

STATISTICS DIRECTORATE

Working Party on International Trade in Goods and Trade in Services Statistics

SOME FINDINGS ON 2010 DATA AND THE IMPACT OF NON-RESIDENT TRADERS

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This documents for item 9.2 of the agenda present main findings of the 2010 TEC data and discuss on some methodological issues surrounding international trade in goods statistics (ITGS) and review them through the TEC data. They also present some plans on further TEC developments.

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SOME FINDINGS ON 2010 DATA AND THE IMPACT OF NON-RESIDENT TRADERS

1. Introduction

1. The purpose of this paper is to present main findings of the 2010 Trade by Enterprise Characteristics (TEC) data¹ and to discuss on some methodological issues surrounding international trade in goods statistics (ITGS) and review them through the TEC data.² It also presents some plans on further TEC developments.

2. TEC comprises a new statistical area, compiled by merging micro data on international trade in goods with business registers. With the help of this link, traders can be associated to appropriate statistical units. TEC shows trade according to basic characteristics - activity sector (NACE) or number of employees - of exporting and importing enterprises and thus complements the monthly trade statistics.³ TEC can be also used together with business statistics, especially with SBS as data are available by common nomenclature. Moreover, TEC has recently drawn more attention as useful data source for analysis on trade in value added and global value chains, two closely related fields currently in the centre of trade research.

3. The methodological approaches in these new research areas are developing fast. There are several initiatives among the trade statistician and researcher community to further develop and expand micro data linkages to obtain more comprehensive data which enables to better analyse enterprises' engagement in the global production processes and to better measure the trade in value-added.

4. In order to respond to the emerging needs, TEC must be relevant and of high quality. As TEC is based on the re-use of existing data, the main challenge for TEC in terms of quality is to achieve good matching between the source data. The matching does not only mean high matching rates but also that the trade is allocated to the most appropriate statistical units. The problem with the appropriate matching

¹ The main findings of 2010 data are shown in a separate document (extraction from a Statistics Explained Article.

² In this paper ITGS refers to international trade in goods statistics and TEC to statistics on trade by enterprise characteristics

³ Most recent TEC data (2010) can be found here: http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/International_trade_by_enterprise_characteristics

concerns especially large and complex businesses which are often the biggest contributors to trade. Therefore, in order to compile high-quality TEC data which is coherent with the other relevant statistics, it is of utmost importance that the most crucial part of the TEC compilation - data linking - is done carefully.

5. When interpreting TEC data, some elementary issues should be taken into account.

6. Scope of international trade is goods statistics. TEC re-uses data which are collected for the ITGS purposes. The ITGS methodology differs in some aspects from the ones applied in accounting systems (National Accounts, Balance of Payments) or in other relevant primary statistics like business statistics. The main difference is the principle of recording: because of the close connections to underlying administrative systems, ITGS are based on the cross-border movement of goods while the principle of change of ownership between resident and non-residents is prevailing in other economic statistics. The difference between cross-border movement and change of ownership is well-known and addressed in the international manuals⁴. Less emphasis has been given to the concept of residency. According to the methodology of ITGS (so-called Community concept), a company may, under certain circumstances, record transactions in an EU Member State where it is not resident.

7. Compilation of ITGS. The ITGS compilation contains some particularities impacting TEC.

- Data collection: ITGS are census type of statistics where data for all units is collected. The trigger for inclusion is a flow of goods into or out of the statistical territory. There are harmonised administrative systems which ensure availability of comprehensive data (Customs clearance in extra-EU trade) or lay basis for a targeted data collection (VAT in intra-EU trade).
- Trader identification: the traders in ITGS are determined in administrative systems. In extra-EU trade, the exporter or importer is identified through the Economic Operators Registration and Identification (EORI) code which is now harmonised across the EU. The EORI code has to be provided in the customs declaration. As regards the intra-EU trade, data has to be collected for all taxable persons - as defined in the VAT directive - who are liable to Intrastat reporting. They are identified through the VAT identification number.
- Use of business registers in the compilation: availability and good quality of business registers is a key factor in the compilation of the statistics on both short-term and structural economic developments. The main ways to use business registers are described in the Business Registers Recommendation Manual⁵. Typically, business registers are used for detection and construction of statistical units and as a tool to prepare and coordinate surveys. These are typical functions to be done **before** the actual data collection. However, because of the specificities of ITGS data collection and trader identification, business registers are not essential in that task. In ITGS, business registers are mainly used **after** the data collection in order to compile TEC. It can be

⁴ IMTS Concepts and definitions 2010, Annex F provides more details on the differences between the international trade statistics and Balance of Payments.

⁵ http://epp.eurostat.ec.europa.eu/portal/page/portal/product_details/publication?p_product_code=KS-32-10-216

said that business registers' main function in the frame of ITGS is to be a tool for mobilizing other (administrative) data sources.

8. International trading of goods is a separate function to the production and consumption of goods. This means that other transactions may precede or succeed the international transaction. In other words, TEC does not directly show whether goods were exported by the same enterprise which had produced them or consumed by the importing enterprise although they coincide in many cases. In this aspect TEC differs from the basic input-output framework which shows the production and consumption of each activity sector, including both direct and indirect inputs.

9. The following chapters discuss on these issues in details. First, the scope of ITGS is discussed by having a look on the scope of ITGS and TEC matching rates. Then, the allocation of trade flows to the most appropriate sectors is analysed.

2. Scope of ITGS and matching rates: what explains unsuccessful matching?

10. In statistical products based on the data linking, matching rates can be considered as quality indicators. Since the beginning of the TEC project, a lot of attention has been paid to the linking procedure. Currently the TEC compilation process is built in such a way that unmatched trade can be distinguished into two groups: unclassified and unknown trade.

11. Unclassified trade refers to traders with valid identification numbers but with an activity sector that cannot be identified either due to non-matching or due to missing information on the activity sector in the business registers. In other words, unclassified trade describes how well the linking procedure itself works. Since both source datasets – trade micro data and business registers - have valid national identification codes, the unsuccessful linking indicates issues with the completeness (are some units excluded because of a threshold) or coverage (are some sectors excluded) of business registers.

12. Unknown trade, on the other hand, consists of traders with invalid, artificial or missing ID numbers which cannot be associated to any identified trader. It forms the residual between total trade and the sum of matched trade and unclassified trade.

13. One particular reason for the unsuccessful linking is the trade carried out by the non-established traders. Customs and VAT provisions allow foreign companies to have a VAT or Customs registration in an EU Member State where they are not resident. Non-established traders are defined in the Guidelines for the implementation of the Intrastat and Extrastat Regulation as follows:

Non-established trader is a trader who is not normally resident in a Member State, does not have a place of business, is not registered in business register, is not incorporated under Member State law and makes taxable supplies or acquisitions in that Member State.

Normally all traders supplying or selling the goods in other Member States than they are established have to register for VAT purposes in that Member State. However they do not need to be registered in business register. The non-established trader has the same obligations as an established trader concerning Intrastat system. In case of intra-EU supply or acquisitions, it has to provide national tax authorities with the VAT declaration and to submit Intrastat declaration.

In practice to collect information from non-established traders is more complicated as they do not have physical presence in the reporting Member State. However in most of the cases such non-established traders appoint tax representatives or agents which are responsible for furnishing of Intrastat declarations.

Tax representative is liable together with the non-established taxable person for rendering returns and paying taxes. He is personally liable in respect of any failure to secure his principal's compliance with obligations or liability, which is imposed jointly and severally on both of them. A non-established trader may opt to appoint *an agent* to act on his behalf, which normally are not liable for debts incurred by the taxable person.

14. Non-established traders are often associated to a phenomenon called quasi-transit. Quasi-transit concerns mainly imports from a non-EU country to an EU Member State and subsequent further exportation to another EU Member State without changing ownership to a resident or being processed under contract. To a lesser extent, quasi transit can also concern the opposite flows where goods are exported from an EU Member State to another one before being exported to a non-EU country. In quasi-transit, movement of goods between a non-member country and a Member State will be divided into two trade flows – one reported within Extrastat; the other reported for Intrastat – when the customs clearance takes place in another Member State (this is usually a Member State located at the external frontier of the European Union with an important port for transshipment of goods *e.g.* Rotterdam, Antwerp).

15. Quasi-transit concerns mainly imports into the European Union. Customs legislation provides for a possibility to release the goods into free circulation (via a representative) at any customs office in the EU, regardless of whether the goods are then transported to another Member State or not. The release of goods for free circulation at the external frontier of the European Union provides certain advantages: once customs duties have been paid, the trader is able to freely dispose of the goods.

16. Quasi-transit and its consequences are further discussed in the recently published book by UNECE: *The Impact of Globalization on National Accounts*⁶. Paragraphs 9.18 to 9.30 present another type of activity involving non-established traders – trade undertaken by entities which are not resident in a country – which has a lot of similarities to quasi-transit. The difference is that it occurs within a country: goods which are imported by a non-established trader are further sold domestically to a resident company.

17. Moreover, some recent studies carried out by the Member States have identified that non-established traders are sometimes involved in trade flows related to inward processing. In these cases, the

⁶ <http://www.unece.org/statshome/news/newsglobalization-of-national-accounts.html>

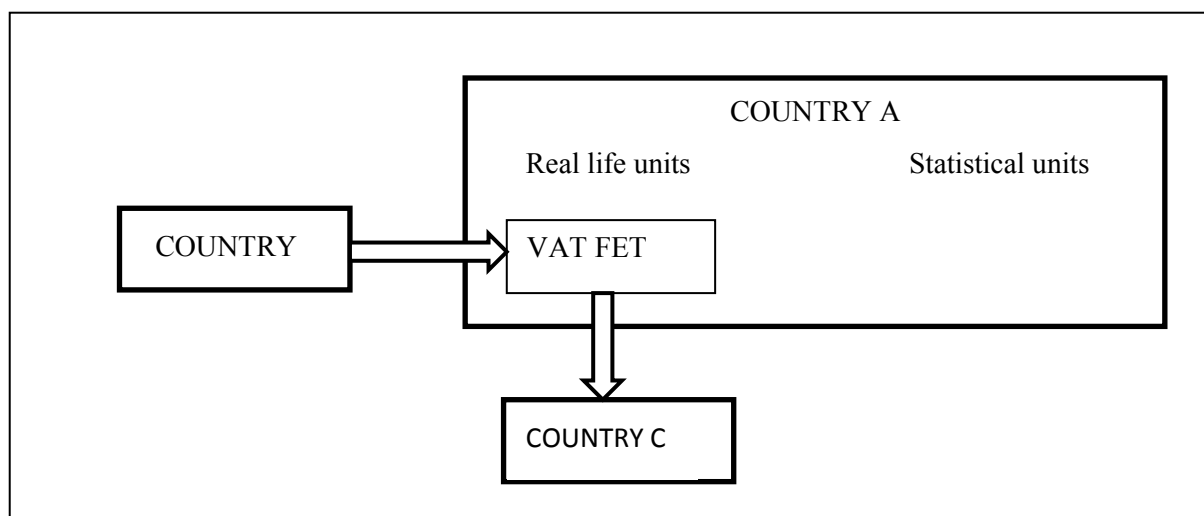
non-established trader imports goods from abroad which are processed by a resident company. After the processing, the non-established trader either exports the processed goods or sells them to domestic market.

18. Although there is limited information on the real life business structures, it can be assumed that these are much more typical cases for large multinational enterprise groups than for small or medium sized enterprises. Thus trade carried out by non-resident traders can entail also issues related to intra-group trade, especially to pricing issues. These are, however, not discussed in this paper.

19. According to the ITGS methodology, the decision whether to include or exclude transactions in the ITGS is not solely dependent on the residency of the trader. In the three cases mentioned above – quasi-transit, domestic supply, inward processing – all transactions should be included in the ITGS. This constitutes a particular issue from the viewpoint of TEC compilation. Non-established traders are normally not included in business registers so consequently, the linking will be unsuccessful.

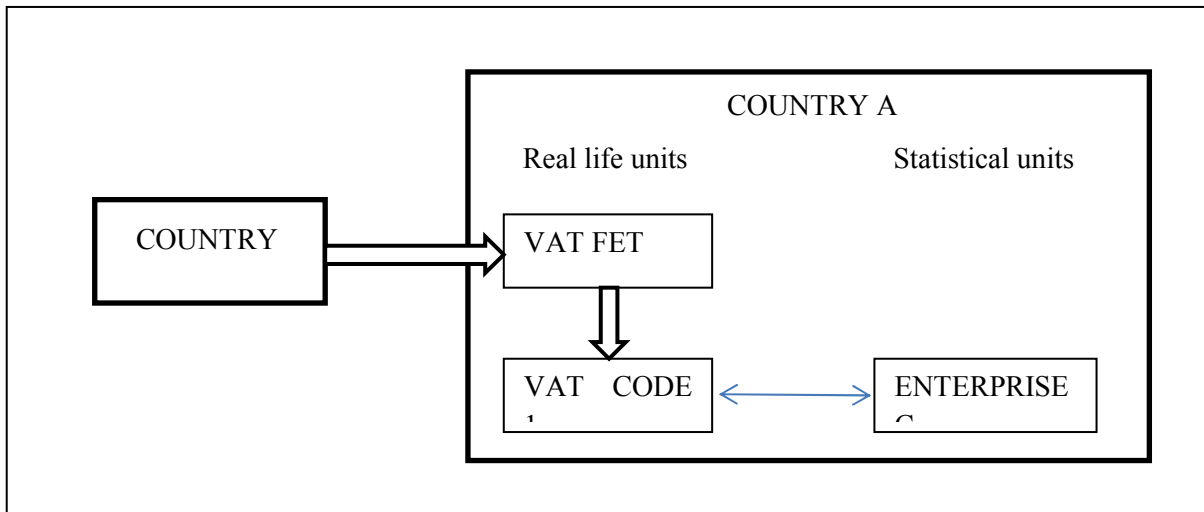
20. In the TEC compilation, these cases can be illustrated as follows. Large arrows represent the movement of goods while the narrow double-arrows describe the TEC compilation method by linking real-life units to statistical units. VAT FET refers to VAT registration of a foreign-established trader in the compiling country. VAT CODE 1 refers to a real life unit which carries out only domestic transactions. ENTERPRISE C refers to a resident statistical unit recorded in the business register, representing a manufacturing unit (NACE C).

Example 1: Quasi-transit



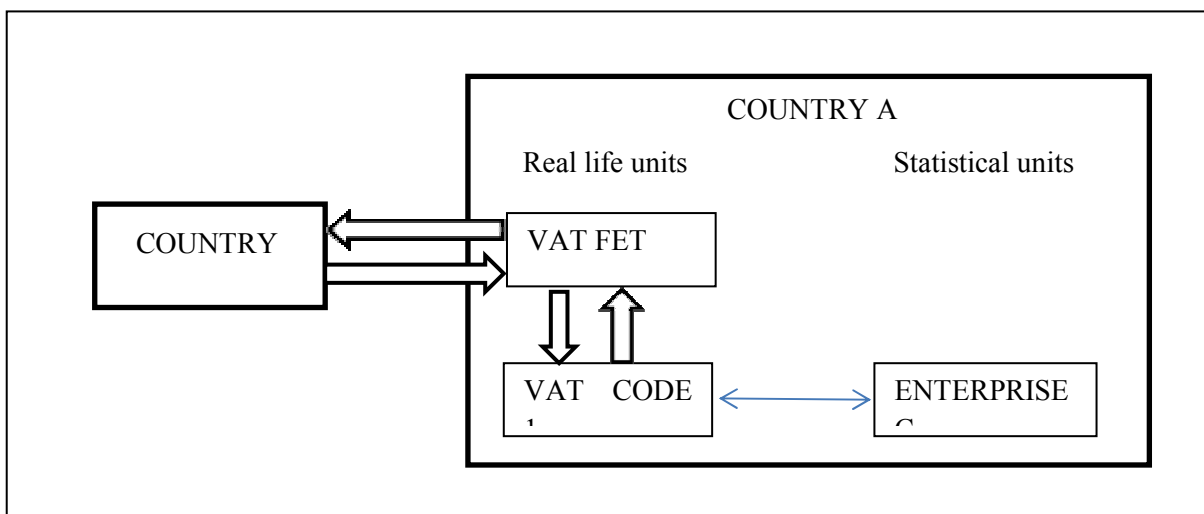
21. In example 1 a foreign-established trader (VAT FET) in country A imports goods from country B and subsequently exports them to country C. In TEC compilation VAT FET cannot be associated to any resident statistical unit so the matching is unsuccessful.

Example 2: Domestic supply



22. Example 2 differs from quasi-transit as instead of subsequent exports, the goods imported by VAT FET are sold to a resident VAT CODE 1 which forms the statistical unit ENTERPRISE C. In TEC compilation VAT FET cannot be associated to any resident statistical unit so the matching is unsuccessful.

Example 3: Inward processing



23. In example 3 components are imported from country B. These parts are processed by a domestic company VAT CODE 1 (ENTERPRISE C). After the processing, the processed goods are exported back to country B. Both imports and exports declarations are done by VAT FET. In TEC compilation VAT FET cannot be associated to any resident statistical unit so the matching is unsuccessful.

24. Currently, there is no comprehensive information on the magnitude of trade carried out by non-established traders. Some indication can be found from the TEC matching rates. Table 1 below shows the share of unclassified and unknown trade in terms of trade value for 25 Member States in 2010.

Table 1: Share of unmatched trade of total trade value

	Unclassified trade, share of the total trade value				Unknown trade, share of the total trade value			
	Arrivals	Dispatches	Imports	Exports	Arrivals	Dispatches	Imports	Exports
FR	0.9	0.6	0.2	0.3	0.2	0.1	1.6	2.6
NL	18.3	29.2	21.1	28.5	0.4	0.2	0.0	0.0
DE	11.7	11.1	20.9	13.0	2.3	1.7	3.7	0.2
IT	4.5	2.6	11.7	2.3	2.0	0.1	10.5	4.0
UK	0.6	1.3	3.5	1.2	4.0	8.5	4.8	5.0
DK	10.0	6.8	2.1	2.2	0.0	0.0	0.0	0.0
GR	1.6	1.5	9.3	7.1	0.0	0.0	0.0	0.0
PT	0.0	0.0	0.5	0.0	7.2	5.2	1.6	6.6
ES	8.9	7.7	6.8	7.9	0.0	0.0	0.0	0.0
LU	0.2	2.7	9.4	0.1	2.4	2.0	3.1	0.0
SE	0.8	0.4	0.3	0.3	1.5	0.8	10.7	3.6
FI	5.0	4.7	3.1	4.2	1.4	1.0	0.3	2.0
AT	0.0	0.0	0.0	0.0	1.3	0.4	1.4	9.6
MT	1.6	0.0	1.0	0.3	0.0	0.0	0.0	0.0
EE	0.9	0.8	0.8	9.8	0.0	0.0	0.2	0.2
LV	0.8	0.6	0.0	0.0	3.2	1.7	6.6	24.6
LT	0.2	0.1	0.0	0.0	10.7	4.3	1.7	28.5
PL	10.9	13.6	9.3	16.4	0.0	0.0	0.0	0.0
CZ	22.3	27.3	21.2	24.7	0.0	0.0	0.0	0.0
SK	10.5	14.6	16.5	18.7	1.0	1.7	2.4	1.7
HU	0.0	0.0	0.0	0.0	1.9	1.0	0.8	3.9
RO	0.1	0.0	3.4	7.6	0.0	0.0	0.0	0.0
BG	3.3	2.3	1.0	1.6	0.0	0.0	0.1	0.2
SI	4.3	6.8	2.8	0.1	0.0	16.5	38.7	19.0
CY	1.0	0.0	0.4	0.9	0.0	0.0	6.4	0.7

25. In a few Member States either the unclassified or unknown trade accounted for more than 10 % of the trade value in at least one of the trade flows (arrivals, dispatches, imports or exports). These figures do not, however, explicitly indicate whether non-established traders are the primary reason for non-matching. Moreover, the treatment of non-established traders in TEC compilation differs between Member States. Some Member States allocate them directly to unknown trade if their identification code differs from the national one while others may try to link them with business registers if the identification code is valid. If the linkage is unsuccessful, then they are allocated to unclassified trade. In both cases the matching rates will decrease. Both unclassified and unknown trade is excluded from TEC datasets so some TEC datasets like trade by partner countries and by products differ from the corresponding ITGS figures.

26. During the last couple of TEC data collection rounds, Eurostat has requested Member States to provide information on the non-established traders in TEC metadata. In 2010, 23 out of the 25 Member States whose data are available informed that non-established traders can be identified either fully or partially. For 11 Member States it was possible to even link part on the non-established traders with business register. It was also asked to indicate or estimate the trade value recorded by non-established traders. 12 Member States provided this information.

Table 2. Share of non-established traders of the total trade value

	Non-established trade, share of the total trade value			
	Arrivals	Dispatches	Imports	Exports
DE	4.6	3.0	3.7	0.2
IT	2.4	0.8	0.1	0.0
GR	1.6	1.5	9.3	7.1
PT	0.0	0.8	1.5	6.4
AT	6.0	5.5	6.6	3.7
EE	0.5	0.1	13.4	15.5
LV			4.5	20.3
LT	5.8	3.5	1.7	28.0
SK	10.5	14.6	16.5	18.7
HU	0.4	0.2	0.7	3.9
RO	6.0	0.0	3.9	8.0
BG	0.1	0.1	0.1	

27. Even though the results above should be interpreted with caution as they are only indicative and not comparable between Member States because of different data treatment practices, it can be noted that in some cases non-established traders seem to explain the unsuccessful matching almost completely.

28. Thus it could be concluded that the most important reasons for unsuccessful matching is the involvement of non-established traders. Keeping in mind the methodology of ITGS, it could be further concluded that TEC figures are closer to the methodological concepts of National Accounts and business statistics when trade carried out by non-established traders is excluded.

29. It should be further discussed how the non-established traders should be treated in TEC. There are a few alternative solutions.

- Non-established traders are systematically excluded from TEC. This is currently the most typical way to treat them as the data linking procedure is not able to allocate them to any statistical unit. Depending on the share of trade the non-established traders account for, lower matching rates and larger discrepancy between TEC and ITGS will result. However, at the same time TEC figures are methodologically more coherent with the concepts of National Accounts and business statistics.

- Non-established traders are systematically included in TEC. This would indicate treating them like domestic traders and including them in the compilation procedure and creating a specific separate category for them, for instance an artificial NACE code. A necessary pre-condition is that there is a rule to identify non-established traders so that other reasons affecting data linkage (non-valid codes, artificial codes time lag errors, coverage of registers, etc.) are not mixed. The inclusion of non-established traders would ensure higher matching rates and better coherence with ITGS. On the other hand, the figures would be less coherent with National Accounts and business statistics. Moreover, if the non-established traders' contribution to trade is substantial, the interpretation of results might be difficult as the results may not reflect the economic reality of the compiling country.
- The treatment of non-established traders depends on the type of trade they carry out and the relations between non-established traders and resident companies. If non-established traders do not have any connections to domestic economy (for instance they do not have a permanent establishment and a tax representative manages VAT declarations) and are involved only in quasi-transit, then they could be excluded from TEC. In these cases their activities are comparable to simple transit trade. On the other hand, if non-established traders are more connected to domestic economy, for instance through a permanent establishment, and/or their activities contribute more to the domestic economy than just crossing the compiling country on the way to the final destination, then they could be included in TEC. The challenging part is to allocate these transactions to statistical units. If a non-established trader is a part of a multinational enterprise group which has also resident (domestic) parts in the compiling country, then one possible way is to link the non-established trader with the resident part. For instance, if a non-established trader imports goods and subsequently sells them to a resident enterprise, the imports would be allocated to the resident enterprise in TEC.

30. Conclusions:

- The most common reason for unsuccessful matching is the presence of non-established traders in the trade data. For most EU Member States these are not included in the business registers.
- The treatment of non-established traders represents a methodological difference between ITGS and other economic statistics. It should be further discussed whether TEC should aim at higher matching rates and better coherence with ITGS or to better methodological alignment with the concepts of National Accounts and business statistics.
- More methodological studies on the activities of non-established traders are needed.

3. Allocation of trade to the appropriate activity: trade models and challenges for TEC compilation

31. TEC data are broken down into three main activity sectors: Industry, Trade and Other activities. Some datasets have also more detailed breakdown. This breakdown was chosen to highlight the importance and roles of the manufacturers and intermediaries in the international trade.

- **Industry (NACE sections B to E)** refers to economic activities which are generally considered as producers of goods. NACE section C (Manufacturing) represents the largest section under Industry. Manufacturing includes the physical or chemical transformation of materials, substances or components into new products. The output of a manufacturing process may be a finished good (consumption or investment good) or semi-finished good (intermediate good). Industry includes also NACE sections B (mining and quarrying), D (electricity, gas, steam and air conditioning) and E (water supply, sewerage, waste management and remediation activities). The typical outputs of these sections are mainly goods (typically raw materials or energy products) and often traded cross-borders in a similar way like the outputs of manufacturing section.
- **Trade (NACE section G)** locates between producers and users in the supply chain. Trade section includes wholesale and retail sale (*i.e.* sale without transformation) of any type of goods, and rendering services incidental to the sale of merchandise. Wholesale is the resale (sale without transformation) of new and used goods to retailers, business-to-business trade, such as to industrial, commercial, institutional or professional users, or resale to other wholesalers, or involves acting as an agent or broker in buying merchandise for, or selling merchandise to, such persons or companies.
- **Other activities (all other NACE sections)** represent a heterogeneous group of activity sectors, consisting of diverse services, agriculture and construction activities. Except for the agriculture section, their typical outputs are services.

32. As written earlier, TEC allocates trade to the importing and exporting enterprises but since trading of goods is a separate function to the production and consumption of goods, TEC does not answer to questions which activity sector has produced the exported goods or will consume the goods. The actual TEC data shows that considerably large share of trade is channelled through other sectors, especially through the trade sector. By definition, trade sector activities involve the purchase and resale of goods in the same condition, meaning that the goods are produced and consumed by other activities.⁷

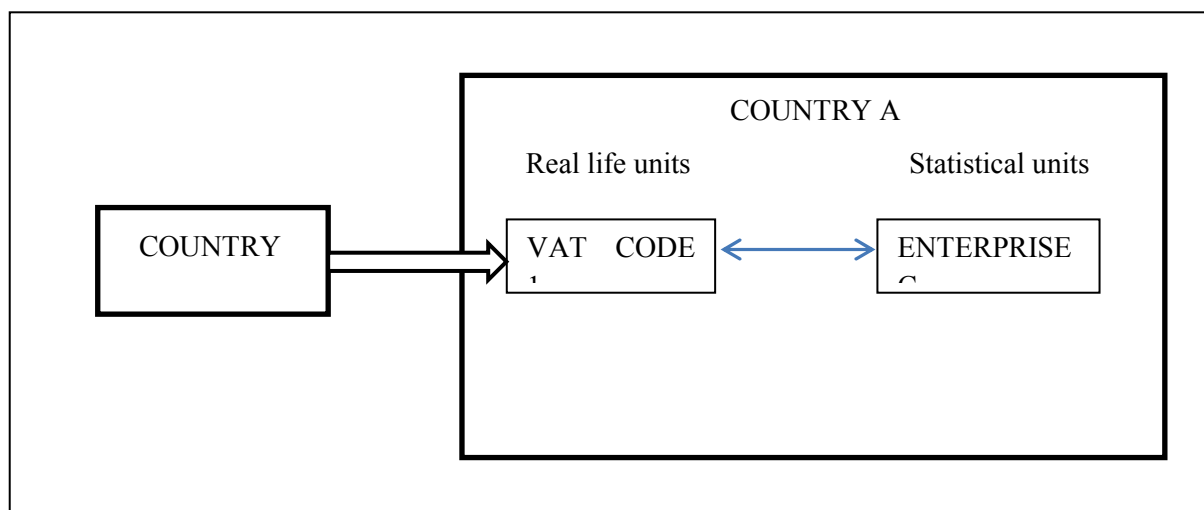
33. It is worth discussing why such a high share of trade is channelled through the trade sector. The following theoretical examples try to shed light on this issue, looking at it from the business model viewpoint and from the TEC compilation viewpoint. In the examples large arrows represent the movement of goods while the narrow double-arrows describe the TEC compilation method by linking real-life units to statistical units. To keep the examples simple, the following assumptions are made.

⁷ Annex 1 shows how much of the total exports and imports values these sectors accounted for. Unknown and unclassified trade are excluded from these figures.

- VAT CODE 1 and VAT CODE 2 refer to real life units which carry out non-domestic (imports or exports) and domestic transactions.
- ENTERPRISE refers to a resident statistical unit recorded in the business register. ENTERPRISE C represents a manufacturing unit (NACE C) and ENTERPRISE G a wholesaling unit (NACE G). They are assumed to be non-related.
- Enterprises carry out only activities which are typical for them. The manufacturing unit produces goods by using intermediate goods in production. The wholesaling unit buys and re-sales goods but does not consume any goods itself.
- All transactions recorded in the examples imply also a change of ownership.

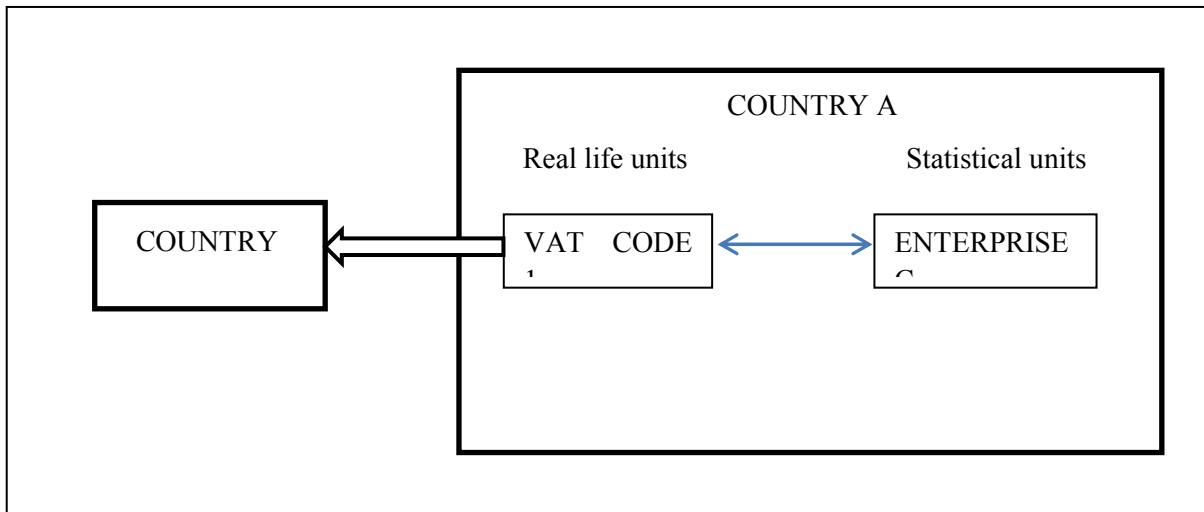
34. Examples 4 and 5 show the simple cases where a manufacturing enterprise imports and exports directly

Example 4: Imports by a manufacturer



35. Example 4 shows the case of imports by a manufacturer. VAT CODE 1 imports goods from country B. In the business registers, VAT CODE 1 forms the statistical unit ENTERPRISE C. In TEC imports are allocated to NACE C (manufacturing).

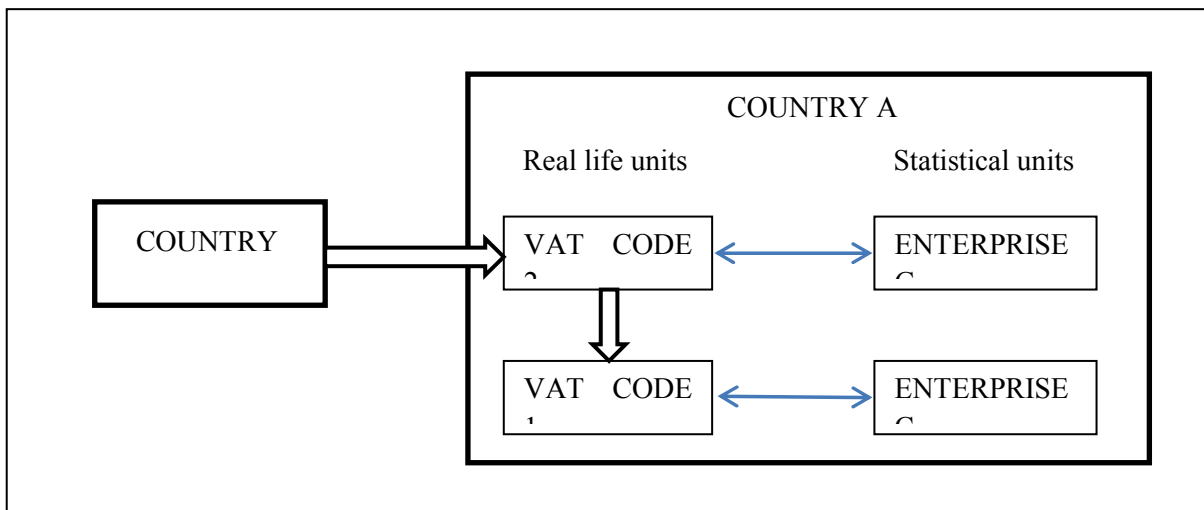
Example 5: Exports by a manufacturer



36. Example 5 is a mirror image of example 4. It describes exports by a manufacturer. VAT CODE 1 exports goods to country B. Like in example 4, VAT CODE 1 forms the statistical unit ENTERPRISE C. In TEC exports are allocated to NACE C (manufacturing).

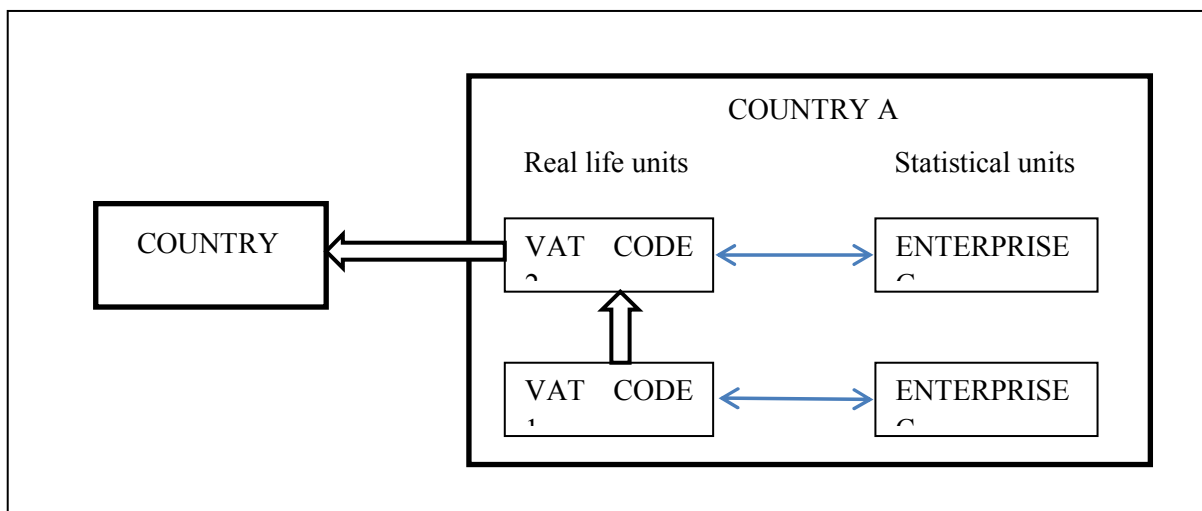
37. Examples 6, 7 and 8 show cases where a wholesaler is involved in international trade.

Example 6: Imports by a wholesaler



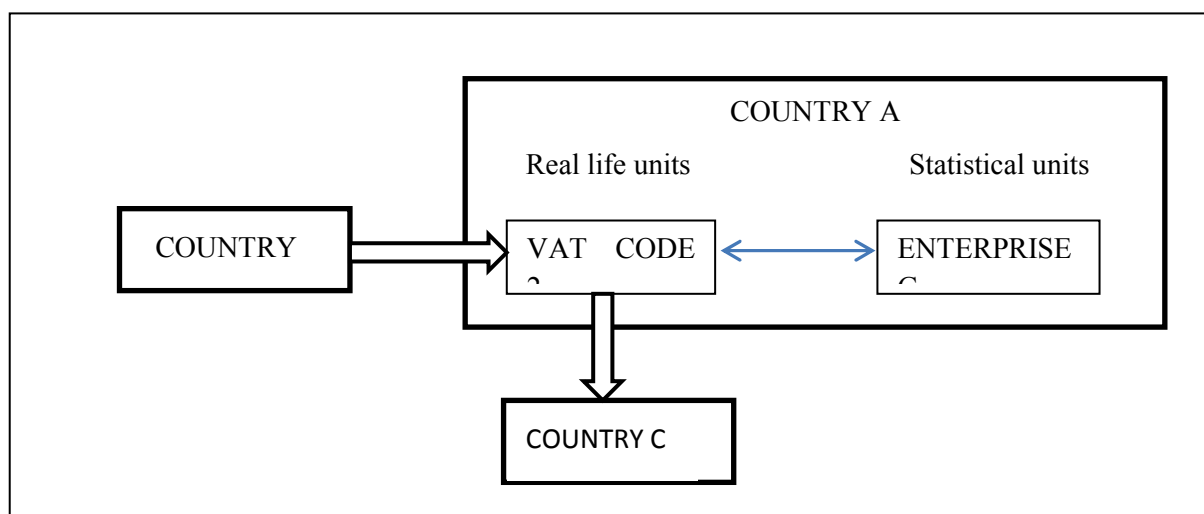
38. Example 6 shows a case of a wholesaling company importing goods in its own account and re-selling them to a manufacturing company who uses them as inputs in production. VAT CODE 2 imports goods from country B and re-sells them VAT CODE 1. VAT CODE 2 forms ENTERPRISE G and VAT CODE 1 ENTERPRISE C. The transaction between VAT CODE 1 and VAT CODE 2 is a domestic transaction within country A which does not belong to the scope of ITGS. In TEC imports are allocated to NACE G (trade).

Example 7: Exports by a wholesaler



39. Example 7 is a mirror image of example 6. A wholesaling company buys in its own account goods produced by a manufacturing company and exports them to country B. In TEC exports are allocated to NACE G (trade).

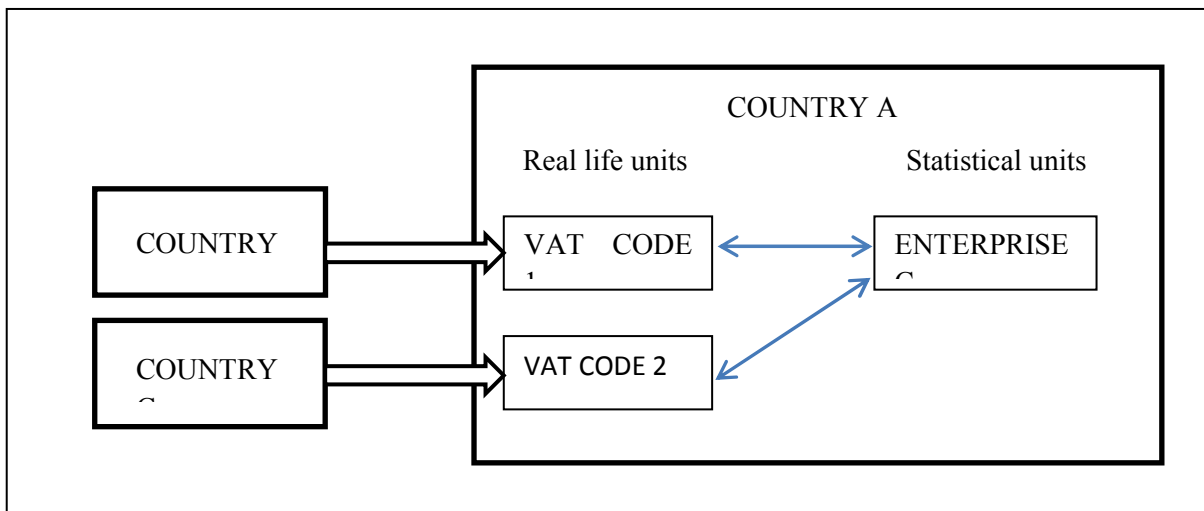
Example 8: Re-exports



40. A wholesaling enterprise can also carry out international transactions without involving any manufacturing enterprises in country A. In example 5 VAT CODE 2 imports goods from country B and later re-exports them to country C. In TEC both imports and exports are allocated to NACE G (trade).

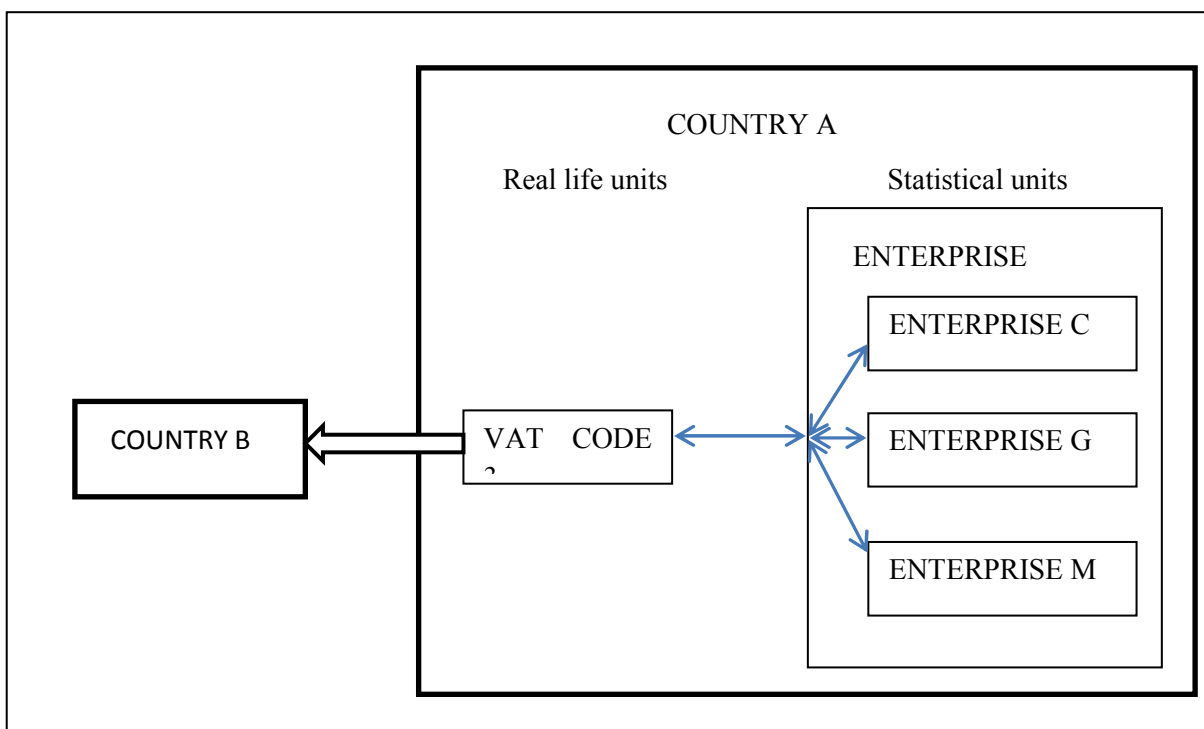
41. All examples shown thus far are very straightforward from the TEC compilation viewpoint. One real-life code corresponds to one statistical unit. It can also happen that more than one real life unit form one statistical unit.

Example 9: Many to one linkages between real-life and statistical units



42. Example 9 is the same as example 4 except that there are two real life units which carry out trade transactions. VAT CODE 1 is used in intra-EU trade and VAT CODE 2 in extra-EU trade. These codes form one statistical unit, ENTERPRISE C. In the TEC compilation it is important that the business registers are able to link the different real life codes to the same statistical unit, otherwise TEC data will show biased figures.

Example 10: Allocation of trade to the most appropriate enterprise of an enterprise group



43. Example 10 describes the most problematic cases in TEC compilation. This case differs from the examples 3 and 4 as ENTERPRISE C and ENTERPRISE G are no longer independent but belong to an

enterprise group (ENTERPRISE GROUP C) whose main activity sector is in manufacturing. In addition, the group includes ENTERPRISE M which is the head of group (NACE M).

44. VAT CODE 3 exports goods to country B. The goods have been produced by ENTERPRISE C which is the manufacturing part of the ENTERPRISE GROUP C. If the business register indicates that ENTERPRISE C is constructed from VAT CODE 3, then exports are allocated to NACE C in TEC. However, it may also happen that either ENTERPRISE G or ENTERPRISE M is constructed from VAT CODE 3. In these cases, exports are allocated to NACE G or M, respectively, in TEC.

45. Out of these three activity sectors, manufacturing seems to be the most appropriate activity to carry out trade. This maintains the implicit connection between production and trade. The wholesaling and management sectors are more questionable because they do not carry out exports in their own right but rather report on behalf of the manufacturing enterprise belonging to a same enterprise group.

46. It is an open methodological question how trade involving enterprise groups should be treated in TEC. Should trade value be allocated to the wholesaling or management activities if the linkage in the business registers indicate so or should it be re-allocated to the manufacturing activity? Or alternatively, should the trade value be allocated proportionally to all three enterprises?

47. There are a few alternative approaches to overcome the problem described in example 10:

- Allocate all trade in TEC as the links in business register indicate. The outcome of this approach depends on the quality of the linkages recorded in business registers.
- Allocate trade proportionally to all members of the group. The allocation could be done on the basis of turnover or number of employees. With this approach, it can be assumed that the re-allocation would better reflect the economic realities. As a negative aspect it could lead to overestimation of the number of trading enterprises.
- Enhanced linking and possible imputations. This would indicate case-by-case studying of linkages in business register and re-allocation of trade to the most appropriate unit. This procedure would have to be done carefully and in co-ordination with business registers and other business related statistics.
- Use enterprise group as the statistical unit in TEC instead of enterprise. In this approach the problem would be avoided as trade is allocated to the activity sector of the enterprise group. Furthermore, enterprise group could be more appropriate statistical unit for instance to indicate the role of SMEs or to measure trade concentration. However, this approach would create also new methodological problems because not all enterprises belong to an enterprise group. One possible solution to overcome this problem is to treat them as enterprise groups consisting of one enterprise only. Another issue rises from the fact that the enterprise group is not currently used as the statistical unit in other statistics.
- Expand TEC datasets with information on the membership of an enterprise group. This could be done for instance by compiling datasets showing the activity sector of the enterprise group together with the activity sector of the enterprise. Although this approach could solve the methodological problems related to the sole use of enterprise group as a statistical unit, it increases the granularity of TEC data and leads to obvious problems with confidentiality.

48. Conclusions

- Linking is the most important part of the compilation procedure. Compilers have to pay a special attention to this part.
- The TEC compilation relies on the good quality of information recorded in the business registers. Therefore any measure to improve quality of business registers will eventually benefit TEC compilation.
- Because of the nature of ITGS methodology and TEC compilation practices, TEC cannot link all exports and imports to the producing and consuming activities. There are legitimate cases where other sectors than manufacturing are the correct activities.
- Treatment of enterprises belonging to enterprise groups forms the most challenging part of the TEC compilation. It should be further discussed which is the most appropriate approach to tackle these cases.

4. TEC development plans

49. Besides the above mentioned methodological issues, which need to be addressed, there are some plans to further develop TEC. In short, they are as follows.

50. Enhancement of the current TEC framework. TEC data collection has been carried out with the same data requirements for the last few years. This has ensured successful implementation of the revised Intrastat and Extrastat Regulations and provided comparable data over time. The next step would be to address some minor shortcomings of the current set up. The most important issue in this respect is to calculate the number of enterprises for the total imports and exports, regardless of the intra- and extra-EU breakdown. Currently the number of enterprises is calculated separately for intra- and extra-EU trade but for many analytical purposes the total number of enterprises is more appropriate.

51. Another important TEC development plan is to introduce a new TEC dataset on trade by activity and type of ownership. This would distinguish enterprises into domestically and foreign controlled ones. The latter one has specific interest because of the important role of foreign affiliates in the context of globalisation. Another important aspect would be to further split domestic controlled enterprises into multinational ones (those who have own affiliates abroad) and those who are indigenous. This would give a more comprehensive overview on the involvement of multinational enterprises in the compiling country. Moreover, identification of multinational enterprises is a prerequisite for the measurement of intra-group trade.

52. Development of STEC. The current TEC framework concerns only trade in goods. To get a more comprehensive view on the international trade, a similar exercise should be carried out in the frame of international trade in services (ITSS). Linking ITSS data to enterprise characteristics has become possible due to the switchover to direct reporting systems in most Member States. Thus, Eurostat has set an objective to develop a new statistical product called Services Trade by Enterprise Characteristics (STEC).

53. Eurostat's plan is to set up a Task Force to guide the development work. The Task Force should reflect on the user needs, share their experiences in data linking and methodological aspects and define the targeted level of details. To ensure consistency with TEC, STEC should optimally have as far as possible same indicators as TEC. In the first plans, three indicators with particular importance have been identified:

- Trade by activity and size-class of enterprise
- Trade by activity and product
- Trade by activity and type of ownership

54. Because of the intangible nature of services and more heterogeneous data collections systems in comparison to ITGS, STEC development will face partly different problems than TEC. Based on the experiences gained thus far by some Member States already linking ITSS data with business registers, the linking seems feasible for most services categories. However, because of conceptual issues, some service categories which do not describe business activities like travel (mainly private persons) and government services seem to be not fitting for STEC. Another issue which has been already identified is the calculation of number of enterprises. While fairly accurate results could be possible to compile data in terms of trade value by activity sector, this may not be the case for data in terms of the number of enterprises.

55. It can be also envisaged that in a longer run TEC and STEC could be further integrated. This will require addressing many methodological issues like the principle of recording, scope of statistics, common product nomenclature, etc.

56. To put this target in a larger perspective, TEC and STEC are examples of statistical development which create building blocks not only for economic analysis but to more comprehensive integration of business related statistics.

ANNEX

