

**Internet Purchases**

**A Challenge for the HICP**

# Internet Purchases – A Challenge for the HICP

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Meeting of Groups of Experts on Consumer Price Indices  
organised jointly by UNECE and ILO

30 May – 1 June 2012

Palais des Nations, Geneva

Room document<sup>2</sup>

## **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 for certain product groups.*

*The consistent and harmonised across-country treatment of these transactions is an important challenge for price statisticians. In the context of the Harmonized Index of Consumer Prices (HICP), Eurostat is currently working on this particular topic which implies a number of conceptual issues. Possible guidelines in this area have to be in line with the general conceptual framework (of HICP and, possibly, national accounts) and 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. For the HICP, this means to determine in which country the transaction should be considered to be part of household consumption expenditures in order to ensure that all transactions will be accounted for in the expenditure weights in one and only one country. The HICP relies on the domestic concept of consumption expenditures, but internet purchases may call for additional specifications.*

*Finally, the price collection should be organised so that data on price observations will be consistent with data on consumption expenditures that are used for the weights (national accounts).*

*This paper also elaborates on the possibly different treatment of goods and services and the treatment of electronic downloads from the internet.*

*A second issue is the treatment of additional costs when making purchases via internet, e.g. the treatment of delivery charges. 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.

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1 The opinions expressed in this paper are the author's opinion and need not represent Eurostat's view on the subject. The paper further develops the ideas put forward by Walschots (2011) and the consequent reflections that took place in Eurostat. It may be input to further discussions. The paper does not prejudge decisions to be made in future. The paper is still preliminary; do not cite without permission of the authors.

2 This paper is prepared for the Meeting of Groups of Experts on Consumer Price Indices Organised jointly by UNECE and ILO, 30 May – 1 June 2012. Palais des Nations, Geneva.

## 1. Introduction

Internet purchases consist of buying and selling goods or services via electronic systems such as the internet and other computer networks. Online shopping or internet shopping is a form of e-Commerce, where consumers directly buy goods and services from a seller in real-time, without intermediary service, over the internet. A large percentage of e-Commerce is conducted entirely electronically for virtual items such as access to premium content on a website, but most e-Commerce involves the transportation of physical items in some way.

There is a general requirement that Harmonised Indices of Consumer Prices (HICPs) are representative, and therefore cover internet purchases where these are significant. It is clear that in order to remain relevant in the future, the HICPs will need to ensure that they cover internet purchases in a way that is complete, reliable and coherent. The complete and consistent treatment of internet purchases in the context of HICP is however quite a challenge.

Furthermore, a European consumer price index has to fulfil an additional constraint, namely to ensure that all representative price observations and all transactions will be accounted for in the expenditure weights in one and only one country.

In addition, at EU level, it is paramount to harmonise the treatment of internet purchases in order to ensure comparability across countries and to avoid that certain transactions are double-counted or not covered at all when compiling the European totals. Non-comparable consumer price indices lead to wrong political and monetary decisions and are to be avoided by all means.

Eurostat aims to issue harmonised recommendations for the inclusion of internet purchases into the HICP according to the following criteria:

- The proposed treatment should represent a **practicable solution** for all data collectors, i.e. National Statistical Institutes.
- The proposal should continue to ensure the **representativeness and relevance** of the HICP.
- The solution should be **coherent** with the principles of National Account as far as possible.

These requirements have special importance with respect to avoiding double-counting or non-inclusion of expenditures that involve cross-border transactions between countries.

In order to come to a harmonised European approach, several complex questions need to be answered:

- How should internet purchases of private consumers from foreign sellers be treated?
- Are goods and services to be treated differently?
- How are downloads of music, e-books or software to be treated?
- How are the additional costs that are often involved with internet purchases to be treated?
- How can reliable weights for internet purchases be obtained?
- How can representative samples of outlets including websites be ensured?

In the following, the paper will try to give first preliminary answers to these questions. Section 2 will explore the issue of the location of the transaction; section 3 gives consideration to the treatment of additional costs, section 4 will say something on the weights to be used.

## **2. The place of the transaction**

### 2.1. Background and options

The compilation of the euro area index of consumer prices and the European index of consumer prices requires a harmonised geographic concept for national HICPs. According to Article 1 in Council Regulation 1688/1998 on geographic and population coverage, Household final monetary consumption expenditure is defined as "*that part of final consumption expenditure which is incurred by households irrespective of nationality or residence status in monetary transactions on the economic territory<sup>3</sup> of the Member State on goods ...*". This provision stresses the use of the "domestic" principle.

For transactions not involving internet, it is quite clear where a transaction takes place. The location of the shop and the delivery location may be situated in different countries only in cases where goods or services are ordered by letter or by phone. However the "country" 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 the internet, the place of the transaction is usually the place where the seller resides. In the case of internet transactions the location of

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3 The economic territory is as defined in ESA 2.05, except that the extraterritorial enclaves situated within the boundaries of the country are included and the territorial enclaves situated in the rest of the world are excluded.

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 of the country where the seller is located. 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 establish the seller location.

For example, the European branch of *Amazon* (on-line book seller) is located in Luxembourg and bills from the various "European" Amazon websites all come from Luxembourg. If we want to measure the change in prices felt by the consumers in the various countries, it might not be meaningful to attribute all purchases from Amazon in Europe to Luxembourg and record them solely and entirely in the HICP of Luxembourg.

However, according to the domestic principle and in line with National Accounts, purchases shall be assigned to the location of the enterprise irrespective of the channel of selling (in shops, through websites, etc).

Example: A Spanish resident buying a book online at *Amazon* generates domestic consumption (and production) in Luxembourg the same way as directly buying the book in a Luxembourgish bookstore.

#### 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:

- Consumer must come and collect the good at a distribution station of the web retailer.
- The product is delivered by the web retailer, by mail or by parcel delivery.
- 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.

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) and 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 the alternatives b) and d) to 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 will be so rare that a distinction seems not necessary.

#### f) The location where the product is consumed

Generally the consumer price index 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. Article 2 in Commission Regulation (EC) No 2601/2000 on the timing of entering purchaser prices into the HICP states "... *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 (that is, in national accounts terms, "where the service is rendered"). 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 as relevant for the HICP: if some Belgian resident buys for example 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.

Special consideration should be given to air tickets. From a national accounts point of view, the service related to an air ticket is rendered on the aircraft. Aircrafts are considered as national territory of the air company, hence, the service is rendered in the economic territory of the country to which the air company belongs.

Example: a Luxembourger buying an air ticket from Rome to Paris from Lufthansa (the German air company) is using a service provided on the German territory (aircraft) and, therefore, his consumption is part of German consumption.

#### g) Country where tax, in particular VAT, is paid

An alternative criterion for determining where a consumption expenditure 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 is 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).

The payable VAT may therefore be a powerful tool to determine in which country certain transactions should 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 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.<sup>4</sup>
- 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.

Two further options 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

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

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 "travel agents' commission, if separately priced", as described in COICOP 07.3.6.

## 2.2. Conclusion

From the reasoning outlined so far, in a HICP context that takes into account the aim of measuring the change in prices faced by consumers in a country, the following recommendations can be deduced:

- Consumption expenditures on goods purchased on internet and delivered to or collected by the consumer should be covered in the country where the goods are delivered or collected.
- Consumption expenditures on services purchased on internet and provided to the consumer shall be covered in the country where the service is provided.
- Consumption expenditures on internet downloads shall be covered in the country of domicile of the consumer.

It should be noted that this contradicts the "domestic principle" as followed by National Accounts. It has also to be noted that conceptually there should be no distinction of products by origin: if products are imported, then there might be imported inflation, but that is just as much inflation as the inflation that originates from domestic sources.

An example shall illustrate this: following the domestic principle, the prices of all flights of *Ryan Air* (Irish low cost air company) should be registered in the residence country of the company, i.e. Ireland. Inflation measures in all other countries would only consider their national airlines and not the price movements of *Ryan Air* tickets purchased in these countries. The consumer price indices computed in this way would represent a misleading consumption reality. Since the Irish HICP would include all flights of *Ryan Air*, the HICP for airline tickets in this country would have an enormous weight which does not correspond to an economic reality.

In particular for three product groups these undesirable distortions following the application of the domestic principle can be observed:

- Airline tickets
- Books
- Downloads of music and software

Before final recommendations are issued, further discussions seem to be necessary how to tackle this complex problem.

### 3. Additional costs

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. Background

The issue of how to assign delivery charges in general to COICOP for the HICP has been already discussed in several fora, in particular, at European level, within the HICP Working Group. The discussion did not come to 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".<sup>5</sup> 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 consumer price index 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*".<sup>6</sup> 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 the 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 internet services and the like, delivery charges were gaining importance for the HICPs and should therefore be covered by the HICP.<sup>7</sup>

From the perspective of calculating a comprehensive consumer price index, 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 results across countries, a uniform treatment of these expenditures is mandatory.

#### 3.2. Options

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;

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5) Eurostat, Document HCPI 01/339, 2001

6) SNA 1993 6.215

7) Eurostat, Document HCPI 01/329, 2001

- Additional costs (particularly delivery costs) are treated as separate expenditures under COICOP 08.1.0 "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 Implementing Regulations. However, so far 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. Includes 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.

### 3.3. Solution

If a decision towards the treatment of delivery costs separately from the price of the product to which they 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 08.1.0 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 for a harmonised 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.

### 3.4. Treatment of prices inclusive of additional costs

The measurement of the prices inclusive of additional costs is not straightforward. 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.

### 3.5. Conclusion

The purchase of goods and services through internet may involve additional costs that are charged in addition to the advertised product price. The reasoning outlined above points to the inclusion of additional costs in the product price.

## **4. Weights for internet purchases**

In 2010, the European Statistical System has put forward new measures to enhance both the cross-country comparability and the reliability of the HICP by defining rules concerning the weights to be used. The new measures were issued in the form of a HICP Implementing Regulation<sup>8</sup>. The Regulation guarantees that in each country the weights approximate as much as possible the expenditure pattern of the target reference period, year t-1. National Statistical Institutes are obliged to implement the Weights Regulation starting with the index for January 2012 at the latest. The new Regulation promotes the use of National Accounts as the primary source for the weights and obliges Member States to update HICP weights on an annual basis.

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8) Commission Regulation (EU) no 1114/2010 laying down detailed rules for the implementation of Council Regulation (EC) no 2494/95 as regards minimum standards for the quality of HICP weightings (Official Journal of the European Union, L 316, 2.12.2010, p.4).

In Article 3, paragraph (2) of the Regulation regarding minimum standards for HICP weightings it says: "*Each year, Member States shall therefore review and update HICP sub-index weights taking into account preliminary national accounts data on consumption patterns of year t-2, except in exceptional and in duly motivated circumstances, as well as any available and relevant information from household budget surveys and other data sources which are sufficiently reliable for the purposes of the HICP.*"

Most countries now use National Accounts as basic source for their weights.

To compile weights for detailed products where internet purchases are either dominant or perform a part of consumption, appropriate data has to be found. As we are dealing here with a detailed level of product groups (COICOP level 4), other data sources than National Accounts have to be used. One possibility would be the use of the Community survey on "ICT usage and e-commerce in enterprises"<sup>9</sup>.

Further research will be necessary in order to obtain reliable and up-to-date weights for the HICP.

## **5. 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 further elaborated the first ideas expressed in Walschots (2011) and the discussion at a Task Force meeting on Quality improvement in Luxembourg in December 2011 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:

- 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.

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9) [http://epp.eurostat.ec.europa.eu/portal/page/portal/product\\_details/publication?p\\_product\\_code=KS-SF-12-018](http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/publication?p_product_code=KS-SF-12-018)