The Impact of Specific Reverse Charge on Waste and Scrap on Tax Revenues in the Czech Republic

Eliška Čejková – Hana Zídková[*]

Abstract:

The paper is focused on VAT evasion and especially carousel frauds. It describes the types of VAT evasion, methods of its estimation and measures taken by the European member state to fight it. The aim of the article is to develop a reasonable method for assessing the volume of carousel fraud in the Czech Republic. It uses ex-post calculation of the impact of a specific reverse-charge implemented in the Czech Republic on waste and scrap in 2011. The analysis employs trade balance data of the Czech Republic published by the Czech Statistical Office and a model of the carousel fraud to estimate the size of the carousel fraud existing prior to the implementation of the specific reverse charge in the CR. The volume of the supposed carousels in waste and scrap present in the period from 1 April 2010 to 31 March 2011 in the CR is according to the authors EUR 56 mil. (approx. CZK 1.4 bn.).

Key words: VAT evasion; Carousel fraud; Specific reverse charge.

JEL classification: H26.

1 Introduction

VAT revenues are very important part of public budgets; on average they represent 7% of GDP in the EU member states (European Commission, 2018). Tax theory prefers consumption taxes including VAT to income taxation due to the economic distortions caused mainly by the latter on the labour market. This approach is confirmed by many researches (Bankman and Weisbach, 2006 and 2007). Efficient collection of VAT has been one of the topical tax policy issues for several recent years in the EU due to wide spread carousel fraud. This fraud is mainly based on the VAT exemption applied on the cross-border trade in goods between the Member States, implemented following the establishment of the single market for movement of goods in 1993 (Fedeli, Forte, 2011, Pashev, 2008).

[*] Eliška Čejková; University of Economics, Prague, Faculty of Finance and Accounting, Department of Public Finance, Churchill sq. 4, 130 00 Prague 3, Czech Republic, <xceje02@vse.cz>.
Hana Zídková; University of Economics, Prague, Faculty of Finance and Accounting, Department of Public Finance, Churchill sq. 4, 130 00 Prague 3, The Czech Republic, <xruzh01@vse.cz>.
The article is processed as one of the outputs of the research project *Economic and institutional aspects of public finance* registered by the Grant Agency VŠE IGA F1/7/2019.

Cumulation of output and input VAT with the person purchasing the goods from another Member State allows such a person to become a "missing trader". The problem is that the missing traders do not remit the output VAT and go missing. The volume of carousel fraud is estimated at EUR 50 bn. annually for the whole EU (European Commission, 2016a). The overall VAT gap that includes not only the carousel fraud but also VAT not paid within the shadow economy or not collected due to insolvencies has reached EUR 147 bn. in 2016 (Poniatowski et al, 2018).

Naturally, the governments intensively search for anti-fraud measures to prevent all types of VAT evasion. All these measures complicate VAT compliance for businesses, especially small and medium enterprises. One of the most important characteristics of an efficient tax system is its proportionality (Hillman, 2009) which consists in the balance between the benefits and costs of the newly introduced tax rules, requirements and changes implemented into the tax legislation. Therefore, it is important to evaluate the actual impacts of anti-evasion measures on public revenues and on the compliance costs of VAT payers.

The aim of this paper is to establish an evaluation method to estimate the impact of one of the anti-fraud measures, the specific reverse charge, on VAT revenues. Furthermore, our objective is to employ this method on a practical example and to calculate the VAT revenue impact of the specific reverse charge on selected goods, waste and scrap as implemented in the Czech Republic.

In our model, we use data on intracommunity supplies and acquisitions and determine the estimated amount of fictitious supplies. Based on the number of fictitious deliveries and the applicable tax rate, we will determine the estimated tax evasion. The estimated tax fraud existing before the implementation of the specific reverse charge shows the amount of the tax revenue saved due to the introduction of the specific reverse charge. Our model can be applied to any kind of goods, which are taxed by the specific reverse charge. This model appropriately estimate the amount of tax saved based on the assumption that the specific reverse charge eliminates all the carousel fraud on the goods analysed.

2 Literature Review

VAT evasion is a serious problem for tax systems and therefore scholars as well as tax policy studies focus on the estimation of the volume of VAT evasion. It is often approximated by the VAT gap, which equals to the difference between the theoretical VAT liability that should have been collected by the state and the real VAT received by public budgets. The VAT gap represents not only evasion caused by the carousel fraud already mentioned above, but also the tax evasion arising within the shadow economy, mainly from the concealed sales and possibly various

errors as well as unpaid taxes due to insolvency. However, the VAT gap is estimated as a whole and it is not (and cannot be) apportioned into parts according to the evasive practice that had caused it.

2.1 Types of VAT evasion

The standard VAT system is considered as a very efficient method of the tax revenue collection. Taxes formerly levied on consumption were often cumulative as they were imposed on the each level of production and its subsequent distribution (Terra, 2018). On the other hand, VAT is paid by partial payments within each stage of the production and distribution chain. This principle should ensure the self-policing character of VAT (e.g. Bodin et al., 2001 or Tait, 1988). The concept of VAT is also suitable for use within the European Single Market, as it does not cause distortions due to the application of the destination principle. Place of taxable transactions for the supply of goods is established by the Council Directive. Supply of goods can be realised with or without transport. Where goods are not dispatched or transported, the place of taxable supply is where the goods are located when the supply takes place. Where goods are transported, the place of taxable supply is located where the dispatch of the goods to the customer begins. Place of intracommunity acquisition of goods is the place where the dispatch or transport of the goods ends. Unfortunately, in recent decades, the VAT system became vulnerable to evasion and fraud (Sergiou L., 2012).

We may divide the VAT evasion into two groups. The traditional types of tax evasion include e.g. a misuse of tax rates, such as false application of the reduced rate or an exemption when the standard tax rate should have been applied. Furthermore, there are cases of unlawful claims of the input VAT related to private consumption, concealment of transactions and avoidance of the output VAT payment, failure to register to VAT by the means of artificially concealing of sales and thus remaining below the threshold turnover for the obligatory VAT registration (Tait, 1998).

These traditional types of VAT evasion are not as harmful as the new types of VAT evasion that appeared following the introduction of the European Single Market in 1993. Marius-Cristian Frunza (2013) relates the VAT carousel frauds with money laundering. His paper quantifies the market manipulation effect due to VAT fraud on carbon emissions markets. The most significant are the so-called carousel frauds (Ainsworth, 2006.). Due to their volume, they are sometimes labelled as a criminal attack on the VAT system. Fraudulent transactions are allowed by a combination of the VAT exemption of the cross-border supply of goods and an accumulation of high input and output tax obligation within one subject (company) acquiring goods from another member state. However, the tax evasion occurs on the level of subsequent domestic supply.

The principle is that the VAT payer who purchases goods across the border sells the same goods to a local VAT payer. The supplier charges the output VAT on this local sale and the purchaser claims it back. The problem is that the supplier (i.e. the subject that acquired the goods from another Member State) goes missing and does not comply with the obligation to pay the output VAT to the tax authorities. The tax authorities thus incur a loss if they refund the input VAT to the purchaser since they have not collected it from the supplier in the first place. Transactions can be fictitious in a large scale to reach large claimed input VAT, which is not being paid to the tax authority by the prior company within the chain.

Fraudsters usually trade in small-sized goods or even in services (emission allowances being one of the cases from the past). Further examples are mobile phones, microchips, cereals and technical crops and the goods of our interest - wastes and scraps. These goods were included in the expanded list of goods that can be subject to the reverse charge mechanism. Those goods are sometimes even not moved from one place to another. They are just recorded on tax invoices and end up with the same trader who originally sold them. That is why these frauds are called carousel. Therefore, tax authorities may potentially sustain an unlimited tax loss. Details of carousel frauds are described e.g. in Keen and Smith (2007).

2.2 Estimates of VAT evasion

VAT evasion is regularly assessed by studies prepared for the European Commission (Poniatowski et al, 2018). The latest report puts the amount of the 2016 VAT gap for the 28 European Member States at EUR 147 billion. In relative terms, the average share of the VAT gap decreased to 12.3 per cent of the theoretical VAT liability from 13.2 per cent in 2015. The methods adopted by individual EU member states in order to estimate the VAT gap are summarised in the European Commission (2016). Some EU Member States such as the United Kingdom (HMRC, 2018), Sweden (Hansson and Wallberg, 2008), Slovakia (Novysedlák and Palkovičová, 2012), Romania (Romania Fiscal Council, 2011), Germany (Chang, Gebauer and Parsche, 2003 and Parsche, 2008), and Italy (Chiarini, Marzano and Schneider, 2009, D'Agosto, Marigliani, Pisani, 2014) publish their estimates of the VAT gap. In other Member States, as for example in France, the VAT gap is calculated by the respective national statistical offices. For some Member States, e.g. Estonia and Finland, these calculations were made and published by the International Monetary Fund (Thackray and Ueda, 2014, Thackray, Hutton, and Kapoor, 2015). However, most European countries do not publish their own VAT gap estimates.

The main method used for the VAT gap estimates is the top-down method using data from national accounts, specifically from the supply-use tables. The top-down method further splits into two types. The first type estimates the VAT gap from

data on the final consumption of households and intermediate consumption of the public sector and other sectors exempt from the tax. This method is called the demand method and it has been adopted for the first time by Reckon (2009), now it is used by Center for Economic and Social Research for their regular reports on VAT in the EU member states, the last one being Poniatowski et al. (2018). The second type of the top-down method uses information on the production for all sectors in the given economy, comparing their VAT due on production with the deductible input VAT. This methodology is used by IMF, e.g. Thackray, Hutton, and Kapoor (2015) and referred to as the supply method. Several tax authorities (Estonia, Slovenia and UK) also estimate the VAT gap by the bottom-up approach based on the analysis of the tax return data, tax audits or surveys and administration data (European Commission, 2016). The bottom-up methods contrast with the top-down methods in being able to estimate the volume of VAT evasion caused by different types of evasion. This is important for tax policy choices as the measures aimed to prevent the VAT evasion must be differentiated according to the type of misconduct.

Method of estimating carousel fraud was proposed by Poniatowski (2016) using the mismatches in the EC sales lists and purchase lists (or tax returns) where the VAT payers report their cross-border transactions. We do not use the later above-mentioned method as the data from the EC sales lists are not available to us. Our model is based on the publicly available data of the Statistical Office. As to our knowledge, our approach has not been used by other researchers yet.

2.3 Measures against VAT evasion

Measures against VAT evasion include for example extended reports on all transactions between the VAT payers, on-line reporting and verifying of VAT invoices, shortening of taxable period, burdensome VAT registration, increased requirements on the documentation to claim back the VAT deduction or joint liability of the purchaser for the VAT not remitted by the seller. A growing number of Member States introduced temporary measures such as extended data reporting to the tax authorities, usually electronic reports or online transmitted data related to the ongoing transactions that are sent in a unified electronic format to tax officers. Apparently, 13 European countries have implemented such anti-fraud VAT reporting by September 2017 (Hallam, 2017). Also, a split payment method where the purchaser pays the VAT directly to the tax authorities instead to its supplier is being introduced e.g. in Poland (TPA, 2017). The United Kingdom is now discussing split payments and joint liability for VAT to be paid by oversees e-shops (Krikorian-Slade, 2017).

However, the most common measure against the carousel fraud is the specific reverse charge applied on certain commodities, implemented across all the EU

member states (European Commission, 2014). Its critics argue that the carousel fraud could shift towards other commodities or other states that have not yet implemented such a measure (PWC, 2007). Therefore, within the EU are currently under discussion new methods of the VAT collection. The most preferred alternative by the European Commission is the new VAT treatment of cross-border supplies of goods. These would no longer be exempt from VAT and thus the carousel fraud would no longer be so advantageous (European Commission, 2017).

Tab. 1 Application of the reverse charge mechanism in the CR

Date of application (since)	Commodity included
1 January 2006	Gold
1 April 2011	Emission allowances, scrap and waste
1 December 2012	Grain, technical crops, metals, mobile phones, tablets, notebooks, integrated circuits.
1 February 2016	Electricity, gas and certificates to electricity supplied to trader.
1 October 2016	Services of electronic communication for further sales.
1 July 2017	Sale of immovable property under execution, transfer of goods that served as a guarantee, higher out of labour in construction.

Source: Czech VAT Act, different wording.

Also, the Czech Republic (further referred as "the CR") has started to combat the VAT evasion with the reverse charge mechanism, i.e. using a specific VAT regime under which the duty to pay the output VAT is shifted onto the purchaser. This prevents situations where the supplier does not pay the output tax to the tax authorities and the purchaser askes for its refund. Under the reverse charge mechanism, the purchaser pays to its supplier for goods or services the price excluding VAT. The corresponding VAT is reported in his tax return as the output tax on the supply received[1]. The purchaser also deducts the input tax incurred on the purchase in its tax return. The input tax equals to the amount declared as the output tax on the very same purchase. He cannot deduct the input VAT unless he reports the output VAT on the supply purchased under the reverse charge mechanism. Therefore, the tax on that transaction cannot disappear (the responsibility for its channelling to the state budget does not rest with the supplier as in the case of the standard VAT mechanism). The reverse charge mechanism was first applied in the CR on gold in 2006 and gradually extended to other

[1] This procedure is exactly reverse to the standard mechanism where the output tax is reported by the supplier on its sold supplies.

commodities. Application of the reverse charge mechanism in the CR is presented in Table 1.

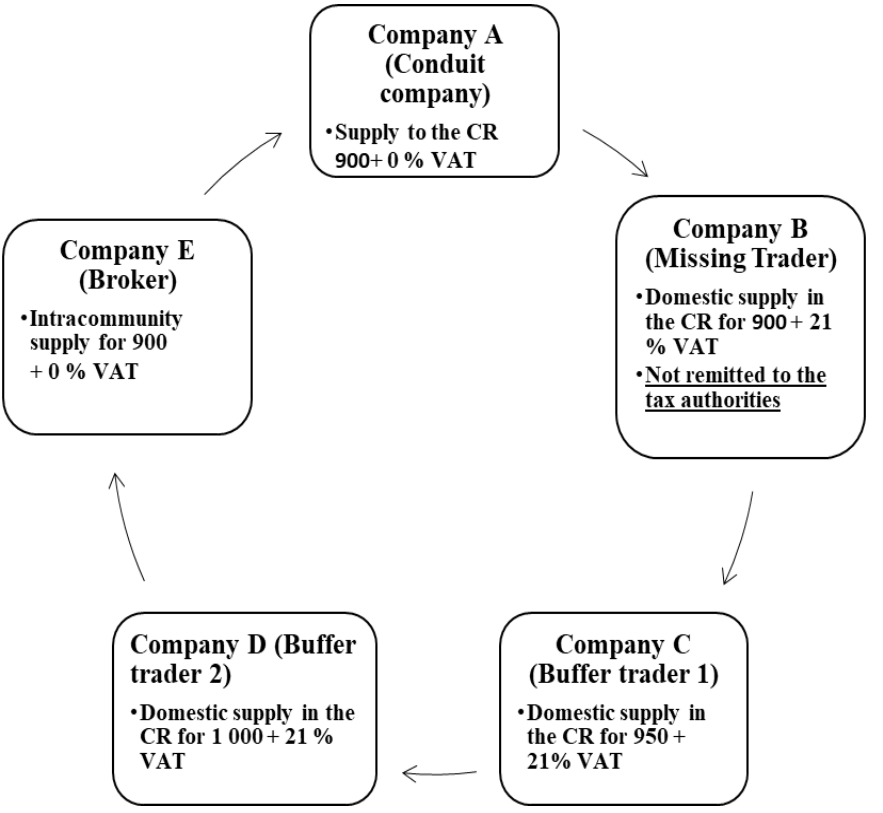
3 Data and Methods

In order to find out what is the actual volume of carousel fraud on specific goods, we perform an ex-post estimate using the data from the trade balances between the CR and other EU member states (CSO, 2019) in those goods that were suspected to be the subject to the carousel fraud and later the specific reverse charge was implemented on them. Our hypothesis is that the fictitious transactions in carousel chains would disappear (by shifting to other goods or other member states) after the implementation of the specific reverse charge on those goods. We selected the waste and scrap which started to be subject to the specific reverse charge on 1 April 2011. Therefore, we analysed the development of the trade balances in waste and scrap between the CR and other EU member states as described further.

3.1 Principle of carousel fraud

Before analysing the trade balances, it is necessary to fully understand the principle of the carousel fraud where several fraudsters are collaborating in the chain. Therefore, we built up a model of a carousel chain as follows. The first fraudster (Company A) settled in the member state, e.g. Austria, supplies the goods to another member state, e.g. the Czech Republic. The second fraudulent firm in the chain (Company B) cross-border purchases the goods. From the VAT perspective this transaction is neutral as Company B applies the output VAT on the intracommunity acquisition of goods and at the same time as it claims the input tax deduction of the equal amount. Company B supplies the goods locally to an innocent buffer trader (Company C) for a decent price with local VAT. Company C purchases the goods and pays the VAT in the price and then claims it as a deduction from the tax authority. However, Company B became the missing trader and did not remit this VAT to the tax administrator. If the tax administrator refunds the VAT to Company C, the tax loss arises for the state as the VAT refunded was never collected from the missing trader (Company B). Subsequently, the goods are sold to another innocent buffer Company D (there could be more buffers in the chain, but we only use two for our model) and afterwards to a fraudulent Company E that supplies the goods back to Company A. The whole chain is depicted in the Figure 1 below. For the analysis, we assume that the missing traders do not charge any margin on the goods traded (they even sell the goods cheaper than they bought them) to find innocent buffer traders through which the goods can flow in the carousel. In our model, we use hypothetical prices to show the potential profits and losses of the traders and the state.

Fig. 1 Functioning of Carousel fraud



Source: Author.

From the above figure, it is apparent that the VAT in the amount of 21% of 900, i.e. 189 is not remitted by Company B to the tax administrator but refunded to Company C. Company B has a profit of 189 equal to the stolen VAT. Company C and Company D are normal traders who charge margins on their sales. Company E is again a fraudulent trader who sells the goods to Company A in other member state for 900 without VAT as it is a cross-border sale. Company E made a loss of 100. The reduction of price is purposeful to make the goods more attractive to innocent traders (buffers). Company A is selling the goods back to the CR for 900 (not applying any margin). In the whole chain, the profit for the fraudulent companies is equal 89 (profit made by Company B less the loss made by Company E). The loss to the public budgets of the CR is equal to 189 representing the non-collected but refunded VAT in the chain.

Our model describes a hypothetical example that will be used for the estimate of the carousel fraud on waste and scrap inputting in the volumes of supposed fictitious transactions found out from the trade balance as described further. In Chapter 4 we show the identical figure completed with our estimate of fictitious supplies and the amount of lost tax revenue. We chose waste and scrap because the reverse charge mechanism was implemented on these commodities already in 2011. The limits of our model could lie in the fact that the price indices were not specifically stated for waste and scrap but we had to estimate them from the data available for a larger group of goods (crude materials, inedible, except fuels). Next problem could consist in the statistical adjustment made by the Statistical Office to the data on intracommunity supplies and acquisitions. The information is extrapolated from the Intrastat reports that are filed only by large traders exceeding the annual turnover of CZK 8 mil. On the other hand, the advantage of the data from the Czech Statistical Office was the detailed breakdown of goods traded within the EU according to the individual codes of customs tariff.

3.2 Trade balance of the CR with 28 EU member states

Data from the Czech Statistical Office (further referred as "CSO") were essential for our analysis. As it prepares and updates trade balances containing information about intracommunity supplies and acquisitions between the CR and other European member states.

Table 2 shows the volume of intracommunity supplies and acquisitions of scrap and waste in the years before and after the specific reverse charge (further referred as "SRCH") was implemented in the CR. The last column includes the balance, i.e. the difference between the supplies and acquisitions. The highlighted line shows the annual period before 1 April 2011 when the SRCH was implemented.

It is apparent from the table that the intracommunity acquisitions as well as supplies grew in the year before the implementation of the SRCH, i.e. in the period from 1 April 2010 to 31 March 2011. However, it should be noted that supplies to the EU increased much more than acquisitions in this particular period. After the implementation of the SRCH, i.e. in the period starting on 1 April 2011 and ending 31 March 2012, the development of intracommunity acquisitions and supplies differed. The purchases from the EU grew further, while the sales to the EU decreased significantly.

Tab. 2 Intracommunity supplies ("ICS") and acquisitions ("ICA") of waste and scrap from/to the CR

Period		ICA (in k EUR)	Changes in ICA (in k EUR)	ICS (in k EUR)	Changes in ICS (in k EUR)	Total balance (in k EUR)
1.4.2008	31.3.2009	264,865.03		866,269.96		601,404.93
1.4.2009	31.3.2010	225,260.66	-39,604.37	808,074.12	-58,195.84	582,813.45
1.4.2010	**31.3.2011**	**369,544.03**	**144,283.37**	**1,389,834.61**	**581,760.49**	**1,020,290.57**
1.4.2011	31.3.2012	523,431.38	153,887.35	1,179,711.91	-210,122.70	656,280.53
1.4.2012	31.3.2013	530,258.29	6,826.91	1,144,209.30	-35,502.61	613,951.01
1.4.2013	31.3.2014	443,821.01	-86,437.28	964,244.58	-179,964.72	520,423.57
1.4.2014	31.3.2015	424,320.30	-19,500.71	976,927.72	12,683.14	552,607.43
1.4.2015	31.3.2016	363,795.89	-60,524.41	757,615.03	-219,312.69	393,819.14
1.4.2016	31.3.2017	435,240.48	71,444.59	885,395.25	127,780.22	450,154.76
1.4.2017	31.3.2018	535,750.86	100,510.38	1,130,100.68	244,705.43	594,349.82

Source: Czech statistical office.

Table 3 summarises the development of the trade balance in waste and scrap and the average monthly size of the trade balance. The year 2011, when the SRCH was introduced in the CR, is divided into two parts so that the pre-implementation period is more apparent. The average monthly trade balance in the year 2010 was EUR 73,785.16 thousand. It is interesting that in the three-month period before the implementation of the SRCH (1 January 2011 to 31 March 2011), the average monthly balance increased to EUR 103,354.05 thousand. This development could indicate the fraudsters' attempt to make as many carousel frauds as possible before the introduction of the anti-fraud measure.

The trade balance is also affected by the regular development of the business cycle. When comparing the trade balance before the introduction of the reverse charge to waste and scrap, it is possible to see the trend of the development. The trade balance increases regularly in May and June. In 2010 (a year before the introduction of the reverse charge) it is possible to see a change in this trend. An increase in the trade balance can be seen throughout the whole year. Furthermore, we can see a smoothing of the trend followed by a jump in the balance just before the implementation of the reverse charge. The development of the scrap trade balance is mainly influenced by the use of these materials in the engineering, automotive and construction industries. So the development of these industries is important for the waste and scrap business. A new EU Regulation excluding scrap

from waste legislation could also influence the trade balances in these commodities. After its implementation it would be possible to buy scrap not only from entities with a special waste management permit. However, at the time of the introduction of the reverse charge in the Czech Republic, it was not applied as there was no implementing decree in the Czech Republic.

Tab. 3 Trade balances in waste and scrap and average monthly size of trade balances

Period		Total balance (in k EUR)	Average monthly balance in that period (in k EUR)
1.1.2008	31.12.2008	663,364.81	55,280.40
1.1.2009	31.12.2009	469,993.00	39,166.08
1.1.2010	31.12.2010	885,421.91	73,785.16
1.1.2011	31.3.2011	310,062.15	103,354.05
1.4.2011	**31.12.2011**	**507,979.19**	**56,442.13**
1.1.2012	31.12.2012	650,711.81	54,225.98
1.1.2013	31.12.2013	495,405.98	41,283.83
1.1.2014	31.12.2014	561,188.72	46,765.73
1.1.2015	31.12.2015	436,933.84	36,411.15
1.1.2016	31.12.2016	390,940.78	32,578.40
1.1.2017	31.12.2017	585,900.42	48,825.03
1.1.2018	30.11.2018	567,274.30	47,272.86

Source: Czech statistical office.

For further calculation, we will consider only the volume of intracommunity supplies. The reason for using only intracommunity supplies is our assumption that the data on intracommunity acquisitions are not reported properly. Information about the movement of goods between the CR and other EU member states are gained by the Czech Statistical Office from the Intrastat reports filed by the entrepreneurs. These reports are filed with the Czech Customs Administration by all traders who exceed the threshold of CZK 8 mil. When computing the trade balances between the CR and individual EU member states, the Czech Statistical Office (further "CSO") extrapolates for smaller traders who do not report due to the statistical threshold (CZK 8 mil.) and compensates for the loss of information due to non-response.

It is known that the missing trader in carousel fraud does not file the VAT return and neither remit the VAT to the tax administrator. Therefore, we assume that

such missing trader neither files the Intrastat report to the Customs Authorities. Therefore, the CSO does not obtain the information on the fraudulent acquisition of goods. This idea is supported also by the UK Office of National Statistics (2016). Therefore, we do not analyse the development of intracommunity acquisitions. Instead, we focus on the substantial increase of intracommunity supplies in the year before the implementation of the SRCH. It is quite probable that fictitious fraudulent sales from the CR to other EU member states are responsible for the difference between the supplies to the EU in the period prior to the implementation of the SRCH, i.e. 1 April 2010 to 1 April 2011, and the year before.

However, we must consider that the data on intracommunity supplies and acquisitions are also affected by price changes. For the next calculation, we use the export and import price indices published by the CSO to adjust for the price increases in the waste and scrap trade in the relevant period. We chose the chain indices for waste and scrap that show the y-o-y change in prices of the goods explored. Table 4 shows the price increases where not only price developments but also the changes in foreign exchange rates are included.

Tab. 4 Price indices for waste and scrap in the CR

Period		Price indices (in %)
1.4.2008	31.3.2009	25.45
1.4.2009	31.3.2010	26.01
1.4.2010	**31.3.2011**	**24.92**
1.4.2011	31.3.2012	24.77
1.4.2012	31.3.2013	25.27
1.4.2013	31.3.2014	26.44
1.4.2014	31.3.2015	27.58
1.4.2015	31.3.2016	27.14
1.4.2016	31.3.2017	27.03
1.4.2017	31.3.2018	25.91

Source: Czech Statistical Office.

After adjusting the amount of intracommunity supplies by the price indices, we can estimate the size of the fictitious deliveries. Table 5 contains the adjusted intracommunity supplies values and changes in values between years. The highlighted row shows in the last column the size of the fictitious deliveries, which we will use to estimate the VAT fraud in waste and scrap present in the CR before the implementation of the SRCH.

Tab. 5 Adjusted intracommunity supplies ("ICS") and their year to year changes

Period		ICS (in k EUR)	Changes in ICS (in k EUR)
1.4.2008	31.3.2009	866,269.96	
1.4.2009	31.3.2010	895,869.31	29,599.35
1.4.2010	**31.3.2011**	**1,089,212.07**	**281,137.95**
1.4.2011	31.3.2012	1,115,039.61	-274,795.00
1.4.2012	31.3.2013	1,107,656.63	-72,055.28
1.4.2013	31.3.2014	978,928.51	-165,280.79
1.4.2014	31.3.2015	960,597.57	-3,647.01
1.4.2015	31.3.2016	839,927.97	-136,999.75

Source: CSO (2019) and own calculation.

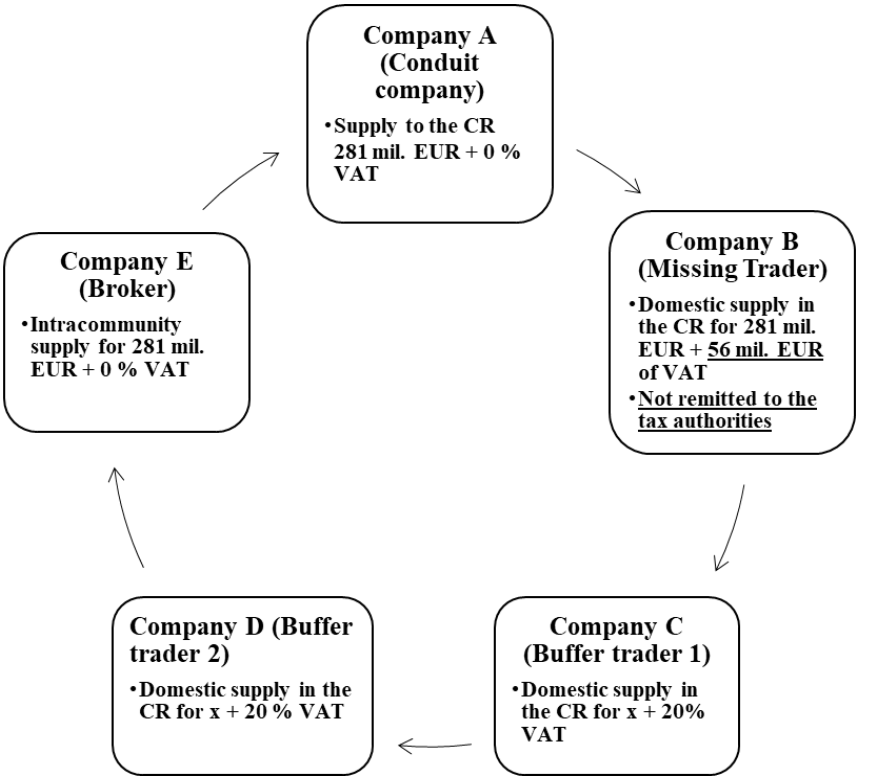
The size of the fictitious deliveries is estimated to the amount of EUR 281,137.95 thousand as follows from the previous table. For the calculation of the VAT not collected (and refunded) in the carousel fraud, we use the VAT rate, which was applicable in the year of the implementation of the SRCH. The valid VAT rate in the CR was 20% from 2010 to 2012. The export prices (the value of intracommunity supplies published by the CSO) are expressed without VAT. Therefore, our estimate of the VAT fraud in waste and scrap is resulting in EUR 56,227.59 thousand.

4 Results

For our calculation, we assumed that the volume of fictitious intracommunity acquisitions was the same as the volume of fictitious intra-community supplies, i.e. the margins of buffer traders summed up to the voluntary reduction of the price by Company A that sells with a loss to attract the buffer trader in the chain. Therefore, we filled in the figure for the intracommunity acquisition by Company B the volume of fictitious cross-border supplies of approximately EUR 281 mil.

The figure shows that missing traders (expressed as Company B) purchased and sold the waste and scrap for approximately EUR 281 mil. in the period from 1 April 2010 to 31 March 2011 (a year before the implementation of the SRCH). The VAT rate in the CR was 20 % in the years 2010 and 2011, so the VAT not collected due to carousel fraud but refunded by Czech tax administration could be 20 % of that amount, i.e. approximately EUR 56 mil. This is of course an estimation performed based on a number of assumptions. However, we believe that our premises regarding the zero or negative margins in carousel fraud are well-founded (Ainsworth, 2006).

Fig. 2 Carousel fraud on waste and scrap in the CR (1 April 2010 to 31 March 2011)



Source: Author.

The advantage of the whole model is its simplicity. The model can be applied to any kind of reverse charged goods. In spite of the potential inaccuracies arising from the limits of the model discussed in the data and methodology section, we trust that the estimate of the carousel fraud existing before the implementation of the reverse charge mechanism is approximately correct.

5 Conclusion

Based on our ex-post calculation, the presumed volume of the carousel fraud on waste and scrap before the implementation of the SRCH in the CR annually amounted to approximately EUR 56 mil.. This estimate is important for tax policy makers, as the EU VAT Directive allowing the Member States to implement a specific reverse charge into their tax legislation also requires them to report on its actual impact on the public budgets.

Moreover, a reliable estimate of the carousel fraud volume in the whole EU is a significant input to the current discussion on the Definitive VAT system applicable on the cross-border supplies of goods (European Commission, 2017). In the definitive system, the cross-border sales of goods would be taxed by the supplier using the VAT rate of the country of destination. This would unify the VAT collection method of domestic and intracommunity supplies. The current system of exempting the intracommunity supplies and taxing the intracommunity acquisitions allows and, in fact, encourages the VAT fraud, as explained above.

The definitive system should solve the problem of carousel fraud as the person acquiring the goods from another EU Member State would not have the incentive to go missing and keep the VAT that its customer has paid it together with the price for the goods. However, the definitive system has also its flaws (CFE, 2018) and primarily represents a completely new method of taxation of the EU trade. This would require numerous changes in compliance on the side of the EU businesses trading in goods within the EU.

Although some expert estimates exist on the extent of the carousel fraud as mentioned in the literature review, the numbers differ, and the methods of their calculation are not publicly known. Therefore, the actual knowledge of the volume of the carousel fraud would help to decide whether it is worth to change the whole system to eliminate this fraud. Our method allows the ex-post estimation of the carousel fraud that had existed before the implementation of the specific reverse charge on waste and scrap in the CR. It is based on the analysis of the trade balances between the EU Member States and could be extended to evaluate the carousel fraud on other goods and other member states. This simple model is applicable to every type of goods. We have described above the problems that the model has. In the future, we want to expand the model to other goods and improve it to tackle its limits.

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