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Problems of measuring retail trade due to the impact of different ways of organising distribution

Example retail trade with automotive fuels

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Content

Summary

The European monthly retail trade index is one of the most important short-term indicators within the European Union. This document deals with the problem of how different ways of organising distribution affect the measurement and thus the development of a retail trade index and shows simultaneously the discrepancies between the production and use of the indices.

The recent introduction of NACE Rev 2[1] into short-term statistics (STS) brought "retail sale of automotive fuel" within the coverage of the retail trade index for the first time. When Eurostat collected weights to aggregate across countries, it became apparent that there were differences in valuation of turnover which endanger the comparability between countries and the meaningfulness of European aggregates. This is – especially for an indicator of such high importance – not acceptable. Eurostat set up a methodological survey to figure out the reasons for the differences in valuation of turnover, to learn about the different market organisations in and methods used by the Member States and to create a basis of information for a possible harmonisation. This document is backed up to some extent by the information gained through this survey which was carried out in 2009.

Although this text mainly presents the problems of the monthly retail trade index by using the sales of automotive fuels as an example, similar problems can be found, probably less obviously and with less influence, in other retail trade areas. The document will show that the approach of how we currently produce the retail trade index falls short not only for certain areas in particular, but also for total retail trade. It explains why a discussion is necessary on how to treat trade agencies involved in retail trade and the direct selling from a manufacturer or large scale supplier on a typical retail trade market in a common and harmonised way.

[1] The NACE Rev 2 (Nomenclature des activités économiques dans la Communauté Européene) is the European implementation of the United Nations' International Standard Industrial Classification of All Economic Activities Revision 4. The modified classification was set into force in Europe and implemented in STS by Regulation (EC) No 1893/2006 of the European Parliament and of the Council of 20 December 2006 establishing the statistical classification of economic activities NACE Revision 2 and amending Council Regulation (EEC) No 3037/90 as well as certain EC Regulations on specific statistical domains.

1 European monthly retail trade turnover index – background information

The European monthly turnover index of retail trade is included by the European Commission as one of the most important key short-term business indicators for Europe[2] and the euro area[3] (PEEI[4]) and it is covered by the European short-term statistics regulation[5] and related documents[6]. The index is compiled by Eurostat, based on the working-day adjusted national indices, as value and as volume index for different regional groupings such as total Europe (EU27), euro area (EA16), and different industry groupings such as food, non-food and energy.

Following the European legislation, the national indices measure the development of the turnover of enterprises having their main economic activity within the relevant retail trade activities[7]. Turnover is defined by annex I of the Commission Regulation (EC) No 1503/2006 as "*the totals invoiced by the observation unit during the reference period. This corresponds to market sales of goods or services supplied to third parties. Turnover also includes all other charges (transport, packaging, etc.) passed onto the customer, even if these charges are listed separately in the invoice. (...)"* In the same paragraph the regulation names as purpose of this variable: *"It is the objective of the turnover index to show the development of the market for goods and services."*

This shows a certain ambiguity within the European regulations. On one hand, the base regulation reflects the development of the summed up turnover of enterprises having their main economic activity within one sector defined by NACE. On the other hand, the definition regulation refers to the market developments of certain goods. This ambiguity is a result of the two different perceptions of the retail trade indices – the technical statisticians' perception of what seems to be fairly easy to measure (development of the turnover of enterprises having their main economic activity within retail trade) and the analytical perception of the users of what makes sense to picture, is meaningful to interpret and necessary for fulfilling their analytical tasks (development of the market).

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[2] Member States of the European Union (EU27) which are: Belgium, Bulgaria, the Czech Republic, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, the Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland, Sweden, and the United Kingdom.

[3] The euro area includes all Member States of the European Union having the Euro as currency; at present EA16: Belgium, Germany, Ireland, Greece, Spain, France, Italy, Cyprus, Luxembourg, Malta, the Netherlands, Austria, Portugal, Slovenia, Slovakia, and Finland. From January 2011 onwards it will be EA17 (=EA16 plus Estonia).

[4] **P**rincipal **E**uropean **E**conomic **I**ndicator as communicated by the European Commission in 2002 (see Communication COM/2002/661).

[5] Council Regulation (EC) No 1165/98 of 19 May 1998 concerning short-term statistics; amended by Regulation (EC) No 1158/2005 of the European Parliament and of the Council of 6 July 2005 and by Regulation (EC) No 1893/2006 of the European Parliament and of the Council of 20 December 2006 establishing the statistical classification of economic activities NACE Revision 2 and amending Council Regulation (EEC) No 3037/90 as well as certain EC Regulations on specific statistical domains.

[6] in particular: Commission Regulation (EC) No 1503/2006 of 28 September 2006 implementing and amending Council Regulation (EC) No 1165/98 concerning short-term statistics as regards definitions of variables, list of variables and frequency of data compilation.

[7] in the case of retail trade with automotive fuels, this is division 47 of NACE Rev. 2 (equal to division 47 of ISIC Rev. 4).

The balancing act continues in the production and use of the indices. The main intended purpose of the monthly turnover index of retail trade is to have an indicator of developments in final consumption: National accountants, central banks and other financial institutions (as the main users of short-term statistics) and many other economists use it for this purpose. The original production concept behind the monthly turnover index of retail trade is different. This concept foresees to measure the development of turnover of enterprises having their main economic activity in retail trade; and the National Statistical Institutes (NSIs) measure this or what they believe the relevant enterprises and their turnover are.

2 Organisation of the automotive fuels' distribution

2.1 Customers' perspective

From the outside, private customers normally only distinguish between different branded petrol stations. These branded stations are normally categorised into the:

- so-called Majors, A-Colours or simply Colours: Stations under the flag (eg. ARAL, BP, Shell, Exxon/Esso, Texaco and specific national ones) of the big and well known mineral oil companies;
- B-Colours carrying the logos of smaller, regional distributors;
- Cooperative Brands (eg. AVIA) and Collective Brands (eg. bft);
- "White Stations", which could, but must not belong to the branded ones without showing it.

It is likely that the company name and logo shown on the garage's sign will have an influence as to what the price/litre shown on its price-board will be.

2.2 Different business organisations

From the perspective of market development measurement, the breakdown made by the public perspective is not very helpful. The average customers normally only recognise the brand's logo on the station's sign. However, this says more or less nothing about the way in which the business is really organised, and this not only varies among the different Member States within the EU, but also often varies from petrol station to petrol station within one Member State. In the following text the main organisational forms of a petrol station will be introduced:

- **CoCo**

  This case is comparable to a typical outlet store. The abbreviation CoCo means **C**ompany **o**wned, **C**ompany **o**perated. The filling station is owned and run by a large-scale supplier (mostly a mineral oil company). This could be an A- or B-Colour, or a smaller large-scale supplier using even a cooperative or collective logo. In any case, these petrol stations are the property of the large-scale supplier who operates them with salaried employees in its own name. The turnover of these filling stations as non-independent units is within the turnover of the large-scale supplier. From a statistical perspective, this CoCo is just a local unit – not an enterprise.

- **CoDo**
  In this operation model (Company owned, Dealer operated), the petrol station's building and equipment belongs to a large-scale supplier. Again, this large-scale supplier could be an A- or B-Colour, or a smaller large-scale supplier using a cooperative or collective logo. The difference is that the petrol station is not operated by salaried employees of the large-scale supplier, but a lessee who leases the petrol station. This lessee sells the fuel exclusively in the name of the large-scale supplier. The lessee receives compensation, commonly a decreasing per litre amount, for selling or better for brokering it. The amount of this compensation also depends on other contract items; eg. who has the responsibility for the maintenance of the station's forecourt equipment.

  A variation of this model is that the filling station or ground is owned by the lessee, taken at rent on long term basis by a large-scale supplier and leased back by the lessee who is at the same time the renter.

- **DoDo**
  A DoDo (Dealer owned Dealer operated) is quite similar to the case above (CoDo). The difference is that the filling station is owned and run by the dealer. The dealer only has a lessee contract with the large-scale supplier regarding the selling of the fuels (and probably other shop items). As in the CoDo-model, the lessee sells the fuel exclusively in the name of the large-scale supplier and receives a recompense for selling it. As the DoDo is owner of the filling station and thus for example has higher expenditures for the maintenance of the station (for CoDos often paid for by the large scale supplier) the per litre compensation is supposed to be higher than for CoDos.

- **"Independent Station"**
  An "independent" or "free" station is run as a retail shop. These independent stations are seldom run under the flag of an A- or B-Colour – nevertheless these cases also exist. These independent stations are normally found among the cooperative or collective brands and the white stations. Independent stations buy petrol from large scale suppliers and sell it through their own pumps. Not all of them are as independent as the name suggests. It is quite common to have long term delivery contracts with large scale suppliers, which often even guarantee the operator of the petrol station a fixed margin between wholesale and retail price.

These different kinds of organising the distribution show that a relevant question is who exactly sells which goods or service to whom? Or to be more precise in terms of petrol distribution, for which account and in which name is the fuel sold? Here we can clearly identify different situations:

- Free petrol stations and CoCos[8] sell in their name and on their account. The petrol station owns the petrol and sells it in its own name and for its own account to its customers. The treatment of the turnover and its attribution to an industry could be different though. For free petrol stations this is normally NACE 47.3 (Retail sale of automotive fuels). For CoCos, in cases where the petrol station is not an independent unit only owned by a mineral oil company and operating in its own name and for its own account, it is attributed to the industry to which the owner belongs; as a rule NACE 06.10 (Extraction of crude petroleum), 19.2 (Manufacture of refined petroleum products), 46.71 (Wholesale of solid, liquid and gaseous fuels and related products) or, if the mineral oil company is only a distribution organisation, 47.3[9].
- For DoDos and CoDos it is not that easy to identify. They often are a commercial agent; i.e. they sell fuel in the name and for the account of a mineral oil company. In this case the petrol is sold by the mineral oil company and the turnover has to be attributed to these mineral oil companies. The filling station providing the distribution service for the mineral oil company is compensated for it. This compensation is normally a regressive per litre commission.
  It seems that these filling stations are rarely run as general commission agents – selling in their name but for account of a third party. Interestingly, a lot of the statistical offices said that a significant amount of filling stations in their countries are run as false agents; selling in the name of a third party but for their own account. This is not really in line with the industry information we have, but could be due to the fact that the filling stations in most of these cases use the flag of a mineral oil company. Nevertheless, using the flag does not automatically mean that the company represented by the logo owes the delivery of the goods. Both cases are problematic as the assignment of the turnover is not very clear.

In terms of turnover definition and collection, the cases of free petrol stations and CoCos are not problematic, but could be for the cases of DoDos and CoDos. Here the petrol station sells the petrol (and probably other goods and services) either in the name or for the account of a third party or both. Economically, to whom the turnover has to be added to depends on the question of who owes the provision and provokes the supply of a good. In the cases mentioned of free petrol stations and CoCos, this is pretty clear. The following cases need to be looked at in more detail:

In the case of a commercial agent, the petrol station (P) is selling petrol in the name and for the account of a large scale supplier (L) as third party to a customer (C). Normally this L is one of the well-known mineral oil companies or a separate unit of them. P has not the duty to deliver the fuel to C; P is just acting as an agent bringing L and C together. In this case, the turnover – the price of the fuel – has to be counted for L (and is just an item in transit through P). On the other hand, is P compensated by L for providing the agency-service? The fee P gets from L has to be counted as turnover for P.

[8] i.e. the unit owning the petrol station
[9] In Austria some of them are classified as wholesale of agricultural raw materials and animals (46.2).

A petrol station (P) acting as general commission agent is selling petrol in its own name, but for the account of a large scale supplier (L) to a customer (C). As P has the duty to deliver the fuel to C – P is acting in its own name – the full price paid by C has to be counted as turnover for P (P owes the provision and provokes the supply). However, the money is transferred directly to L. P is then paid by L for offering the service. This fee P gets from L is also turnover for P – not from retail trade but for the service offered to L.

This strict treatment would create problems in the taxation as P would have to carry the VAT for both transactions and would itself have no input tax deduction. That is why for taxation reasons, a fictive transaction is created at the same time between L and P (that could be counted as turnover for L).

In the third case, the petrol station (P) is a so-called false agent. The petrol station is selling the fuel on its own account, but in the name of a third party (L). In this case, L owes the provision and provokes the supply. However, P does not forward the money directly to L and receives it for its own account. P only transfers a fixed amount that is independent (higher or lower) from the amount it received from C. If P is paid by L for offering the service, the fee P gets from L is turnover for P. However, as P is not just collecting the money for L and forwarding it directly, the amount that P receives could be different from what L gets from P. So it is not implicitly necessary that P receives a fee from L for offering the service. P could finance itself by transferring less than it receives from its customers.

As the payment from C to P is not directly forwarded to L, this supply from L to C is split up for taxation reasons into two separate fictive transactions happening at the same time: One between L and P and one between P and C.

The following compendium (Table 1) summarises the different kind of turnover that arose in the different business models and shows to whom the turnover in each case normally has to be assigned to.

Table 1

Type of station	Assignment of turnover (NACE)	Amount
Principal		
o free station	47.3	**quantity * price of the fuel**
o CoCo	depending on classification of owner	**quantity * price of the fuel**
Commercial agent	47.3	**fee**
General commission agent	47.3 47.3 ***For taxation reasons, a fictive wholesale trade turnover is created and assigned to the petrol station's supplier.***	**quantity * price of the fuel** **fee**
False agent	47.3 ***For taxation reasons, a fictive wholesale trade turnover is created and assigned to the petrol station's supplier and fictive retail trade turnover is assigned to the filling station.***	**fee**

One might ask why the turnover of agencies – especially the fees – should be assigned to NACE 47.3 (retail sale of automotive fuels) even if the agency in a narrow sense[10] does not perform retail trade. This is rooted in the statistical classification of economic activities in the European Community (NACE Rev 2). Other than for wholesale trade – where activities on a fee or contract basis are separated into a special group (46.1) – there is no special distinction made within retail trade. The explanations for retail trade just say that: "*This division also includes the retail sale by commission agents (...).*" and no separate classes are foreseen for these cases.

2.3 Actual situation and treatment in the Member States

The previous paragraphs treated to a certain extent only the theoretical background. In the following ones, the actual situation in the member states is described. As already mentioned, Eurostat performed a small survey among the 27 Member States in 2009 in order to understand the situation, especially in the sector of retail trade with automotive fuels[11]. The following information was gained though this survey. As the intention of this text is neither to show how much short-term statistics in single Member States is in line with the current legislation, nor how they should be judged, no individual answers are presented.

The answers of the Member States made it pretty clear that most of them knew very little about the organisation of the retail trade with automotive fuels in their countries. Most of them were only able to give rough estimates about its composition; some had no information

[10] They currently do not buy items to sell them in unchanged conditions.
[11] It was possible to gain answers from 25 out of the 27 Member States.

at all. Most of those, for which information are available, declared that in their countries they have – in different shares – CoCos, free petrol stations and stations run as agencies[12].

On the question as to what they collect as turnover for the stations run as agencies, a common answer was that they did not know. Only some declared explicitly that they either collect a fee or the full value of the petrol traded or a mixture of it. It was mentioned by the Netherlands, that agency stations run on their territory often don't even know the value of the petrol they have sold since their cash desks are directly linked to the large scales suppliers' data centre and thus the petrol stations have no access to this information.

Most Member States stated that it is possible, on an economics basis, to separate the agencies' turnover from the turnover made by their large scale suppliers. The NACE classification of these large scale suppliers are almost equally distributed among 19.2 (Manufacture of refined petroleum products), 46.71 (Wholesale of solid, liquid and gaseous fuels and related products) and 47.3 (Retail sale of automotive fuels).

The NACE classification of the proprietors of the CoCos shows almost the same distribution. Some more countries say that it is impossible, on an economics basis, to separate the turnover made by a CoCo from its proprietor – however almost 30% of the Member States say that it would be possible.

2.4 Different markets

The rather different organisational forms of filling stations described makes it very clear that different kinds of tangent markets can be identified. On the one hand there is the market for fuels expressed by the turnover between the free filling stations, CoCos and distributors behind the agency stations. As mentioned above, their turnover is recorded for different NACE-positions: in 47.3[13] for free filling stations and some agencies and mainly 19.2, 46.71 or 47.3 for CoCos and the suppliers of agency stations.

On the other hand, there is the market for the service of operating a filling station and distributing the fuels for someone else. The turnover made on this market, solely the commissions or fees the agents get, is more or less totally attributed to 47.3.

In addition, the sales of other items are also attributed to 47.3. The most important of these are the so-called shop items (food and non-food products) also sold by the filling stations. The organisation of their distribution though the petrol stations can show the same different options as presented for the fuel; but it can also be organised separately from it (eg. as agent for petrol and as retailer for shop items).

3 Price indices

The main focus of attention with the retail trade turnover index is not on the value index, but on its deflated or adjusted for price variations version. This so-called volume index is inter

[12] It has to be mentioned that these compositions are anything but stable. For example, in 2009, the Retail Operating Company Deutschland GmbH (an integrated subsidiary company of the Exxon Mobil Corporation), took over about a hundred filling stations in the south of Germany previously run as agencies.

[13] Subtracting the case where a filling station is only part of, for example, a supermarket or furniture market.

alia the headline figure of Eurostat's monthly news release. It is obvious that an as high as possible compatibility between the value index and the price index used for its deflation is necessary. The Eurostat Member States' survey mentioned before contained a question on the composition of the price indices used for the deflation of the turnover (value) index for NACE 47.3. Here the picture of the answers given by the Member States was quite homogeneous. 18 out of 25 use the pure price development of automotive fuels; seven use a basket including shop items and fuels. Both approaches totally ignore the development of fees or commissions that could (depending on how they are treated) and currently do in some Member States, make up a rather important part of the turnover development in NACE 47.3. Moreover, most Member States also ignore the development of shop items. These facts make it very questionable as to how far the used price indices are really useful for deflating the current value indices in this sector?

4 Isolated special case retail trade with automotive fuels?

One might say that these are very special problems of one individual sector within retail trade and there should not be too much attention paid to them. However, following the current (2005) Eurostat weighting system, the retail sale of automotive fuels (as currently captured in NACE 47.3) makes up more then 10% of the total retail sales for both for Europe and the euro area. Thus, the treatment of 47.3 has a noticeable impact on the main aggregates published by Eurostat.

Of course, the problems described above do not only appear in 47.3. In this sector they are only more noticeable than in others. The main reason for this is that at first glance, the market seems to be quite well definable (but this is disproved on second view).

The mentioned outlet store difficulties are also evident in other areas of "retail trade". A very obvious example is with the distribution of bread. Bread is sold to customers in general though different trade channels. One is the typical retail trade: A supermarket buys the bread from a bread factory and sells it to final consumers. A second one is a bakery distributing their own products through their own bread shops directly to the final consumers. This is very common in most European regions. In a strict view, this second distribution channel is not retail trade, but manufacturing: The producer does not buy things to sell them but sells its own products. A third way that became rather popular during the recent years is that shops are themselves just "crisping–up" pre-processed bread on their own premises. If they do not belong to the unit manufacturing these semi-prepared breads, then they are counted as retail trade.

The "trade agents' problem" does not only occur in the sector of retail trade with automotive fuel where it is very visible in some Member States. Due to various retail trade concepts (franchising, shop-in-shop, etc.) other sectors are affected in the same way. These concepts are not standardised, but are often very unique and differ not only between Member States, but amongst the economic units involved. For example, some big department stores or supermarket chains hire shelf or even empty floor space to other retailers, large scale suppliers or producers and get paid for this and all additional services (such as commercials, encashment, etc.) that they offer to them. So, on one hand it is often not very clear for whom the turnover in relation to the customer has to be counted for. On the other hand, "retail trade units" might have turnover resulting out of many other activities than retail trade such as renting, other services, commissions etc. and even some very innovative sources: It is well known that supermarkets and department stores open up new revenue streams, eg. by asking their suppliers for publicity expenditure subsidies for putting a product in their advertisements or asking for product start-up funding before they list a new product.

All this shows that the problems are most plainly visible in retail trade with automotive fuels since the share of fuel traded through either agents or outlets is rather high in some countries and at the same time the sector is rather narrowly bounded by mainly one product. However, it should be noted that these problems also emerge in other sectors.

5 Résumé

The monthly retail trade index, and especially the sub-index for retail trade with automotive fuels, currently shows substantial quality problems. It is to some extent unclear as to exactly what turnover is covered by this index. It seems obvious that double counting (turnover counted for both the agent and its supplier) is included. Concurrently, substantial parts of value might be missing (fuel only counted for suppliers classified outside of retail trade in the cases of CoCos or agencies). Different kinds of turnovers for totally different products – automotive fuel on the one and a distribution service on the other side – are mixed. Furthermore, the index is influenced by changes in the composition of the units involved and how the markets are organised, although not only strong changes in composition have an impact. Simply the behaviour of customers for whatever reason varying how much they buy through agents and how much from a station working in own name and for its own account has a impact on the development of the index.

All this is deflated by using price indices that are, at least in some major Member States, totally incoherent with the turnover (value) index to be deflated: one is the price development of fuel, the other is mainly the amount of commissions collected. Just as bad, some Member States do not even know what their turnover index is composed of.

These facts make it hard to believe that this index is a good early proxy for the development in final consumption as it is used by our main customers. Moreover, it is not measuring the development of the market for automotive fuels – as requested by the definition regulation. What this index actually does; it imposes the important questions on how to treat trade agencies involved in retail trade, and the direct selling from a manufacturer or large scale supplier on a typical retail trade market in a common and harmonised way.

Finally, it seems obvious that we have to learn and follow much more in detail how business is organised in our Member States and in the different areas of retail trade. This is the most important prerequisite for producing reliable and usable figures that can be interpreted properly by our clients.