

The treatment of internet purchases in Consumer price statistics Harmonising their treatment in the HICP

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Abstract

The importance of the internet as a channel to purchase consumer goods and services is continuously growing. The share of transactions via internet in the expenditure of households can not be neglected, particularly not for certain product groups.

The sound and consistent treatment of these transactions may be regarded as an important challenge for price statisticians. Eurostat is currently working on the development of guidelines on a harmonized approach for the treatment of these transactions in the Harmonized Index of Consumer Prices (HICP) across Europe. However, in this process a number of conceptual questions arise. The guidelines must be in line with the general conceptual framework and they must be practical to implement.

One of the major challenges that price statisticians have to face with respect to internet purchases is how to determine the borderline between domestic and cross-border purchases. How should it be determined whether a product bought from a certain website is purchased in the consumer's country of residence or in another country?

For the HICP, the subsequent question is in which country the transaction should be considered to be part of the Household Final Monetary Consumption Expenditures in order to ensure that all transactions will be accounted for in the expenditure weights in one country and only in one country. The HICP relies on the domestic concept of consumption expenditures, but internet purchases may call for additional specifications of this concept.

Finally, how should price collection be organized so that it is made sure that data on price observations will be consistent with data on consumption expenditures that are used for the weights? Price statisticians may propose different solutions if the weights are based on the Household Budget Survey or on National Accounts data.

A related issue is the treatment of additional costs when making purchases via internet, e.g. the treatment of delivery charges, and this should also be considered.

This paper proposes solutions for two issues: (a) how to determine the borderline between national and cross-border purchases from the internet (a different treatment is proposed for goods and services); and (b) how to treat additional purchasing costs such as delivery costs that are often involved in internet purchases (the proposed approach is to always include such costs in the purchase price of the internet products).

Key words: internet purchases, CPI, HICP, domestic concept, purchaser price.

¹ The opinions expressed in this paper are the author's opinion and need not represent Eurostat's view on the subject. The paper explores preliminary ideas that may be input into further discussions and do not prejudice on decisions to be made.

² This paper is prepared for the 12th meeting of the Ottawa Group held in Wellington, New Zealand from May 4th to May 6th, 2011. It is still preliminary; do not cite without permission of the author.

1. Introduction

The importance of the internet as a channel to purchase consumer goods and services is continuously growing. Nowadays, the share of transactions via internet in the expenditure of households cannot be neglected, particularly for certain product groups.

29 November 2010 was reported to be the first day in history on which consumers spent more than 1 billion US dollars on one day from US websites³. On the same day a figure of 22 million GBP per hour was reported for British consumers' expenditures on the web⁴.

In 2010, 70% of the households in the European Union (EU) had internet access at home, and 40% of EU citizens made some purchases online. 9% of EU citizens carried out purchases through the internet from suppliers in other EU Member States and 5% carried out purchases through the internet from suppliers from outside the EU. Already in 2007, 4.2% of enterprises' turnover came from e-commerce, a figure that had doubled since 2004.

These results indicate the large and growing market share of internet purchases, and illustrate the importance of defining and implementing a harmonised and consistent treatment of internet purchases in the Consumer Price Index (CPI) and in the Harmonised Index of Consumer Prices (HICP).

Up to now, at least for the HICP, the methodological treatment of internet purchases has not been much discussed. Although there is a general requirement that HICPs must be representative, and therefore cover internet purchases where these are significant, the specific detailed principles on their treatment have not been agreed. It is clear that in order to remain relevant in the future, the HICPs, and CPIs more generally, will need to ensure that they cover internet purchases in a way that is complete, reliable and coherent.

An important exploratory paper on this subject by Fenwick, Brueton and Ball (2003) was presented at the seventh meeting of the Ottawa Group. This paper described the work done in this field in the United Kingdom⁵. Many of the issues raised in that paper are still valid today. However, whilst the Fenwick, Brueton and Ball paper for several of the reported problems noted that, at that time (2003), they were "unlikely to be an issue of great importance at current levels of online retailing", this may no longer be the case.

The internet plays various roles in the work of price statisticians:

- it can be regarded as a type of outlet;
- it is a source for measuring prices for a large number of product groups. Many suppliers of goods and services publish their prices on the internet. Therefore, there may no longer be a need to collect prices by visiting the enterprise or by using paper questionnaires.

³ <http://blog.comscore.com/2010/12/>

⁴ <http://www.telegraph.co.uk/finance/newsbysector/retailandconsumer/8095927/Mega-Monday-22-million-spent-online-each-hour.html>

⁵ "Internet Retail channels in Price Indices; the challenges involved in including non-traditional retailers in the UK Retail Prices Index", David Fenwick, Anna Brueton and Adrian Ball, Paris 2003.

- a number of new products have come to the markets which could not have existed without the internet: examples are music-downloads, electronic books, electronic newspapers, services of internet providers, etc. These products should be included in the basket of goods and services covered by the CPI and in the Classification of Individual Consumption by Purpose (COICOP). The inclusion of such new products in the Harmonised Index of Consumer Prices (HICP) should be envisaged, and Eurostat may consider giving guidance on this matter. However, this is not the subject of this paper.

The complete and consistent treatment of internet purchases by consumers is an important challenge for price statisticians. Eurostat is currently working on the development of guidelines on a harmonised approach to the treatment of internet transactions in the HICP across Europe. The guidelines must be in line with the general conceptual HICP framework and they must be practical to implement. In this process a number of conceptual questions arise.

This paper aims to explore some general principles for the treatment of internet transactions within the HICP framework.

One of the major challenges that price statisticians face with respect to internet purchases is how to determine the borderline between domestic and cross-border purchases, i.e. how to determine whether a product or a service bought from a certain website or provider is purchased in the purchaser's country of residence or in another country. In the HICP framework, this means identifying in which country the transaction should be considered to be part of the Household Final Monetary Consumption Expenditures, according to the domestic concept. The ultimate aim is to ensure that all representative price observations and all transactions will be accounted for in the expenditure weights in one country and only in one country. In addition, at EU level, it is important to harmonise the treatment of internet purchases to ensure comparability across countries and to avoid that certain transactions are double-counted or not covered at all when compiling the European totals. Thus, internet purchases may call for additional specifications of the domestic concept. Section 2 analyses the issue of the location of the internet transaction

A further issue is the treatment of additional costs when making purchases via internet, e.g. the treatment of delivery charges. Section 3 give some considerations on how to treat additional costs associated to internet purchases.

Section 4 presents a summary of the first preliminary conclusions on the analysed issues.

2. Physical location of the internet transaction

Two main concepts of spatial location are used in national accounting and consumer price statistics: the national and domestic concepts.

The national concept in the CPI covers all of the consumption expenditures of all residents living in the economic territory of one country. The domestic concept covers all consumption expenditures taking place on the economic territory of the country irrespective of the residence status of the consumer, including expenditures by non-residents (e.g. tourists visiting the country and cross-border expenditures of non-residents within the country) and excluding expenditures of that country's residents abroad.

In the HICP, the domestic concept is used; this approach ensures that the aggregated results for the Economic and Monetary Union (euro area) and for the European Union (EU) cover all household final monetary consumption expenditures on the economic territory of the euro area and the EU. Using different concepts across countries can be one major source of double-counting or omitting expenditures.

If the national concept of expenditures is used in the CPI, internet purchases may not raise special problems in relation to the definition of expenditures. However, when the domestic concept is used, it is not always straightforward whether an internet purchase is a domestic or cross-border transaction⁶.

The location of an internet transaction may be not very easy to determine. The following example illustrates the complexity of the issue in a globalised world:

- a) A consumer has a permanent residence in the Netherlands,
- b) He is temporarily residing in Belgium,
- c) He buys a product from a website Company.CO.UK.
- d) He defines a billing and delivery address in the Netherlands.
- e) The product is delivered by mail/parcel delivery originating from an address in the Netherlands
- f) The invoice address is indicated to be Luxembourg
- g) VAT is to be paid to Dutch government using Netherlands rates.

In which country should this transaction be covered by the CPI/HICP?

In 2010, Eurostat ran a survey across European National Statistical Institutes (NSI) on the treatment of internet purchases in their HICPs. One question asked whether internet purchases made by residents from companies with registered offices in their country were considered within the scope of their HICPs. Out of 24 responding NSIs, 20 declared that they would include these purchases in their HICPs, but 4 had no reliable information on the subject.

Another question focussed on whether internet purchases made by residents from companies without registered office in their country were considered to be within the scope of their HICP. In 15 cases, these transactions were not included. Three NSIs included these purchases in their HICP, two considered it not a relevant criterion and four had no reliable information on the subject.

A third question inquired about the criterion for determining the country location of a company. Replies indicated that the major criteria used were:

- Web address country code
- Registration according to national legislation
- Location of service provision
- Existence of a branch office or outlet in the national territory
- VAT registration

⁶ It should be noted that internet purchaser and consumer can be different persons resident in different countries. In case of internet transactions, this distinction between purchaser and consumer may be crucial for determine the location.

These results indicate that part of cross-border internet transactions is not covered by HICP and also that the use of different criteria may eventually lead to some lack of comparability across countries. What is also not clear is whether and how expenditures by foreign consumers in web shops with headquarters in the country are included in the HICP.

The next paragraphs discuss possible principles for treating cross-border internet purchases. In going through the different considerations, a reference target is to ensure that the aggregated HICP for all EU member states covers all internet purchases without double counting.

2.1. Treatment of cross-border internet transactions

For transactions not involving the internet it is clear where a transaction takes place. If the consumer visits a physical store to buy products, both purchaser and seller are at the same location at the time of the transaction and the transaction takes place in the town and country where the shop is located. Only in cases where goods or services are ordered by letter or by phone it is possible that the location of the shop and the location where the good is delivered may be in different countries. However the location of the store is usually clear. This is not always fully obvious in case of internet transactions. Several alternative locations may be considered:

- a) Purchaser's domicile at the time of the order
- b) Location of the seller
- c) Address where the product is delivered to
- d) Purchaser's address
- e) Billing address
- f) The location where the product is consumed
- g) Country where tax, in particular VAT is paid

a) Purchaser's domicile at the time of the order

For cross border expenditures not involving the internet, the transaction usually takes place where the purchaser actually is. However, in the case of the internet transaction the address where the purchaser is at the time he makes the order from the web shop does not seem to be the most relevant for the transaction. The purchaser does not receive the product on the spot (except maybe for downloads), and even when he pays at the time of ordering he may use a bank account or credit card, registering the transaction from the purchaser's home address.

b) Location of the seller

In case of cross border expenditures not involving internet, the place of the transaction is usually the place where the seller resides. In the case of internet transactions the location of the seller is not always clear. The Top-level domains (TLD) of the international web retailers do not necessarily indicate this place. First of all the TLDs like .com, .eu, .org give no indication at all of the country where the seller is located and secondly the websites with seller's TLDs indicating a specific country may belong to companies residing in other countries.

Furthermore international web retailers may be located in one country or they may have several branch offices in various countries. For the consumer or for the price statistician this is

very difficult to find out. For example, the European branch of Amazon is located in Luxembourg and bills from the various "European" Amazon websites all come from Luxembourg. From a practical point of view, it is not meaningful to attribute all purchases from Amazon in Europe to Luxembourg and record them in the HICP of Luxembourg.

c) Address where the product is delivered to

In case of an internet purchase, the transaction must also include getting the product at the disposal of the consumer. Three cases may be distinguished:

- i. Consumer must come and collect the good at a distribution station of the web retailer.
- ii. The product is delivered by the web retailer, by mail or by parcel delivery.
- iii. The good can be downloaded via the internet, e.g. music downloads, computer programs.

If the good must be collected by the consumer, the most logical approach to determine the place is to take the delivery location as the location of the transaction. It means that, if the good must be picked up by the consumer at a cross border location, the transaction should be attributed to the cross-border country.

If the products, bought through the internet, are delivered to the residence of the consumer, it should be considered as domestic consumption, irrespective of the location of the web retailer. The price should then be entered in the HICP for the month in which the good was purchased, and not at the moment of delivery.

Following this line of reasoning, internet downloads should also be attributed to domestic consumption. Even though it is possible that the download is made on a computer that is (temporarily) situated in country different from the resident country of the purchaser, the transaction should be considered to take place in the country of domicile of the consumer.

d)e) The purchaser's address and the billing address

These locations correspond, in many cases, to the place of delivery. The place of delivery may impact on the tax to be paid if the product is delivered in a different country.

If we have to choose between these alternatives (*b* and *d-e*), preference should be given, from a conceptual point of view, to the place of delivery. In practice, transactions with different place of delivery and place of residence of the purchaser may be so rare that a distinction seems not necessary.

f) The location where the product is consumed

Generally the CPI measures price developments for monetary transactions without bothering about the consumption of the product. However, for a proper treatment of internet transactions a distinction should be made between purchases of goods and purchases of services. Goods and services are not treated in a completely identical way in the HICP. The most obvious difference concerns the timing of the price observation. Commission Regulation (EC) No 2601/2000 on the timing of entering purchaser prices into the HICP states:

Article 2: Timing

Prices used in the HICP shall be the purchaser prices paid by households to purchase individual goods or services in monetary transactions. Prices for goods shall be entered into the HICP for the month in which they are observed. Prices for services shall be entered into the HICP for the month in which the consumption of the service at the observed price can commence.

Following this reasoning on the timing of the observation, a similar distinction could be made between goods and services in relation to the location of the consumption. In this case, the prices for services, if purchased through the internet, could be attributed to the country where the consumption can commence. Services bought through the internet very often have the form of tickets for transport, reservations for concert or other performances, accommodation services, etc. The consumption of such services from a transport company, a concert hall or holiday accommodation can only commence when the consumer is in the location where the consumption will take place. If the location is abroad, then the expenditure and the price must be attributed to the country hosting the consumption and not to the HICP of the country where the consumer resided when he made the reservations or ordered the tickets.

In case of consumption of goods, the place of consumption is not considered relevant in the HICP. E.g. if some Belgian resident buys petrol in Luxembourg, just across the Luxembourgish/ Belgian border, this transaction enters into the Luxembourgish HICP, even if most of the petrol will be used on Belgian roads.

g) Country where tax, in particular VAT is paid

An alternative criterion for determining where a consumption expenditure purchase takes place is to choose the country which determines the taxes that are payable on the products. The general rule for VAT-taxation in the EU is that the VAT on goods is payable in the country where the good is being delivered and the VAT on services is payable in the country where the provider of the service is residing.

This approach implicates an approach more or less similar to the proposal made to measure the expenditures for internet transactions for goods in the country of delivery and for services in the country where the service is provided (case *e*). Following the example described at the beginning of Section 2, VAT for goods is payable at Dutch rates. In the case of a concert ticket, the VAT as charged in the country where the concert takes place would be included in the ticket price.

The payable VAT may therefore be a powerful tool to determine in which country certain transactions must be covered in the HICP. Furthermore VAT records can be an important source for National Accounts to establish consumption figures, which later serve as input for weights calculations in the HICP.

A few remarks must however be made on this subject:

- The definition of goods and services in European VAT regulations may differ from the definitions in the COICOP classification, e.g. the provision of computer software is considered a service in VAT regulations, whereas in the COICOP classification it is classified as a good. However, by exception, for VAT purposes these services are

taxed at the place of the recipient of the service and not at the place where the service supplier resides.

- Relying on tax regulations when defining a range of transactions to be covered by the CPI /HICP may lead to breaks in series or the need to define new statistical rules when tax regulations change. At present the European Commission is investigating the possibilities for revising the VAT system. The outcome is not yet clear but it is possible that a simplification will lead to a situation where part of the VAT payments will go to another national government.⁷
- Some products are exempt from VAT, e.g. international passenger air transport. The consistent attribution of air fares to individual countries with respect to HICP coverage is a subject that needs some specific harmonisation rules.

In addition to the list referred to for the location of the transaction, two possible additional entries are not to be considered:

h) The sender's address at delivery

The place from which the product is sent to the consumer may be not appropriate to determine the address of the seller. The use of logistics enterprises may reduce the delivery costs that web shops have to pay. The distribution of the products is outsourced to a distribution centre of a logistics enterprise in the destination country and from there the individual products are sent to individual customers by courier or at much lower national postal rates.

i) Intermediary enterprises

Special attention must be given to the measurement of prices for services from websites that operate as intermediary between the consumer and the enterprise providing the good or the service. Such intermediaries may be, for example, internet travel agencies that deal in airline tickets, other international transport tickets or hotel reservations. These companies provide tickets and reservations but do not provide the transport or hotel service themselves. Other examples are companies that deal in car rental contracts. They conclude contracts on car rental with consumers, but do not own the rental cars themselves. Instead they buy rental contracts from (international) car rental companies.

If this intermediary enterprise is a domestic enterprise one may be tempted to consider this a domestic purchase even if it is buying contracts from service providers abroad. It is preferable however to consider it consumption of services abroad. Only if the service of such an intermediary enterprise is charged separately it could be measured separately. In fact this would be comparable with "travel agents' commission, if separately priced", as described in COICOP 07.3.6.

2.2. Proposal concerning the location of the transaction

The previous paragraphs explored how to implement the domestic principle for internet purchases in the HICP framework.

⁷ GREEN PAPER On the future of VAT Towards a simpler, more robust and efficient VAT system. Brussels 1.12.2010 COM(2010) 695 Final

What emerged from the analysis is the following:

- A distinction can be made between the treatment of goods and of services;
- Consumption expenditures on goods could be covered in the country where the goods are delivered or collected by the consumer;
- Consumption expenditures on services could be covered in the in the country where the service is provided.

These rules are remarkably simple and may therefore be simple to implement in practice. However some issues still have to be solved. For example, prices for goods purchased through the internet and originating from countries outside the EU could slip into the HICP for the EU. If it were to be decided that these purchases do not belong in the EU HICPs, an additional rule would need to be formulated stating that purchases from outside the EU should be excluded from the HICP. Consequently, the problem on how to determine the country where an internet shop is located would be considerably simplified for EU countries, but it would not be fully solved yet.

3. Additional costs in purchaser's prices in internet transactions

The purchase of goods and services through internet may involve additional costs that are charged in addition to the advertised product price. These may be costs for packaging, delivery costs, or more generally "administrative costs". Alternatively, these costs may be integral part of the advertised price with no visible separate charges payable by the consumer.

3.1. Historical background and examples of existing treatment of additional costs

The issue of how to assign delivery charges in general to COICOP/HICP has been already discussed in several fora, in particular, at European level, within the HICP Working Group. The discussion did not end up in clear conclusions or recommendations. The main reason not to pursue the issue further at that time was that "there was currently no indication for non-comparability"⁸. The increased importance of internet purchases opens new dimensions on this subject and is an additional reason to take up this issue again.

The issue of purchasing costs involves two questions: (i) whether purchasing costs should be included in the CPI coverage and (ii) to which COICOP-class they should be attributed.

The System of National Accounts (SNA) defines purchaser prices to include "any transport charges paid separately by the purchaser to take delivery"⁹.

In the case of HICP, when the definition of prices was established in Council Regulation (EC) No 1687/98, the part "including any transport charges paid separately by the purchaser to take delivery" was not retained as there was no agreement among EU member states in those days on whether and how to include these costs. Methodological work on this issue continued in the following years, through the work of a dedicated task force whose work pointed to a general agreement which took into consideration the fact that, with increasing coverage of

⁸ Eurostat, Document HCPI 01/339, 2001

⁹ SNA 1993 6.215

internet services and the like, delivery charges were gaining importance for the HICPs and should therefore be covered by the HICP.¹⁰

From the perspective of calculating a comprehensive CPI, these additional purchasing costs could be treated in various ways, as long as the prices are measured in the same COICOP class to which the expenditure weights are attributed. However, from the perspective of harmonisation and comparability of CPI results across countries, a uniform treatment of these expenditures is necessary (which is not yet the case).

Without having a full overview of the present treatment of additional costs in all EU Member States at least four methods appear to be applied:

- Additional costs are an integral part of the product price;
- Additional costs (particularly delivery costs) are treated as separate expenditures under COICOP 08.1.1 "Postal services";
- Additional costs are treated separately and classified under COICOP 07.3.6 "Other Purchased Transport Services"
- Additional costs are treated separately and classified under COICOP 12.7 "Other Services n.e.c."

The natural approach would be that rules on the classification of additional costs are an integral part of the COICOP classification (under the responsibility of the United Nations). Eurostat, in the past, has created additional regulations on the implementation in COICOP/HICP. However, there are no clear rules defined for the treatment of additional costs.

Existing rules cover only some specific products and are not of a general nature. Examples of specific rules as specified in the COICOP classification are:

05.1.1 Furniture and furnishings Include delivery and installation when applicable

05.1.2 Carpet and other floor covering Include laying of floor coverings

05.3.1 Major household appliances Includes delivery and installation

Nevertheless, it is not clear whether these examples indicate that additional costs for delivery and installation should in general be considered part of the price of the good purchased or that these are exceptions to a general rule "not to include them".

There is also a counterexample where additional costs are priced separately and that is in COICOP 07.3.6 which includes "travel agents' commission, if separately priced". In this case the commission is considered as a payment for a service of its own. If such commission is not separately priced but included in the advertised price it forms part of the price for the travel purchased.

¹⁰ Eurostat, Document HCPI 01/329, 2001

3.2. *How to treat additional costs in the HICP*

If a decision towards the treatment of delivery costs separately from the price of the product to which relate is taken, a follow-up question would of course be the choice of the COICOP-group where these costs should be recorded.

The key aspect to be identified is who makes the transaction with the postal or delivery service. In such cases, it appears that the consumer is buying a service from the internet shop and the internet shop organises or buys the postal or delivery service. It therefore seems appropriate to treat the payment for the postal service as intermediate consumption by the internet shop rather than as final consumption by the consumer. The only reasonable argument for booking the delivery costs in COICOP 08.1.1 would be to consider the transaction between the internet shop and the postal service as a transaction on behalf of the consumer. Such an approach is not the preferred one for the HICP, since the HICP aims to measure household final monetary consumption expenditures without inclusion of imputed or attributed costs elements.

If the expenditures paid for delivery by the consumer to the internet shop would have to be booked in a COICOP class other than "Postal services", it is not obvious which COICOP-class should be chosen. The choice for 12.7 "Other services not elsewhere covered" does not seem appropriate because the COICOP classification gives a very specific list of services, covered in this COICOP-group, including e.g. legal services, funeral services, advertisements and marriage guidance counsellors, but not delivery of goods. COICOP 07.3.6 seems a better choice, even if the description of 07.3.6 in the COICOP classification is a limited list of various services like funicular, removal services, porters and left-luggage offices and travel agents commissions, if separately priced.

In conclusion, the inclusion of additional costs in the product price appears to be the more appropriate solution for a harmonised treatment. Despite the fact that a general rule seems to be missing in the COICOP classification, the proposed approach, based on the definition of the purchaser price in SNA and ESA, i.e. the purchaser price should include the additional costs, seems to be the best approach to a harmonized solution. This is even more evident in the HICP, as more and more weighting in the HICP are largely based on National Accounts as primary source (see also the new HICP regulation on weightings¹¹).

3.3. *How to measure the price inclusive of additional costs*

The measurement of the prices inclusive of additional costs is not straight forward. There exist all kinds of tariffs for delivery costs that make very difficult to attribute a price supplement to each individual product offer's price. Delivery costs can be reduced or even put to zero if the product price or the total price of the combined purchase of several products exceeds a certain threshold (quite common commercial practice in internet purchases).

In such cases the developments of the net product prices and the development of additional costs may be measured separately using representative examples of delivery costs prices. The total expenditures on the product and on delivery costs should then contribute to the total COICOP group weights.

¹¹ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:316:0004:0006:EN:PDF>

4. Concluding remarks

The treatment of internet purchases in CPIs and HICPs raises several methodological and practical issues and the increasing volume of internet purchases makes these issues more and more relevant. This paper explored first ideas on two of these methodological issues: the location of the transaction and the additional costs in purchaser's prices in internet transactions.

The main conclusions of this paper are as follows:

- A distinction can be made between the treatment of internet purchases of goods and of services;
- Consumption expenditures on goods could be covered in the HICP of the purchaser's country where the goods are delivered or collected by the purchaser;
- Consumption expenditures on services could be covered in the in the HICP of the country where the service is provided;
- Purchase prices for both goods and services should include any additional costs payable, and the additional costs should be recorded as part of the price of the product purchased and not separately

The next step will be to discuss in detail these issues with price statistics experts from the EU NSIs in order to prepare with them guidance that can be applied to HICPs across the EU.