International Trade in Goods Statistics Based on Ownership Principle in the EU

Tereza Kostakova, Marek Rojicek, Jaroslav Sixta

Czech Statistical Office

INTRODUCTION

The Czech Republic joined the European Union and its Single Market in 2004. Since then the International Trade in Goods Statistics (ITGS) indicated a gradually growing surplus of a trade balance. This trend coincided with an effect of a preceding rapid growth of foreign direct investments to manufacturing sector. However, such a development of the trade balance was in sharp contrast to the financial flows in balance of payment statistics. Moreover, a growing discrepancy between supply- and use-side was being observed in some commodities and exports of goods often exceeded output in these commodities during the balancing process of supply-use tables within the Czech national accounts' system. It seemed that the ITGS provided, at that time, either exports' indicators that were overestimated while indicators on imports underestimated or that both exports' and imports' values far exceeded real economic inputs and outputs of the Czech economy. Furthermore, the discrepancies have grown in time as the impact of globalisation intensified and the Czech Republic has been more and more incorporated into the Single market of the EU and global value chains.

A thorough analysis uncovered that most of the positive trade balance indicated by the ITGS was generated by foreign traders (enterprises seated outside the Czech economy) and thus cannot be considered as the value added of the domestic economy. The ITGS, as it was compiled then, no longer provided a real picture of economic performance of the Czech economy. Therefore, a new methodology of the ITGS was defined in 2010 and has been continuously developing ever since.

This article describes the necessity of departure from ITGS based solely on cross-border physical movement of goods in the EU and the necessity to develop the ITGS methodology based more on ownership principle due to unique administrative and legal requirements within the Customs Union and Single Market of the EU. The main principles of the new methodology are introduced and the impact on the macroeconomic indicators is demonstrated.

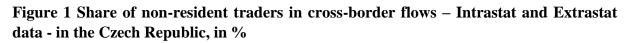### DATA SOURCES FOR FOREIGN TRADE ESTIMATION IN THE EU

International trade in goods statistics is conceptually based on former custom statistics in the EU. The ITGS data collection system consists of two separate systems: Intrastat which collects data on movements of goods within the EU (between member states' borders) and customs declarations - Extrastat which collects data on movements of goods across the EU borders (from outside the EU). The main aim of following the cross-border movements is to approximate international trade in goods, i.e. the change in ownership of goods between residents and non-residents which is accompanied by corresponding financial flows.
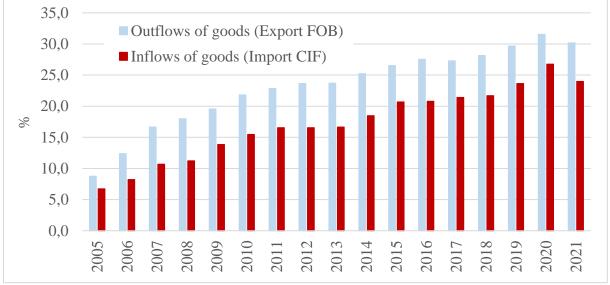
However, this simplification cannot work if the link between the physical movement of goods across the borders and the real trade transactions is broken. For example, the ITGS in each member state of the EU Single market has to cope with the fact that non-residents have a direct access to the internal market of the domestic economy and also that non-resident traders report cross-border movements of their merchandise to Intrastat and Extrastat system. In such a legal

and administrative environment, the ITGS cannot be based solely on following the cross-border movements of goods, otherwise it may not provide macro-economically meaningful indicators.

Within the EU Single Market any trader is allowed to participate in trade on an internal market of each member state. The foreign trader is just required to register for value added tax (VAT) in this member state. Thus the moment of the goods crossing the borders, if it ever happens, is separated from the moment of actual trade on the internal market. Many micro-level analyses indicate that a transaction value realized on the internal market (between a foreign trader and a resident) may significantly differ from a value reported by foreign traders to Intrastat or Extrastat system ("at the borders").

Moreover, as a consequence of VAT registration, the foreign trader is obliged to report all its cross-border movements of goods from/to other EU member states into Intrastat[1]. Thus, for example, any merchandise owned by a foreign trader which is transferred from one member state into a warehouse or a distribution centre located in the territory of another member state has to be reported into Intrastat by the foreign trader. Such a merchandise may not be even intended for an internal market of the member state where the warehouse is located. The merchandise may be subsequently transferred to a member state of its final market (i.e. to final customers). This quasi-transit of goods owned by non-residents cannot be considered an approximation of foreign trade at all since no change of ownership occurs but still these movements of goods across member states' borders are collected by Intrastat (and Extrastat).

Figure 1 Share of non-resident traders in cross-border flows – Intrastat and Extrastat data - in the Czech Republic, in %
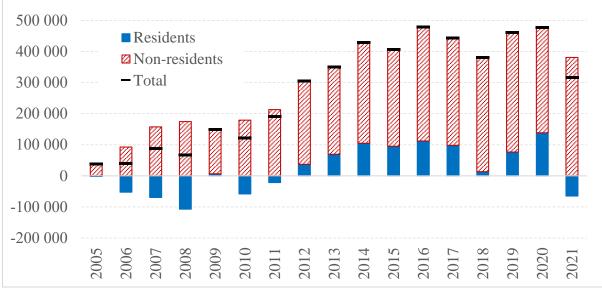

Source: CZSO

The divergence of cross-border movements of goods from the real foreign trade has intensified in the Czech Republic since the accession to the EU in 2004. The Czech economy was incorporated into globalized world and global value chains increasingly affected the Czech economy. Moreover, a suitable location of the Czech Republic near Germany and continually growing suitable warehouse capacities has led to growing share of non-resident transactions in cross-border movements of goods (see Figure 1). Furthermore, the increasing positive balance

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[1] Movement of goods from non-EU states to the EU member states is also obliged to be reported by foreign traders. Such a reporting obligation is based on customs declarations.

of trade in goods indicated by the ITGS at that time was created mainly by the foreign trades (see Figure 2).

Figure 2 Cross-border flows of goods: difference between exports and imports - Intrastat and Extrastat data - in the Czech Republic, in CZK million

Source: CZSO

Therefore, if the ITGS in each member state of the EU is supposed to provide information on foreign trade, i.e. economic performance of its residents, rather than information on physical movement of goods to/from a member state, it seems that using a sole data source based on cross-border physical movement of goods[2] is insufficient for an adequate estimate of foreign trade. Since some transactions between residents and non-residents occur directly on the internal market it is necessary to focus on data sources which provide information on these domestic transactions, for example VAT declaration submitted by foreign traders in the Czech Republic. Domestic sales and purchases carried out by non-residents on the internal market may be a better approximation of foreign trade than cross-border transactions (if they ever occur).

Apart from traditional data sources on foreign trade and administrative data sources such as VAT declarations, there are also other sources which can provide useful information for an estimation of foreign trade, especially on commodity details or on trading models of global value chains. In the Czech statistical environment, PRODCOM survey on industry, international trade in services statistics (ITSS), short term statistics (STS) and structural business statistics are available and used when ITGS indicators are compiled.

TRADE BY NON-RESIDENTS (WITHIN THE SINGLE MARKET)

Generally, in globalised world and, especially, in the Single Market of the EU, traders and even producers carry out their transactions regardless of borders. These traders may not necessarily be a part of a complex global value chains. As mentioned above, any trader can carry out their transactions in any member state within the EU Single Market. The only administrative

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[2] For those cases in which cross-border movement of goods can be still considered as a good approximation of foreign trade.

obligation is to be registered for VAT in each state where the trader carries out its transactions[3]. Thus the trader can be registered, practically, in all member states of the EU.

There is no need for the foreign trader to be physically present in the member state, to set up a branch office (neither with nor without a legal independency) or to be registered in a Business register in the member state. These non-residents registered for VAT in order to be allowed to carry out taxable transactions[4] in the member state are often termed as "VAT only" in the economy where they are not seated but are registered for VAT. The registration for VAT does not give cause for a new residency of these traders. They cannot be considered as a branch office or any special purpose entity (SPE) or any other institutional unit in "the economy of the transactions". The value added created by non-residents registered for VAT in "the economy of transaction" cannot be perceived as an economic performance of this economy if no resident unit is involved.

The trading activities of a trader which are carried out outside the territory of residency are still an integral part of the economic performance of the trader and thus these transactions cannot be separated from other trading transactions carried out by the enterprise (regardless of the borders[5]). From the point of view of the economy where the trader is seated, these trading transactions are considered a part of gross domestic product (GDP) of "the economy of residency" and are mostly associated with goods under merchanting[6] in the balance of payment (BoP) and the system of national accounts (SNA).

It may seem that this phenomenon goes far beyond the ITGS and is more likely a methodical issue for national accountants and balance of payment statisticians. However, if the ITGS seeks to provide macro-economically meaningful indicators on foreign trade in goods in each and every EU member state, it is necessary to understand the motivations and trading models of foreign traders registered for VAT and impact of their behaviour on a given data-collection system.

Activities of foreign traders registered for VAT in the Czech Republic are related mostly to

A) Trading directly on the Czech internal market with resident companies, usually producers which are part of the same MNE group) and/or to
B) Storage facilities (warehouses and distribution centres[7]) located in the Czech Republic.

Regarding the trading on the internal market, foreign traders' activities are focused on various areas. The range of their interests is broad and is given mainly by an industrial character of the Czech economy. The main areas of interest lies in trading with electronic parts and equipment, machinery, automotive components and products but also with toys, chemicals, other

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[3] There may be various additional administrative requirements in each member state associated with the registration but in general, the requirements are harmonised since there is a common VAT system in the EU.
[4] For example, sales or purchases of goods on the internal market of the member state or transfer of merchandise to/from the territory of the member state (e.g. to/from a warehouse).
[5] Economically, there is no difference between trading activities carried out in "the economy of residency" or abroad.
[6] Goods under merchanting are recorded in a net value as export of goods in BoP and NA (ESA 2010 – paragraph xx and BPM6 – paragraph 3.164 (d)). The sales of goods are considered exports of goods and purchases as negative exports of goods, thus only a net value of these transactions are recorded.
[7] The storage facilities are usually leased, there are no employees of foreign traders or assets needed. Complex storage services are provided by resident units. These transactions represent export of services for the Czech economy.

manufactured good etc. Nevertheless, as mentioned above, the interests cannot be narrowed and limited to only a few areas.

Regarding the warehouse and distribution centres, the interest of foreign traders does not lie in long-term storage of merchandise. These activities are focused mainly on distribution centres which are aimed at final customers in other EU member states. Thus these activities are closely related to so-called quasi-transit. These flows of goods through the Czech territory without any trading transactions with residents reach about 60% of all cross-border flows of goods reported by foreign traders (i.e. about more than 15% of all cross-border flows from/to the Czech Republic). They are concentrated mainly in commodity groups such as computers, electronic equipment, wearing apparel, leather products etc. Nevertheless, there are also distribution centres of some major international e-shops located in the Czech Republic (i.e. non-resident traders which are registered for VAT in the Czech Republic) with a large-scale of various products, so the quasi-transit phenomenon may influence a wide range of commodity groups.

Table 1 Commodity breakdown of cross-border flows reported by residents and non-residents, selected CPA groups, Czech Republic, 2021, in %

CPA Code	Commodity group	Outflows of goods (Exports of goods)		Inflows of goods (Imports of goods)	
		residents	non-residents	residents	non-residents
01	Products of agriculture	1,3	0,1	1,5	0,9
05	Coal and lignite	0,2	0,0	0,4	0,0
06	Crude petroleum, natural gas	0,0	0,0	4,4	0,0
10	Food products	3,1	0,9	4,5	0,6
12	Tobacco products	0,0	0,4	0,3	0,1
13	Textiles	1,5	0,5	1,4	0,2
14	Wearing apparel	0,5	1,3	1,4	1,1
15	Leather and related products	0,3	0,6	0,7	0,5
16	Wood and of products of wood	1,6	0,1	0,8	0,0
17	Paper and paper products	1,6	0,6	1,5	0,4
19	Coke and refined petroleum	1,2	0,1	2,0	0,0
20	Chemicals, chemical products	5,6	1,5	8,8	1,7
21	Basic pharmaceutical products	1,5	1,1	3,3	1,3
22	Rubber and plastics products	5,3	1,0	5,1	0,8
23	Other non-metallic mineral pr.	2,1	0,3	1,4	0,1
24	Basic metals	4,7	0,4	8,4	1,0
25	Fabricated metal products	6,4	1,1	4,6	0,6
26	Computer, electronic, optical pr.	8,2	16,2	10,0	14,5
27	Electrical equipment	8,5	5,4	8,8	3,2
28	Machinery and equipment n.e.c.	11,4	4,3	10,1	1,3
29	Motor vehicles, trailers	25,8	2,9	13,5	1,7
30	Other transport equipment	1,5	0,2	1,1	0,1
32	Other manufactured goods	1,9	2,7	2,3	0,7
35	Electricity, gas, steam, air cond.	1,8	0,0	0,7	0,0

Source: CZSO

There are many different trading models established (usually) by global value chains which require foreign trader to be registered for VAT in the Czech Republic (under the common VAT

system of the EU). Some of the most frequent trading models followed by foreign traders are described below:

a) Some non-residents are focused solely on imports: physically transferring the goods to the Czech territory and subsequently selling the goods on the internal market to residents. In such a case, physical cross-border transport of goods reported by non-residents cannot be considered import of goods for the Czech economy and only the sales on the internal market are considered imports of goods for the Czech economy. As already mentioned above, the trading value of goods realized on the internal market usually varies from the value reported by non-residents to Intrastat (i.e. "at the borders"). There may be many reasons for the difference, from time-shift to applying a trade margin by foreign traders (e.g. when the value of transferred merchandise is reported at in-house prices into Intrastat).

b) Some non-residents are focused solely on exports: purchasing the goods (usually) from a Czech producer with subsequent physical transfer of the goods across the borders from the Czech territory. Analogously to imports, in such a case, physical cross-border transfer of goods reported by non-residents cannot be considered exports of goods and only the purchases on the internal market are considered exports of goods for the Czech economy. Micro-data analyses of such models indicate that the value reported at the borders (into Intrastat) is usually substantially higher than the real trading value on the internal market. The difference in case of exports seems to be usually more significant than in case of imports.

c) Some non-resident traders registered for VAT are contractors in contract manufacturing arrangements. A foreign trader physically imports the goods into the Czech territory in order to hand the inputs (materials etc.) for processing[8] to a resident manufacturer which provides the processing services[9]. In this case there is no change of ownership of inputs and thus also the final product is owned by the non-resident. The final products are usually handed over to the contractor (owner) within the Czech territory[10]. The goods are subsequently either transferred from the Czech territory by the foreign owner (movement of goods is reported by the foreign trader to Intrastat) or sold on the internal market by the foreign trader[11]. Micro-level analyses of many MNE groups operating in the Czech Republic indicate that these arrangements of global value chains have become increasingly popular in recent years. Still this trading model is significantly less frequent than trading models described in previous paragraphs a, b and following paragraph d.

d) As already described in details above, some foreign traders transfer its merchandise into distribution centres located in the Czech territory and subsequently without any significant change transfer the merchandise from the Czech territory (usually at a very different price than at the moment of import). There is no change of ownership between

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[8] The inputs may be also purchased by a non-resident directly on the Czech internal market and then handed over to a resident processor.

[9] In such an arrangement, no exports and imports of goods occur in the Czech economy (only export of manufacturing/processing services).

[10] The final product may be also sent across the borders by resident manufacturer – and thus reporting the flows into Intrastat, however, very often the delivery of final products occurs in the Czech Republic.

[11] These sales are then considered imports for the Czech economy.

residents and non-residents, therefore, there are no exports and imports of goods for the Czech economy in relation to these cross-border movements of goods[12].

e) Some foreign traders purchase goods on the Czech internal market (either from resident producers or resident traders) with subsequent sale of the same goods on the internal market to other resident units. In this case, foreign traders operates as intermediary traders on the internal market just as resident traders. These transaction may be considered a part of the ITGS indicators or a separated phenomenon. In the Czech Republic, these transactions has been, for practical reasons, excluded from the ITGS and has been incorporated as so-called "inverse merchanting" into an estimation of import of goods in the system of national accounts[13].

The trading models of foreign traders mentioned above are just a selection of basic simplified models. In practice, the models are usually combined and more complex and complicated, which makes any analysis and also estimation of foreign trade more challenging, especially when details on transactions by foreign traders are scarce. For example, each model can be extended by a number of units involved in these transactions (both residents and non-residents).

Foreign traders can also trade among themselves on the internal market of a member state. These so-called "re-sales", i.e. transactions between foreign traders (with goods physically located in the territory of the Czech Republic) are not related to the Czech economy and cannot be considered a part of the economic performance of the Czech Republic because no Czech residents were involved. Unfortunately, these re-sales cannot be identified directly in sales and purchases reported in VAT statements submitted by non-residents, which are available for statistical purposes in the Czech Republic. In other words, in practice, they cannot be distinguished from sales and purchases with residents on the internal market[14]. This inability to eliminate sales and purchases between foreign traders on the internal market significantly complicates the estimation of foreign trade via non-residents. It is not possible just to substitute cross-border imports reported by a foreign trader by all sales reported by the foreign trader on the internal market in order to estimate imports via non-resident for the Czech economy. And analogously, a substitution of cross-border exports by all purchases of the foreign trader on the internal market would not lead to a good estimation of exports via non-resident of the Czech economy.

Moreover, there are no information on commodity breakdown of sales and purchases reported by foreign traders in their VAT statements. And due to quasi-transit in cross-border transactions reported by foreign traders, which cannot be directly distinguished from cross-border transactions related to sales and purchases by foreign traders on the internal market, it cannot be assumed that commodity breakdown of sales and purchases by foreign traders are proportional to commodity breakdown of cross-border transactions reported by foreign traders. Therefore a comprehensive estimation method had to be developed for a commodity

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[12] Resident units provide storage, packaging and other related services, i.e. the Czech economy exports services.

[13] These transactions can be viewed as analogous (but inverse) to "traditional" merchanting transactions – purchases and sales of goods abroad by resident units without goods entering physically the domestic territory, (e.g. see paragraph 3.164 (d) in ESA 2010). Inverse merchanting is not explicitly mentioned in ESA 2010 but they are described in ESA 2010 Methodical Note – Foreign trade reported by non-residents, published by Eurostat in 2015.

[14] Approximately, the re-sales represented about 50% of all purchases and 55% of all sales reported by all foreign traders in year 2021. The share seems to be relatively stable over the years.

breakdown of sales and purchases by non-residents with residents (i.e. exports and imports via non-residents).

ITGS NEW METHODOLOGY – FROM CROSS-BORDER MOVEMENTS TO OWNERSHIP PRINCIPLE

Foreign traders' activities in the Czech Republic has extended to such a substantial degree that it has affected an ability of the ITGS to provide a quality indicators on foreign trade when it is based solely on data sources on cross-border movements of goods regardless of owners' residency. That is why a new ITGS methodology has been developed since 2010.

This methodology is still based on data sources of cross-border data collection systems (Intrastat and Extrastat) but quasi-transit by foreign traders is eliminated and trading by foreign traders with residents on the Czech internal market is taken into account. Cross-border transactions reported by Czech resident units remain unchanged since they can be still considered a good approximation of foreign trade[15]. In other words, only cross-border transactions reported by foreign traders are a subject of adjustments when ITGS indicators are now compiled.

In practice, the new concept of the ITGS can be described as a combination of a top-down and a bottom-up approaches and is determined by data sources (un)available in the Czech statistical environment (as described above). Generally, the compilation process consists of two consecutive steps:

1) Estimation of a balance of trade in goods via non-residents (i.e. via foreign traders registered for VAT in the Czech Republic),
2) Estimation of the commodity breakdown and the value of exports and imports via non-residents (i.e. the value of sales to residents and value of purchases from residents by foreign traders).

Regarding the estimation of balance of trade via non-residents, the concept is based on the fact that no cross-border transaction reported by non-residents at all can be considered exports and imports for the Czech economy and only sales and purchases reported by non-residents on the internal market (with residents) are transactions of importance to the Czech economy performance. Therefore, all cross-border transactions reported by non-resident units into Intrastat and Extrastat are eliminated and the balance of trade in goods via non-resident traders is defined as a difference between total value of purchases by all non-residents and total value of sales by all non-residents[16] on the internal market[17].

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[15] These transactions may be adjusted when NA and BoP aggregates are estimated in order to comply with a stricter concept of ownership principle defined in ESA 2010 and BPM6 manuals than ITGS methodology (e.g. goods sent abroad for processing without a change of ownership are considered exports by ITGS whereas NA and BoP do not consider these cross-border transactions as exports of goods).

[16] Reported by foreign traders in their VAT statements submitted in the Czech Republic.

[17] As mentioned above, the sales and purchases on the internal market reported by foreign traders into VAT statements include also transactions between non-residents (so-called resales). Unfortunatelly, these transaction of no importance to the Czech economy cannot be identified directly in the data source and excluded. However, if a sum of all sales and purchases reported by all non-residents are taken into account when the balance of trade via non-residents is calculated, re-sales are implicitly eliminated from the balance. It is because re-sales inflate the total value of sales and the total value of purchases by all non-residents equally since what is a sale for one non-resident is a purchase for another. Due to the existence of re-sales, it is necessary to include all non-residents into the estimation of balance of trade via non-residents. Otherwise, some re-sales may not be eliminated and the estimation of the balance of trade may be incorrectly biased either in favour of sales or purchases.

When the balance of trade in goods via non-residents is estimated (step 1), the value of exports and imports of goods via non-residents are estimated (step 2). Since the sales and purchases reported by non-residents in their VAT statements contain not only transactions with resident units but also the re-sales between non-residents, the value of sales and purchases cannot be considered the value of imports and exports via non-residents. Moreover, information on commodities traded by non-residents with Czech residents on the internal market is not directly available in any data source. That is why a complex and highly sophisticated approach based on micro-level analyses has been developed in order to estimate the value of sales and purchases of foreign traders with residents by commodity groups.

Various quite complex trading models of non-residents[18] were identified for the most important non-resident traders in order to estimate their sales and purchases with resident units on the internal market and their commodity breakdown[19]. These trading models at the most individual level takes into account whether, for example, there are related resident producers or traders in the Czech Republic or whether there is a contract manufacturing involved or whether more non-residents of the same MNE group are involved in trading with Czech residents or non-residents. Therefore, also statistical data provided by related resident enterprises which trade with foreign traders are crucial for the ITGS compilation[20]. Complex micro-data analyses of MNEs or of global value chains are crucial at this stage both for the estimation of the value of transactions on the internal market with residents and their commodity breakdown. So far, foreign traders with an analysed trading model cover up-to 70% of all transactions by foreign traders operating in the Czech Republic. The remaining non-residents, i.e. less significant foreign traders[21], are approached with a general assumption that the commodity breakdown of their sales and purchases on the internal market is similar to their cross-border flows of goods (but at a different value).

When the sales and purchases between foreign traders and residents on the internal market (in each commodity group) are estimated at the most individual level possible by evaluation their individual trading models, an iteration process is initiated in order to reach the balance of trade in goods calculated in the step 1 of the ITGS compilation process (i.e. balance given by difference between total purchases and total sales on the internal market reported by all non-residents). Since there are fewer data sources available on the import side (sales by non-residents), this side is adjusted, especially commodity groups whose estimation is quite challenging, namely computers, electronic parts and equipment or machinery[22]. Thus, in the end, the estimation of exports and imports via non-residents comply with the estimated balance of trade via non-residents.

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[18] So far up to 26 different models were defined.

[19] For this purpose, many statistical data sources are used, mainly VAT declarations, Intrastat and Extrastat collection systems on cross-border transactions but also PRODCOM annual survey on industry, monthly survey on industry or other statistical sources which are focused on resident units. Annual reports and financial statements issued by non-resident unit itself are also taken into account if available (as well as any data available on related enterprises if possible).

[20] Micro-data analyses indicate that very often foreign traders are parent companies to Czech producers.

[21] Or foreign traders with an "indefinite" trading model for now from the view of data sources available.

[22] I.e. commodity groups which are significantly affected by quasi-transit in cross-border flows. However, it can be assume that the commodity groups affected by this iteration process may vary in the future when more or other data sources are available and more trading models of individual foreign traders are defined.

Until 2022, the ITGS in the Czech Republic provided the commodity breakdown of foreign trade only down to the CPA3 details[23]. Since 2023, the Czech ITGS has been providing export and import of goods at the level of combined nomenclature CN8 to users.

For the purpose of monthly releases of ITGS indicators, the whole process has been set up to be fully automated. But both ad-hoc and systematic thorough expert analyses and inputs are crucial for the quality of the ITGS indicators. The whole approach provides highly reliable estimate of the balance of trade in goods. However, the commodity estimates are more demanding. Therefore, it is necessary to work permanently on the knowledge base of the (current) trading models and other key aspects of the economic behaviour of foreign traders operating in the Czech Republic and look constantly for new data sources which may either be incorporated into the estimation process or help to evaluate the quality of the ITGS indicators. For example, each year, ITGS indicators at a CPA3 level are implicitly verified when supply and use tables (SUT) are balanced within the process of Czech national accounts compilation. Significant imbalance in any commodity group may indicate that improvements in the ITGC compilation process are needed. Thus also a close cooperation with other statistical domains and especially with the main users (such as BoP statistics) is necessary for quality estimation of the ITGS indicators.

ITGS INDICATORS ACCORDING TO OWNERSHIP PRINCIPLES (IN COMPARISON TO CROSS-BORDER MOVEMENTS OF GOODS)

The ITGS which takes into account phenomenon of foreign traders on the EU Single market provides significantly different picture of the foreign trade by the Czech economy than indicators based solely on cross-border flows.

The figure 3 shows the balance of trade in both concepts. Regarding the Czech Republic, the balance of trade by the ITGS based on ownership principle is considerably lower than the balance based solely on cross-border movements of goods reported into Intrastat and Extrastat systems. Since the accession to the EU the difference has been growing continually.
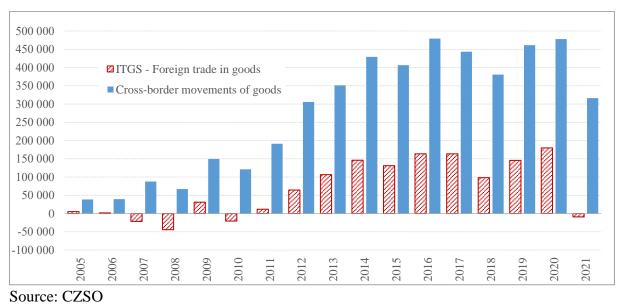
Figure 3 Balance of trade in goods in the Czech Republic – CIF/FOB, in CZK million

Source: CZSO

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[23] Regarding the statistics on cross-border movements of goods, the full scale of commodity details (i.e. down to the level of Combined nomenclature CN8) were still provided to users.

In the year 2021, the difference between both concepts amounted to 21.2% of cross-border exports of goods and 15.6% on the import side (see Figure 4). Just to illustrate the growing discrepancy between the concept of trade and movements, in 2010 the difference between these two concepts amounted to 7.8% of the exports and 2.3% of imports. Most of the differences are concentrated in commodity groups which are significantly affected by quasi-transit, such as computers, electrical equipment but also in motor vehicles, machinery, other manufactured goods etc. Thus the commodity breakdown of foreign trade is considerably different to commodity breakdown of cross-border flows (see Table 2).

Figure 4 Difference between ITGS indicators and cross-border movements of goods in the Czech Republic – CIF/FOB, in CZK million
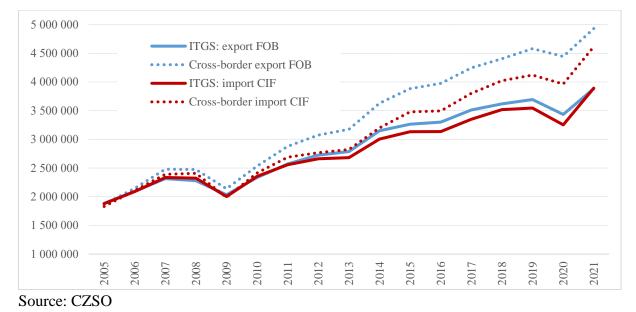

Source: CZSO

Table 2 Commodity breakdown of ITGS indicators and cross-border flows, selected CPA groups, Czech Republic, 2021, in %

CPA Code	Commodity group	Exports		Imports	
		ITGS ownership principle	Cross-border flows	ITGS ownership principle	Cross-border flows
01	Products of agriculture	1,3	0,9	1,4	1,3
05	Coal and lignite	0,2	0,1	0,4	0,3
06	Crude petroleum, natural gas	0,0	0,0	4,0	3,3
10	Food products	3,1	2,8	4,5	3,8
12	Tobacco products	0,1	0,3	0,5	0,3
13	Textiles	1,5	1,4	1,4	1,2
14	Wearing apparel	0,5	1,3	1,4	1,8
15	Leather and related products	0,3	0,6	0,7	0,9
16	Wood and of products of wood	1,5	1,2	0,8	0,6
17	Paper and paper products	1,7	1,5	1,6	1,5
19	Coke and refined petroleum	1,1	0,9	1,8	1,5
20	Chemicals, chemical products	5,2	4,9	8,8	8,0
21	Basic pharmaceutical products	1,5	1,8	3,4	3,5
22	Rubber and plastics products	5,0	4,4	4,8	4,4
23	Other non-metallic mineral pr.	2,0	1,7	1,3	1,2
24	Basic metals	4,3	3,5	8,3	7,1
25	Fabricated metal products	6,2	5,3	4,5	4,0
26	Computer, electronic, optical pr.	10,5	17,1	12,1	18,6
27	Electrical equipment	9,0	9,7	8,9	9,2
28	Machinery and equipment n.e.c.	11,8	10,9	9,4	8,7

29	Motor vehicles, trailers	24,2	20,0	13,2	11,6
30	Other transport equipment	1,5	1,2	1,0	0,9
32	Other manufactured goods	2,3	3,2	2,3	2,3
35	Electricity, gas, steam, air cond.	1,6	1,2	0,6	0,5

Source: CZSO

CONCLUSION

The Czech Republic is a small open economy within the European Union and is vitally dependent on its export performance. Many producers are involved in global value chains and are a part of an MNE group. Many foreign traders, usually related to Czech producers, take advantage of the EU Single Market and trade directly on the Czech internal market. Therefore, transactions which are considered foreign trade (i.e. a change of ownership between Czech residents and non-residents) occur increasingly often within the Czech territory. Due to the administrative and legal requirements of the EU Single Market (and common VAT system) cross-border flows of goods related to these transactions on the internal market are often reported to the cross-border data collection system (Intrastat and Extrastat) by foreign traders (not by Czech residents) and at significantly different value than the value realized on the internal market.

Moreover, its strategic geographical location in the middle of Europe intensifies quasi-transit cross-border flows of goods across the Czech territory, which do not represent any foreign trade in goods for the Czech economy because these physical flows of goods are not accompanied by any change of ownership between residents and non-residents. The goods are just transferred through the Czech territory, i.e. temporarily stored in warehouse facilities and then sent to other markets, usually in other EU member states. All these cross-border movements of goods are, thus, reported into Intrastat and Extrastat by foreign traders registered for VAT in the Czech Republic.

The EU Single Market, the common VAT system and the system of data collection on foreign trade statistics which is based on cross-border movements of goods lead to the discrepancy between foreign trade in goods and physical movement of goods across the borders. In the Czech Republic, these phenomenon cause an overestimation of balance of trade in goods when foreign trade indicators are based solely on cross-border movements. The improved methodology of the ITGS developed by the Czech Statistical Office is based on a combination of various data sources and takes into account transactions on the internal market by foreign traders and various trading models of foreign traders operating within the Czech economy and also eliminates quasi-transit. In other words, the Czech ITGS takes into consideration specifics of the EU legal, administrative and statistical environment and provides significantly improved foreign trade indicators than cross-border statistics. Following the concept of ownership by the ITGS leads to macro-economically meaningful indicators which comply with the balance of payment and national accounts indicators. Moreover, since 2023, the new ITGS provides equally detailed sets of data to users as cross-border statistics, namely commodity breakdown of foreign trade at combined nomenclature CN8 level.

The impact of the EU Single Market phenomenon on the ability of cross-border statistics to estimate foreign trade in goods for any EU member state can be assumed to be universal since both statistical systems and VAT systems are more or less harmonised within the EU. Nevertheless, the extent of the impact depends on the character of each economy. There would be a different effect of foreign traders on the ITGS indicators in EU member states where goods are mostly produced to be exported than in member states which the goods just pass through or

in member states where final markets are located. Moreover, it can be assume that also overall EU aggregates may be affected by these phenomenon when EU-non-residents are involved. Without a comprehensive ITGS methodology which would bring itself closer to the ownership principle in the EU data environment, there is a risk the ITGS indicators may be biased.

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