]</p>
D7.	<p>How often did you use the following online information before you bought or ordered goods or services over the Internet for private use in the last 12 months?</p> <p>(tick all a-c items that apply)</p>	<p>a. Information from several retailer, producer or service provider websites b. Price or product comparison websites or apps c. Customer reviews on websites or blogs</p> <p>...when I bought online</p> <p>Response categories: a. Every time or almost every time b. Sometimes c. Rarely or never</p> <p>[-> go to D8]</p>

D8.	<p>Have you bought or ordered any good or service for private use over the Internet by clicking/buying straightaway through an advertisement on a social media website or app (e.g. Facebook) in the last 12 months?</p>	<p>a. Yes b. No</p> <p>[-> go to D9]</p>
D9.	<p>Did you carry out any of the following financial activities over the internet (excluding e-mail) for private purposes in the last 12 months?</p> <p>(tick all that apply) (for respondents who answered "in the last 3 months" or "between 3 months and a year ago" in question B1)</p>	<p>a. Buying or selling shares, bonds, funds or other investment services b. Buying or renewing existing insurance policies including those offered as a package together with another service (e.g. travel insurance offered together with a plane ticket) c. Taking a loan or arranging credit from banks or other financial providers</p>