E-COMMERCE IMPORTS INTO EUROPE: VAT AND CUSTOMS TREATMENT

CLIENT: UPS

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European e-commerce is booming and will continue to do so. An increasing share of e-commerce goods are purchased by European consumers, are from outside the European Union (EU). With e-commerce imports into the EU on the rise, VAT and import duty payments on these imports are likely to yield considerable revenues for the public sector at both EU and EU Member State level. This however depends on the diligence with which these shipments are processed at import by delivery operators and customs authorities.

In this study, we have examined international shipments imported into EU member states. We find that these import shipments are treated differently at customs clearance (where VAT and import duty should be applied), depending on which type of operator is carrying them. We conclude that VAT and import duties are significantly less likely to be paid when shipments are sent via postal operators (instead of express carriers).

This results in a significant loss of public income due to the missing VAT and import duty payment on postal shipments. Moreover, it results in competitive distortions between express carriers and postal operators. Ultimately, this distorts also the competition between European and non-European manufacturers and e-retailers.

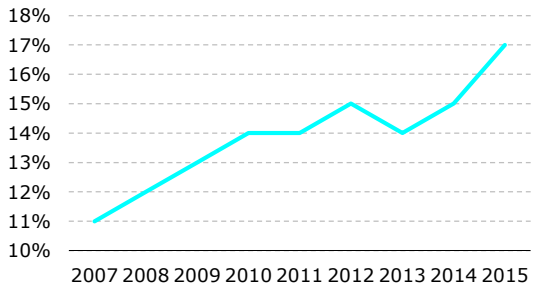
Summary of results

- The incomplete levying of VAT and import duty on postal shipments inbound into the EU is estimated to cause a **loss of European public sector income of up to €1.3 billion per year**
- There is a **significant difference in customs treatment** depending on whether a shipment is imported via Postal operators or Express carriers
- **VAT** is collected on only **35 per cent of items imported via Postal operators** whereas Express operators score better at 98 per cent
- **Import duty** is collected on only **47 per cent on items imported by Postal operators** whereas Express carriers score better at 99 per cent

BACKGROUND

E-commerce sales in Europe have experienced a steady turnover growth over recent years at an annual growth rate of around 15 per cent and are likely to pass the €600 billion threshold in 2017.[1] The share of e-commerce in the total turnover of EU businesses rose by over 50 per cent between 2007 and 2015.

Figure 1 EU firms' total turnover from e-commerce, in percentage of firms' total turnover.



Source: Eurostat, population: all firms with 10 employed persons or more (excluding financial sector).

While policy makers often focus on intra-EU cross-border e-commerce, this study focuses on e-commerce of goods coming into the EU – also a driver of cross-border e-commerce activity in Europe. This is highly relevant, because the amount of e-commerce goods that are purchased by European consumers from outside the EU is constantly increasing, as found by Forrester (2015).

The EU is both a free-trade area and a customs union. The success of the EU's Digital Single Market depends also on whether the treatment of e-commerce imports into the EU follows the agreed rules – or whether incomplete and heterogeneous treatment undermines the DSM and leads thus to a cost of non-Europe.

E-commerce imports into the EU are by law subject to customs duties and VAT taxation. More specifically, shipments are subject to VAT, if the total intrinsic value of the shipment content surpasses a de minimis threshold of € 22.[2] Shipments with goods of a total intrinsic value of equal to or more than €150 are subject to import duty.[3]

With e-commerce imports into the EU on the rise, collection of VAT and import duty are likely to yield considerable revenues for the public sector at both EU and EU Member State level. This however depends on the diligence with which these shipments are processed at import by customs authorities.

Against this background, this study of customs clearance of cross-border e-commerce shipments aims to understand better the reality of customs clearance processes that apply when e-commerce shipments are imported into the EU. We designed a purchase and shipment experiment which investigates customs clearance applied to goods imported into the EU via express carriers on the one hand and national postal operators on the other hand.

RESEARCH DESIGN AND METHODOLOGY

Two principal research questions guide our research design.

First: Is there a difference in compliance with customs related processes (VAT and import duty) for international shipments inbound to EU member states, depending on the type of operator used: postal or express carrier?

Second: What is the impact of any differences in customs treatment on public sector income?

To answer both of these questions, Copenhagen Economics conducted a shipment experiment from November 2015 to April 2016. The experiment involved a fully completed e-commerce transaction for 385 online purchases. As a result, 385 packages were shipped by e-

[1] E-commerce Europe (2015). Europeam B2C e-commerce report, p. 47.

[2] There is some variation between EU member states concerning this threshold. However, EU policy makers discuss an overall lift of the threshold for VAT.

[3] See Council Directive 2009/132/EC of 19 October 2009

sellers from five key trading partners of the EU[4] to seven of the largest EU member states.[5] The shipments contained general consumer goods that are subject to import duty under EU and national law.[6] They were bought from independent e-retailers offering goods on e-commerce platforms, sending these items as per their standard e-commerce process.

All shipments contained items that are VAT liable, i.e. their value was above the € 22 de minimis for VAT. A subsample of these shipments contained items that were also dutiable, i.e. their value exceeded the €150 import duty de minimis threshold.

Approximately half of the items were shipped using postal operators (i.e. sent from the national postal operator in the country of origin to the national postal operator in the EU destination country) and half using express carriers (e.g. FedEx, UPS).

Table 1 Shipments, by value of items

Number of shipments	Express Carriers	Postal	Total
High value (above 150€)	96	87	183
Low value (€ 22 - € 150)	93	109	202
Total	**189**	**196**	**385**

Source: Copenhagen Economics

The items were shipped from five different non-EU countries of origin.

Table 2 Shipments, by country of origin and type

Country	Express Carriers	Postal	Total
Canada	38	37	75
China	42	41	83
India	41	40	81
Japan	31	39	70
U.S.A.	37	39	76
Total	**189**	**196**	**385**

Source: Copenhagen Economics

For each of these shipments, we observed whether VAT or import duty were applied in the customs clearance process.[7]

FINDINGS ON CUSTOMS TREATMENT

We find a statistically significant difference in customs treatment depending on whether a shipment is carried by a national postal operator or an express carrier. This applies to both the levy of VAT and the levy of import duties.

Table 3 VAT and import duty levy frequency

Value	Express Carriers	Postal	Total
VAT levy frequency	98%	35%	70%
Import duty levy frequency	99%	47%	79%

Note: the difference is statistically significant (see Chi square test in appendix)
Source: Copenhagen Economics

We find that VAT is collected on only 35 per cent of items that are imported into the EU by postal operators whereas express carriers score better at 98 per cent.

[4] These countries were Canada, China, India, Japan, U.S.A. representing over 40 per cent of imports into the EU.
[5] These were France, Germany, Netherlands, Poland, Spain, United Kingdom and Sweden.
[6] Such as clothing, shoes, bags, basic sports or camping equipment.
[7] We have observed some shipments where e-sellers underreported the value of contents in the shipment documentation, stating values below the VAT and / or duty de minimis threshold. We have dropped from our main statistical analysis those observations where underreporting occurred. Underreporting occurred more often for postal than express carriers shipments.

This means that express carriers collected VAT for almost all shipments in our experiment. In contrast, postal operators only collected VAT for about one third of their shipments.

Moreover, we observe that import duty is collected on only 47 per cent of items imported via postal operators, whereas express operators collected duties for 99 per cent of dutiable shipments. In other words, only around half of postal shipments were correctly cleared at customs by applying import duties.

The current lack of compliance with customs processes for postal shipments generates concerns about equal treatment for different types of operators for the purpose of procedures of VAT and import duty collection. Lack of compliance on postal shipments results in unfair competition between postal operators and express carriers.

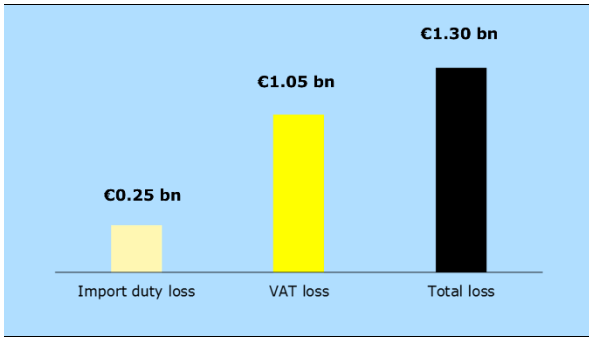
Moreover, lack of compliance could have an impact for the competitive position of European e-retailers. The lack of application of VAT makes goods coming from outside the EU cheaper than comparable items purchased by European consumers from European sellers (both online and offline European sellers). This gives an advantage to manufacturers and sellers located outside the EU, relatively to their European competitors. The lack of application of import duty fails to implement the applicable legislation, in a way that ends up favouring non-European manufacturers and sellers.

LOSS OF PUBLIC SECTOR INCOME

The failure of payment of VAT and import duties on postal shipments for more than half of items purchased online has a substantial negative impact on public income at both EU and member state level, because it means that today, VAT and customs revenues are not at their full potential.

We estimate the total loss of public sector income from incomplete levying of VAT and import duty at **€ 1.3 billion**.

Figure 2 Public sector income loss



Source: Copenhagen Economics

The present VAT bill for EU member states from cross-border packages coming into the EU is significantly below actual revenue potential. This is because VAT is levied on only 35 per cent of postal imports. The incomplete levy of VAT directly translates into a loss of public sector finances for EU member states of approximately **€ 1.05 billion**.

The incomplete import duty collected for cross-border postal packages coming into the EU yields a lower import duty income for the EU than what is expected given current e-commerce inflows via postal operators. This incomplete levy of import duty directly translates into a loss of public sector finances for the EU of approximately **€ 0.25 billion**.

ESTIMATION METHOD

To estimate the total loss in public sector income, we take the findings of our shipment experiment – which show the extent of the lack of collection of VAT and import duty on postal packages inbound to the EU – as a starting point. In order to assess the impact that this produces for public sector income, we rely on a number of parameters on international e-commerce shipments from publicly available reports and sources.[8]

We start by estimating the value of VAT liable and import dutiable e-commerce goods that are imported into the EU every year. Forrester research has examined the value of e-commerce merchandise (online retail) pur-

[8] See Appendix for a more detailed explanation of sources and calculations step by step.

chased by European consumers and imported from outside Europe and has estimated its value at € 10.8 billion (year: 2015).[9] We take Forrester's data point as the best publicly available estimate of this trade flow into Europe.

The next step in our analysis is to estimate the value share that should be VAT liable or import dutiable. Reflecting the European Commission's Digital Single Market proposals, we consider imported merchandise to be VAT liable, irrespective of its value (as will be the case following implementation of the European Commission VAT action plan). As to imports, we rely on data in the study by CBRA (2014), which implies that an 84 per cent value share of package imports into the EU is dutiable (i.e. above the import duty de minimis).[10]

The third step is to apply the average VAT and import duty applicable to liable items. In this way, we estimate the amount of VAT and duty that could theoretically be collected each year on VAT liable or dutiable items imported into the EU. For VAT, we apply an average of the standard rate of VAT applicable across the countries included in the study, which results in 21.3 per cent. For imports, we refer to an average import duty of 7.5 per cent applicable to dutiable items, as stated in CBRA (2014).[11]

We proceed by calculating the share of VAT liable or import dutiable shipments that come into the EU via national postal operators. The publicly available information on this split is very limited. Copenhagen Economics (2013) estimated that around half of the delivery of ecommerce in Europe was handled by postal operators; however, this number primarily covered domestic and intra-EU deliveries.[12] CBRA (2014) found – based on responses to a pan-EU survey of national Customs Agencies – that on average 30 per cent of customs declarations (for packages) came from express carriers. The remaining 70 per cent must logically come from postal operators (including their non-express subsidiaries) and other operators. In the appendix, we report a sensitivity analysis for different splits between postal operators and express carriers for the value of e-commerce packages imported from outside the EU.

Based on the evidence from the shipment experiment on VAT and import duty levy for postal shipments, we determine the loss of public income (VAT loss and import duty loss) related to postal shipments.

RESEARCH QUESTIONS OPENING UP

The findings of this study lead us to ask the following questions, which contribute to the debate on European and national public policies in this areas. The overarching question for policy makers is how to address the failure to collect VAT and import duties, as identified in the study. In order to resolve this issue, several areas are probably deserving of research.

First, as the implementation process of the new Unified Customs Code takes place, a key question is which implementation provisions are the most important to ensure identical treatment for postal operators and express carriers, closing the current compliance gap.

Second, it is relevant to research what measures are the most effective and efficient, so to empower customs agencies, with the appropriate resources, modernised processes and technologies to address the missing duties issue identified in thus study.

Last, it is relevant to investigate what steps – both at a national, European and global level – are the most appropriate to ensure that customs agencies have access to higher quality, electronic and timely data on shipments, irrespective of the type of operator handling the shipment.

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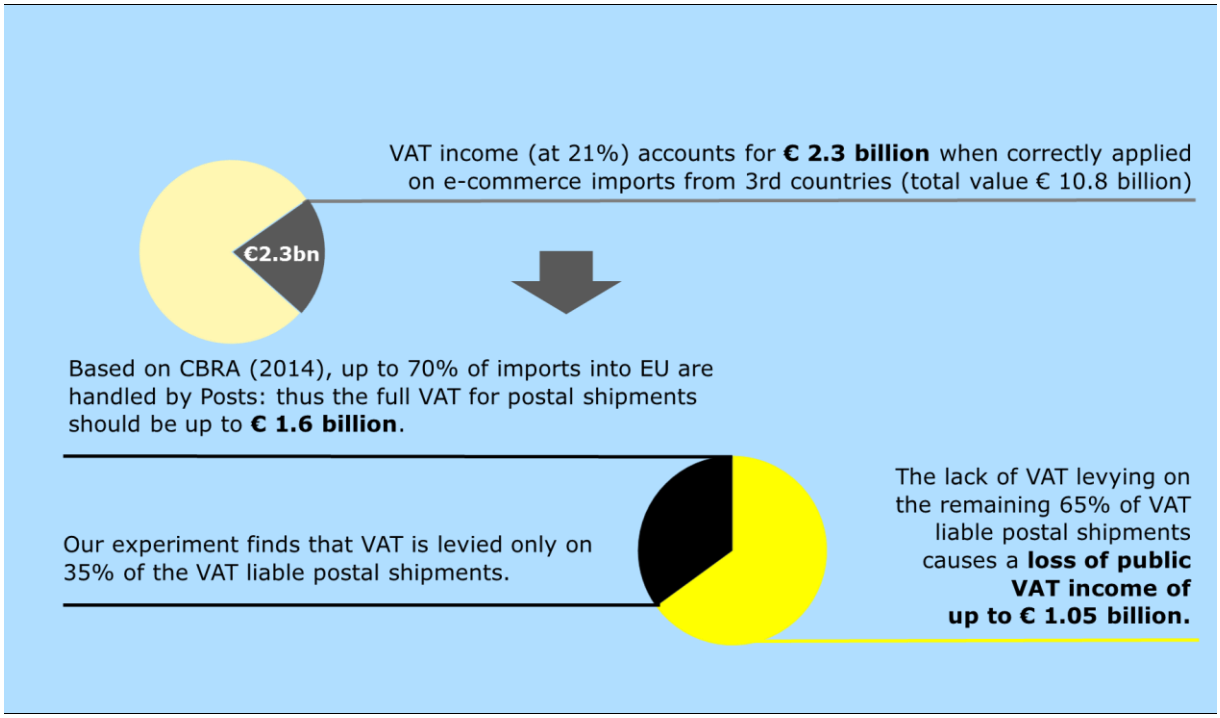
[9] Forrester (2015), Western European Online Cross-Border Retail Sales Forecast.

[10] Cross-border Research Association (2014), The import VAT and duty de-minimis in the European Union – Where should they be and what will be the impact?, Fig. at pp. 27-28.

[11] CBRA (2014), p.8.

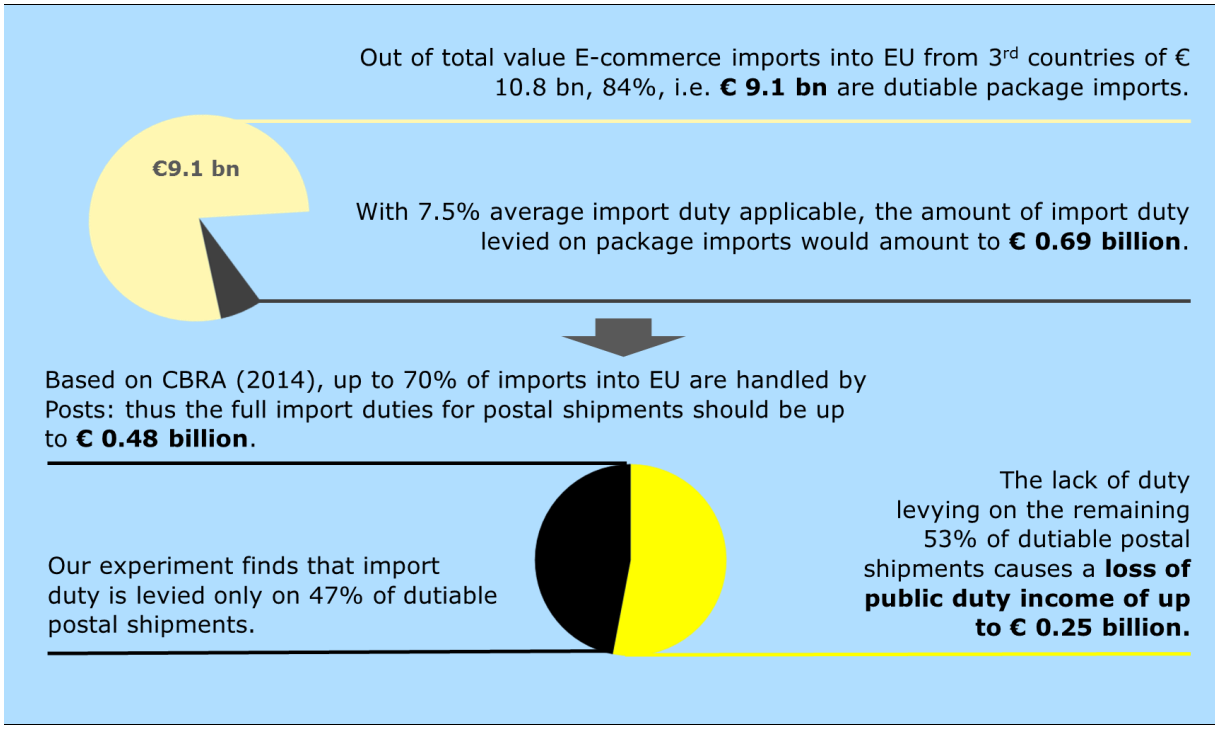
[12] Copenhagen Economics (2013), E-commerce and delivery. A study of the state of play of EU parcel markets with particular emphasis on e-commerce.

Figure 3 Loss of up to € 1 billion in VAT per year



Source: Copenhagen Economics

Figure 4 Loss of up to 0.25 billion in import duty every year



Source: Copenhagen Economics

APPENDIX

A. Chi-squared test

The Chi-squared test tests the independence of two binary variables. The test evaluates the null hypothesis that the data are independent, i.e. that the VAT levy frequency is the same for express carrier shipments and postal shipments. If the null hypothesis is rejected, then it establishes that there is a statistically significant pattern. This is the case when the test yields a high Chi squared value (and hence a low p-value).

In our experiment, we apply the Chi-squared test to the shipment type (express carrier shipment or postal shipment) and the successful levying of VAT. The Chi-squared test shows that shipment type and VAT levying are not independent variables. Instead, having postal as the delivery mode for a shipment is associated with a decrease in VAT levying.

We then repeated the same statistical check, for import duty levying. The Chi-squared test shows that shipment type and import duty levying are not independent variables. Instead, having postal as the delivery mode for a shipment is associated with a decrease in import duty levying.

Table A1 Chi square significance test

Variables	Coefficient	P-value	Statistical significance
VAT levying			
Shipment mode	138.75	0.000	HIGH
Import duty levying			
Shipment mode	47.97	0.000	HIGH

Source: Copenhagen Economics

B. Results by country

Depending on the country of origin, we observe some variation in VAT and import duty levy.

Table B1 VAT levy frequency, by country of origin

Country	Express Carriers	Postal	Total
Canada	100%	48%	77%
China	95%	56%	88%
India	97%	7%	55%
Japan	96%	46%	71%
U.S.A.	100%	36%	65%

Source: Copenhagen Economics

Table B2 Duty levy frequency, by country of origin

Country	Express Carriers	Postal	Total
Canada	100%	50%	86%
China	100%	57%	89%
India	100%	0%	67%
Japan	92%	63%	80%
U.S.A.	100%	53%	74%

Source: Copenhagen Economics

C. Logit regression

A logistic (or logit) regression is a regression model where the dependent variable being explained is a categorical variable, for example a binary variable as in this case. The following tables show the results of the two full logit regressions we have performed to explain the drivers of the dependent variable: whether VAT is levied (alternatively, import duty). The regressions confirm the significance of the shipment type (postal vs express carrier) as a driver of collection of either VAT or import duty.

Table C1 Full regression: estimating VAT levying

Variables	Coefficient	Standard error	z value	P>|z|
Postal shipment	-5.887***	0.698	-8.44	0.000
Constant	0.620	0.678	0.91	0.000
High value merchandise	1.677***	0.388	4.32	0.000
Under-reporting	-2.008*	0.910	-2.21	0.027
To France	0.529	0.741	0.71	0.475
To Germany	1.596*	0.769	2.07	0.038
To Netherlands	2.673***	0.770	3.47	0.001
To Poland	2.722***	0.770	3.54	0.000
To Sweden	2.023**	0.763	2.65	0.008
To UK	2.400**	0.762	3.15	0.002
From Canada	2.412***	0.649	3.72	0.000
From China	1.411	0.751	1.88	0.060

From Japan	2.649***	0.651	4.07	0.000
From USA	2.136***	0.647	3.30	0.001

Note: ** denotes statistical significance. *** p<0.01, ** p<0.05, * p<0.1. LR Chi squared is Chi2 = 309 with 13 degrees of freedom. Prob > Chi2 = 0.0000. Pseudo R squared R2 = 0.60831.*

Source: *Copenhagen Economics*

Table C2 Full regression: estimating import duty levying

Variables	Coefficient	Standard error	z value	P>|z|
Postal shipment	-3.793***	0.658	-5.76	0.000
Constant	0.8014	0.770	1.04	0.298
Under-reporting	-3.167***	0.587	-5.39	0.000
To France	1.007	0.902	1.12	0.264
To Germany	1.744	0.969	1.80	0.072
To Netherlands	1.534	0.874	1.75	0.079
To Poland	3.375***	1.010	3.34	0.001
To Sweden	3.059**	1.018	3.01	0.003
To UK	0.046	0.916	0.05	0.960
From Canada	1.073	0.762	1.41	0.159
From China	1.990*	0.851	2.34	0.019
From Japan	1.607*	0.805	2.00	0.046
From USA	1.813*	0.787	2.30	0.021

Note: ** denotes statistical significance. 183 observations. *** p<0.01, ** p<0.05, * p<0.1. LR Chi squared is Chi2 = 131 with 12 degrees of freedom. Prob > Chi2 = 0.0000. Pseudo R squared R2 = 0.53474*

Source: *Copenhagen Economics*

The coefficients in the above table are logit regression coefficients, thus their interpretation is non-linear. Where coefficients are positive and significant, the corresponding variable has an impact in increasing the odds (probability function) that the VAT (or import duty) is levied.

The regression analyses for both VAT and import duty confirm that – irrespective of which European country the shipments is sent to – there is a statistically significant difference in customs treatment between postal shipments and express carrier shipments.

D. Detailed calculation of impact on public sector income

In the table below, we present the parameters that feed into our calculation of the impact of customs treatment on public sector income. All indicators used refer to EU-wide yearly figures.

The value of online retail (e-commerce of merchandise) is based on Forrester (2015), Western European Online Cross-Border Retail Sales Forecast. Forrester's estimate covers all purchases made from outside Europe, imported into Europe. Forrester's estimate concerns a set of 15 of the largest EU countries, plus 2 EFTA countries (Norway, Switzerland). To this set of countries corresponds a GDP that closely matches the GDP of EU-28. Hence, we accept Forrester's estimate as a suitable proxy for online retail relative to EU-28. The Forrester figure is conservative, as it may underestimate online retail in the EU-28. Thus our results in terms of loss of public income will also be conservative.

The following table tests how the loss of public income specific to postal shipments varies, if the share of imports handled by postal operators varies.

Table D1 Sensitivity test

Share of imports handled by Postal operators	Missing VAT (€ m)	Missing import duty (€ m)	Total loss of EU States income: Missing VAT & Import duty (€ m)
70%	1,053	254	1,307
60%	903	218	1,121
50%	752	181	934
40%	602	145	747
30%	451	109	560

Source: Copenhagen Economics

We note that the share of imports handled by postal operators plus express carriers could be less than 100 per cent insofar as other operators handle imports. Thus, if express carriers handle 30 per cent of imports and the postal operators handle 60 per cent, this implies that other operators handle 10 per cent of package imports.

If the levying rate for the imports handled by other operators is the same as for postal, then the total loss for the EU States income remains the same as in the case with 70 per cent of imports handled by postal operators. The total loss will decrease only if the duties levying rate for these imports handled by "other operators" is higher than for postal shipments – otherwise the final impact in terms of loss of public sector income does not change.

The following table provides the detailed step-by-step calculations of the estimated loss of public sector income associated with postal shipments.

Table D2 Step-by-step calculation of yearly loss in VAT and import duty

Value of dutiable imports	Formula	Figure	Label	Source
Value of extra-EU cross-border e-retail (€ m)		10,868	A	Forrester (2015), Western European Online Cross-Border Retail Sales Forecast, 2013-2018
Share of value of cross-border package imports, which is dutiable		84%	B	CBRA (2014) study for the EEA (Fig. at pp. 27-28)
Value of dutiable cross-border package imports (€ m)	A * B	9,129	C	CE calculation
Import duty analysis	**Formula**	**Figure**	**Label**	**Source**
Average import duty applicable on dutiable items		7.5%	D	CBRA (2014), p.8
Amount of import duty levied on package imports (both via Posts and Express carriers) (€ m)	C * D	685	E	CE calculation
Share of imports handled by Posts (up to)		70%	F	CBRA (2014), p. 21
Full theoretical import duty levied on postal package imports (€ m), up to	E * F	479	G	CE calculation
Import duty enforcement ratio found in experiment (Postal shipments)		47%	H	CE experiment result
Missing import duty, i.e. Loss of public income (€ m), up to	G * (100% - H)	254	I	CE calculation
VAT analysis	**Formula**	**Figure**	**Label**	**Source**
Assumption: all imports are VAT liable (as will be the case after the EC DSM proposals are implemented)	equals A	10,868	J	CE calculation
Average VAT rate in the 7 receiving countries in our study		21.3%	K	CE calculation
Amount of VAT levied on package imports (both via Posts and Express carriers) (€ m)	J * K	2,315	L	CE calculation
Share of imports handled by Posts (up to)		70%	M	CBRA (2014), p. 21
Full theoretical VAT levied on postal package imports (€ m), up to	L * M	1,620	N	CE calculation
VAT enforcement ratio found in experiment (Postal shipments)		35%	O	CE experiment result
Missing VAT, i.e. Loss of public income (€ m), up to	N * (100% - O)	1,053	P	CE calculation
Total loss of EU States income: Missing VAT & Import duty (€ m), up to	I + P	1,307	Q	CE calculation

Note: All indicators refer to EU-wide yearly figures.

Source: Copenhagen Economicss

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