34th Voorburg Group Meeting on services statistics

30 September – 4 October

Paris, France

Cross-cutting issues part 1

SPPIs by customer sector

August 2019

J. M. Fournier - INSEE

VOORBURG GROUP MEETING PARIS 2019

VOORBURG - PARIS - 2019
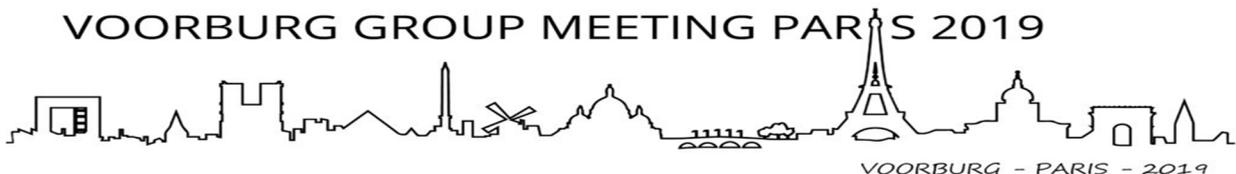
Services producer Price Indices (SPPIs) satisfy National, European or even International requirements. Thanks to these indices, economists evaluate and analyze economic trends. Many French, European and International public and private organizations use also these indices as leading indicators of inflation (European Central Bank (ECB), International Monetary Fund (IMF), Organization for Economic Cooperation and Development (OECD), etc.).

These indices provide a short-term price monitoring, on different markets at all stages of the production process. The aggregation of price indices in the Member States enable to establish SPPIs (for services sold to businesses, or to all markets) in the whole European Union.

Above all, these indices are deflators:

> - used to calculate short term indicators of Service Production Indices, in volume;

> - National accountants can deflate the production that comes from corporate structural statistics and thus can share between the development of the activity in volume and the development of prices ("*price-volume*" sharing).

As the development of these indices must be the subject of great attention, this paper aims to present the state of art in France and discuss the specific need to extend their coverage.

Table of contents:

1. - Why are Services Producer Price Indices (SPPIs) required?

1.1 - Enlargement of SPPIs scope according to the FRIBS regulation

Eurostat undertook works from the beginning of the 2010s to prepare the dissemination of larger short-term economic indicators than previously required by the *Short-Term Business Statistics (STS regulation)* in different fields including services.

From 2012, requirements were set up to prepare the implementation of the proposed methodological evolutions of the new Framework Regulation Integrating Business Statistics (FRIBS) decreed this year, to implement at the European level in 2021.

Concerning Services Producer Price Indices (SPPIs), the main adaptation of the FRIBS regulation concerns the scope of covered fields:

- The number of industries followed by SPPIs has been increased, requiring now to provide an overview of all the market activities of Sections H, I, J, L, M and N and their divisions ([1] and their aggregate level (H+I+J+L+M+N). Clearly, it corresponds to the scope of the *mainly* merchant services (except financial services – section K).

    => *Often, Member States have chosen to compute and disseminate SPPIs at much more detailed levels than requested, in order to establish aggregated indices as reliable as possible.*

- The Services producer price index for an economic activity measures the average price development of all kind of services provided in this sector. That means the SPPI of a particular economic activity measures the average price development not only for the Business-to-Business (B2B) transactions as previously required by the *STS* Regulation but also prices of all the Business-to-other customers (B2other) transactions, in order to supply <u>B-to-ALL customers (B2All) indices</u>.

    => *The « new » B2All_SPPIs should include direct sales to all kind of consumers (public sector or private households and foreign entities that are not companies, considering that transaction prices with foreign companies was previously followed with the « old » B2B concept.[2]*

- For countries implementing SPPIs_BtoB indices, their data collection should be extended to BtoC and BtoX, in order to access BtoAll by "horizontal aggregation" and allow SPPIs to be published without breaks. For most SPPIs, BtoC can be duplicated from CPIs, so the only thing to do to be in accordance to next STS regulation is to collect BtoX indices.

Since May 2013, the French National Statistical Institute (INSEE) desaggregates services producer price indices (SPPIs) by destination of output: INSEE obtains BtoAll by "horizontal aggregation" at each CPA 4-digitsclassification level) of BtoB, BtoC and BtoX indices.

1.2 - Other requirements of the FRIBS regulation concerning SPPIs

The following rules apply for the definition of the Producer Price Indices (PPI) including SPPIs:

- All price-determining characteristics of the products [and services] must be taken into account, including e.g. quantity of units sold, <u>transport provided [*only when they are provided by the producer*], surcharges, discounts</u>, rebates, refunds offered to <u>any</u> buyers [*and not « private » discount*], service conditions, guarantee conditions, **destination**...

---

[1] *NACE divisions 49 to 53, 55 to 56, 58 to 63, 68, 69 to 71 (excluding M701), 73, 74 and 77-82.*

[2] *Actually, it depends on own practices of the different States Members National Statistics Institues.*

> => *The destination of services, e.g. the market, targeted is one of the criterions to take into account when we try to measure SPPIs.*

- a PPI measures the price development **from the point of view of the producer/seller**. **The appropriate price is the basic price** that excludes VAT and similar deductible taxes directly linked to turnover as well as all duties and taxes on the goods and services invoiced by the unit, whereas subsidies on products received by the producer, if there are any, should be added.

  > => *A "Producer Price Index" should be naturally valued at producer price, measuring producer income due to price, rather than at purchaser's price, measuring user's cost. In fact, it is often difficult to isolate the amount of subsidies received for each good or service sold. In France, we include the costs of transferring goods or services within the same group in to basic prices.*

- The specification must be such that in subsequent reference periods, the observation unit is able uniquely to identify the product and to provide the appropriate price per unit. Then, the producer price index should take into account quality changes in products.

  > => *Detailed lists of methods to address the issue of quality changes are available in chapters 7 and 8 of the CPI and PPI manuals[3].*

1.3 - Apart strictly applying the rules what are the SPPIs uses?

The weight of non-financial merchant services in the French economy strengthened by 0.5 percentage points these last two years to 35.3% of total value added. By comparison, the relative share of industry in GDP is about 15% in France.

Due to the increasing weight of services in all European countries, these developments aim, moreover, to provide more accurate economic information on current inflationary pressures but, above all, to provide reliable « **deflators** » to establish service production indices in volume.

It is also necessary to distinguish in variations of service value what is related to volume changes and what really reflects a price change. This raises a set of problems among the most difficult of those that economic statistics try to solve. Actually, these problems are practically the same as those of evaluating the best deflators for measuring volume changes of goods.

This question arises both at the level of basic products and services, with characteristics in principle directly observable, as well as for groups of products and more general aggregates of an economy taken as a whole.

SPPIs are currently used for two kinds of deflators:

1.3.1 Service production indices in volume published by INSEE

In this regard, the French National Statistics Institute has developed and disseminated Service production Indices (SPIs) - in volume - since 2017. SPIs measure the monthly change in the services production in various sectors. As such, they are a primary information to monitor the business cycle in France (as Industrial Production Index for goods).

SPIs computed using turnover indices - which also cater to national and European imperatives – and SPPIs.

---

[3] *Use of imputations, overlap prices, comparable replacements, non comparable replacements using estimates from production costs, option costs and hedonic regression as well as methods for markets with a rapid turnover of differentiated varieties including short-run relatives chaining,...*

Turnover indices are calculated by INSEE from a tax source, filled each month by companies for the registration and payment of the value-added tax (VAT).

SPIs should cover the following sectors required by the FRIBS regulation: they are calculated according to the nomenclature NACE for sections H ,I,J , L, M and N as it is required for SPPIs[4].

Actually, SPIs are calculated at a fine level and are defined as the ratio of the turnover index in value to the associated price deflator. This is done for 141 <u>classes</u> of service sectors which is a quite more detailed dissemination standard than required by the FRIBS regulation.

SPPIs are used as deflators for 116 out of these 141 indices[5] for the computation. Once the indices at the finest level of nomenclature calculated, the indices of higher levels are obtained by aggregation.

In this context, INSEE tries to increase the supply of SPPIs for all types of customers (B2All) at the class level (4 digits CPA). But, this does not explain the need to distinguish SPPIs by destination and by customer. This more detailed information is required for national accounts.

1.3.2 SPPIs as national accounts deflators

PPI (and SPPIs) are also used by national accounts (NA). The very notion of what NA try to measure according to the concept of price is not obvious, especially at aggregated levels. What, for example, is the production price growth of the whole economy or of only merchant services? Even more complex, but actually related to the previous question, another question is to measure the changes in prices of the different components of merchant services in NA: (production, intermediate consumption on one hand and final consumption, investment - Gross Fixed Capital Formation -, variation of stocks and external trade flows in another hand), although these notions are themselves complicated to apprehend in value...

---

[4] *Transport and storage (Section H), Accommodation and Catering (Section I), Information and communication (Section J), Real estate activities (Section L), specialized scientific and technical activities (Section M), Administrative and support services (Section N).*

[5] *The production prices of certain sectors are not collected. In these cases, a very close price index, the consumer price index (CPI), or a price index of production in another service can be used as a proxy. CPI is measured all taxes included, so it is necessary to correct the evolution of VAT rates and to « translate » results from another nomenclature (COICOP for CPIs to NACE-CPA for PPIs).*

2. - What do national accounts (NA) Need as SPPIs ?

2.1 - The System of National Account (SNA) prefers deflation

2.1.1 - An explicit principle in SNA 2008

In its chapter 15 on price and volume measures[6], the guideline SNA 2008 affirms without ambiguity its preference for **deflation** (**volume obtained by division of value by prices**), ensuring:

- a **better accounting of "volume" variation to be derived by dividing (deflating) the value change by appropriate price indices** *(15.103)* *"When independent, reliable and comprehensive data are available at current values it is generally not necessary to construct volume measures […] **In most cases it is preferable and more practicable to use price indices to deflate current value data" [...]***

- a better measurement of prices evolution according to the **correlation of prices between products *[Services]* of a same group**: *(15.104) "Price information is easier to collect and aggregate than volume information because all prices are expressed in a common unit whereas volumes come in a multitude of units. Further, price relatives for a representative sample of goods and services can be used as typical for all goods and services in the same group in a way that volume measures would not be representative. **More importantly, the volume changes associated with new and disappearing products can be properly reflected when current values are deflated by price indices."***

2.1.2 - The European System of Accounts 2010 (ESA) specifies what "deflation" is!

- *(10.20)* "*There is however a simple way of breaking down the change in the value of a set of homogeneous products between two periods, one of which is considered the base period and the other the current period. **The effect of change in price can be offset by calculating what the value of the set of products would have been if there had been no change in prices**".*

   => The volume of the set of products for the current period (1) defined in relation to base period (0) by measuring a volume index valuing transactions with the basis year's price system:

$$I_{volume} = \frac{\sum_{i=1}^{n} P_{i,0} * q_{i,1}}{\sum_{i=1}^{n} P_{i,0} * q_{i,0}}$$

- (*10.24*) *"In practice, since it is impossible to measure prices and quantities for all the homogeneous products of an economy, volume or price indices are calculated using samples of representative homogeneous products, the underlying idea being that the volumes or prices of products not included in the sample change in the same way as the sample average. **It is therefore necessary to use a product classification which is as detailed as practicable so that each product identified has***

---

[6] *Unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf*

maximum homogeneity, regardless of the level of detail used in the presentation of results".

=> Indeed, an aggregate is rarely homogeneous: it can be an aggregate composed of several products, an aggregate composed of different sizes that do not have the same unit, or a heterogeneous product whose components do not have the same quality.

- *(10.25) "In view of the equation linking the value, price and volume indices, only two indices need to be calculated. Usually, the value index is obtained directly by simply comparing the overall values for the current and base periods. It is then a matter of choosing between a price index and a volume index to be calculated. In most cases the assumption of parallel change which underlies the method is proven more by prices than by volumes because the prices of different products are often significantly influenced by certain common factors such as the cost of raw materials and wages. In this case, <u>the price index is to be calculated using a sample of products of constant quality over time,</u> **<u>with quality being determined not only by the physical characteristics of the product but also by the conditions of sale, as explained above.</u>** In this way all the variations in the overall value caused by structural changes among the various products will appear as variations in volume and not in price".*

=> In principle, price components must include changes resulting solely from price changes, while all other changes (in quantity, quality and composition) must be included in volume components. The objective is therefore to determine changes in aggregates that are due to price changes and those that are due to volume changes.
=> Volume changes reflect, in addition to quantity changes, changes in aggregate composition and quality improvements.

2.2 - Do SPPIs own the characteristics for being be good NA "deflators"?

2.2.1 - According to SNA 2008, SPPIs can be used as NA deflators, with certain assumptions

- *(15.108) "There are four major types of price index available to derive volume measures in the national accounts: **Consumer Prices Indices (CPIs), Producer Price Indices (PPIs), export price indices (XPIs) and import price indices (MPIs)**. CPIs are measures of purchaser's prices and PPIs are measures of basic prices. XPIs are measures of FOB prices; MPIs may measure FOB or CIF Prices.*

But particular hypotheses have to be set:

- In NA, the value index is the product of a volume index (Laspeyres in accordance with Eurostat requests) and a price index (Paasche type):

$$I_{value} = \frac{\sum_{i=1}^{n} P_{i,1}*q_{i,1}}{\sum_{i=1}^{n} P_{i,0}*q_{i,0}} = \frac{\sum_{i=1}^{n} P_{i,1}*q_{i,1}}{\sum_{i=1}^{n} P_{i,0}*q_{i,1}} * \frac{\sum_{i=1}^{n} P_{i,0}*q_{i,1}}{\sum_{i=0}^{n} P_{i,0}*q_{i,0}} => I_{price} = \frac{\sum_{i=1}^{n} P_{i,0}*q_{i,1}}{\sum_{i=1}^{n} P_{i,0}*q_{i,1}}$$

- In theory in the NA, Price indices are, Paasche indices, weighted with the item at the current period. One reason for this choice is that only the product of a Laspeyres quantity index by a Paasche price index directly is consistent with a value index...

- However, in practice, many (all in fact) **price indices used for NA are Laspeyres** indices: this is the case with Producer price indices (Industry production price indices as well as Services producer price indices) as well as for the Consumer Price indices.

=> It is implicitly assumed in the construction of NA, that the impact on the structure of the economy of price changes (variation in the relative prices of different goods and services) between two years is much more marked than the variation of volumes produced and sold, and that weighting by the quantities of the base year (case of a Laspeyre price indices) is about the same as weighting by the current year's quantities (case of Paasche Price Indices supposed to be retained in national accounts). More prosaically, price indicators in Paasche type, are generally impossible to observe, as weights of the current period for Paasche indices could not be available in due time.

2.2.2 - Taking account of quality changes is complicated into Price indices

The decomposition between volume and price changes occurs naturally when one examines an aggregate of homogeneous elementary goods or services, economically identical between two periods, **and sold to the same kind of customer.** As the quantities are additive and commensurable in this case, the change in volume corresponds to changes in quantities (and so in quality). In a nutshell, price changes **measured by PPI** (and SPPIs of course) **should correspond to variation of unit prices per unit of product** *ceteris paribus* with the same « quality ».

In this context, SNA 2008 (15.64 to 15.75*)* provides a general guidance, defining the different causes of price variation measured as changes in quality of goods and services produced and sold. They conclude: "***if there is doubt as to whether the price differences constitute price discrimination, it seems preferable to assume that they reflect quality differences as they have always been assumed to do so in the past.***"

Detailed accounts of the method on how to deal with change of quality in price indices are available in chapters 7 of the CPI manual[7], chapter 8 of the Eurostat Handbook on PPI[8] and chapter 8 of the export and Import Index manual[9].

---

[7] *https://www.ilo.org › ---stat › documents › presentation › wcms_331153*

[8] *https://ec.europa.eu › eurostat › documents › KS-RA-12-020-EN.PDF*

[9] *https://www.imf.org › external › sta › xipim › pdf › xipim*

3. - How SPPIs are used in the NA framework

In this context, the primary objective of NA is not simply to provide guidelines on measuring the changes in prices and volumes for the main aggregates of the NA but to assemble a set of interdependent measures that make it possible to carry out systematic and detailed analysis of inflation and economic growth. In this context, an important objective of the national accounts is to estimate year-to-year and quarter-to-quarter changes of several macroeconomic variables in a <u>consistent way.</u>

3.1 - The Supply and Use Table (SUT)

Supply and use table (SUT) gathers in the same accounting framework, the goods and services account by product type and the production and generation of income accounts by producing industry. The goods and services account provides the balance between supply (output and imports) and uses (consumption, gross fixed capital formation, acquisitions less disposals of valuables, changes in inventories, exports) by product. The production and generation of income accounts by industry make possible to measure the gross value added of industries (e.g. their productive contribution), and their gross operating surplus as well as their gross mixed income. All of this information provides an overview of the national economy, the interdependence between its industries and the flows between the domestic economy and the rest of the world.

Figure 1: simplified representation of SUT
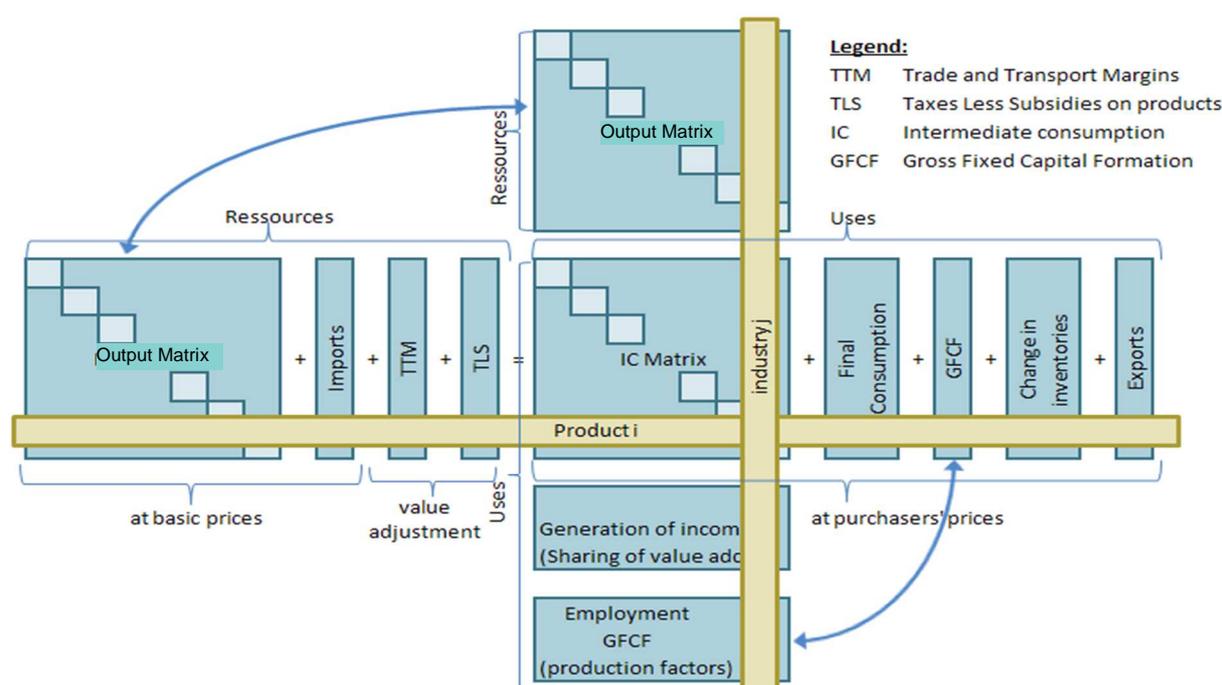
The Supply and Use Table combines into a single framework the three approaches to measure GDP according to the production approach, the income approach and the expenditure approach (see below).

By row, the SUT can be read as the "commodity flow" of a product with a detail of ressources by origin on one side (value added by the production approach), and the detail of uses on the other side (value added by the expenditure approach). It is by row, in the "commodity flow" that value, volume and price are balanced: Structural Business Surveys are the source of the output Matrix. They are combined with administrative data in order to constitute the Structural Business Statistics that will feed also the production and generation of income accounts.

By column, the SUT explains and confronts value added by the production approach (production - intermediate consumption) and value added calculated by the income approach.

at current prices

Production approach	(€ billion)	Income approach	(€ billion)	Expenditure approach	(€ billion)
Output at basic prices	4 164	Compensation of employees	1 232	Final consumption	1 820
- Intermediate consumption	2 073	+ Other taxes less subsidies on production	60	+ Gross capital fixed formation	538
		+ Net operating surplus	799	+ inventory changes	14
= Gross value added at basic prices	2 091	= Gross value added at basic prices	2 091	+ Exports of goods and services	737
+ Taxes less subsidies on products	262	+ Taxes less subsidies on products	262	- Imports of goods and services	-756
= Gross domestic product	2 353	= Gross domestic product	2 353	= Gross domestic product	2 353

3.2 - Deflating tables with PPI (and SPPIs)

(15.1) One major advantage of compiling price and volume measures within an accounting framework, such as provided by the supply and use tables, is that a check is provided on the numerical consistency and reliability of the set of measures as a whole.

### 3.2.1 – The "double deflation", a first method to calculate value added in volume

(SNA 15.2) "Another advantage of compiling price and volume measures within an accounting framework is that implicit price or volume measures can be derived for certain important balancing items. In particular, gross value added can be measured in real terms by subtracting intermediate consumption in volume terms from output in volume terms, the so-called "double deflation" method.

Considering service and product flows, this method consists in deflating the Output Matrix by rows (using IPPIs and SPPIs - BtoALL) in order to obtain the volume indices of "output" produced by each "industry". The output Matrix is then deflated by row (by products), by the price index of production in the commodity flow.

National accountants must secondly extrapolate the Intermediate Consumption (IC) Matrix in volume from the "technical coefficients" linking for each "industry" the intermediate consumption used in the production process and the levels of that production (see figure 2).

Double deflation may be used at any level of NA calculation: for an individual enterprise, an industry or a sector as well. Hence, the compilation of SPPIs (and PPI) "by industry" is not necessary, as the Output Matrix and the link between industries and products is managed by NA, after balancing.

Figure 2: general scheme of the production approach
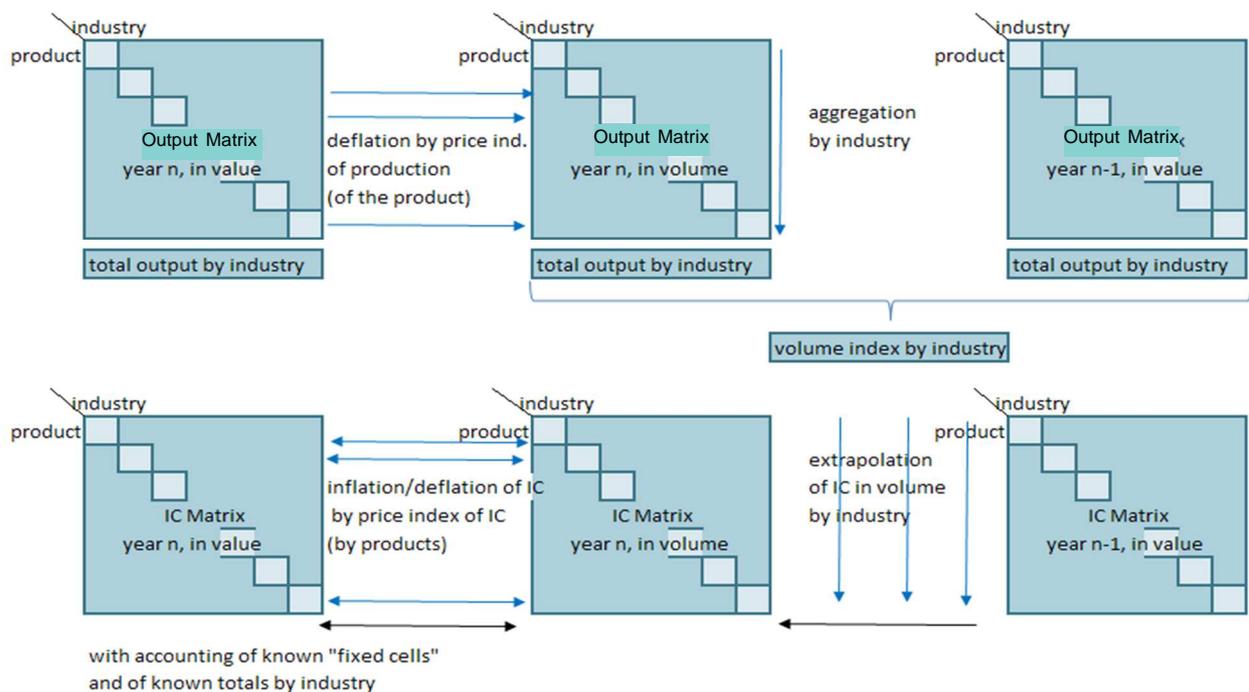
However, this method is not sufficient:

- With this method, a strong assumption is made concerning the year-over-year stability of technical coefficients of production, without taking into account substitution effects that may be linked with large changes in the relative prices of raw materials or factors of production[10]. But this matches with SNA recommendation: (*15.111*) *"It is often the case that not all the detailed data required for compiling supply and use tables are available each period and estimates have to be made to fill the empty cells. For example, detailed data for intermediate consumption by product by industry are often collected infrequently. It is generally better to make an initial assumption of a constant composition of intermediate inputs over time in volume terms than in current values."*

- It is still necessary to estimate the price changes of the various products and services used as intermediate consumption as required by SNA 2008 … *(15.129) Countries that compile PPIs generally do so for outputs, though countries with developed statistical systems may also compile input PPIs. Such input PPIs are directly applicable to the deflation of intermediate consumption …*

3.2.2 - A second way to calculate value added in volume using the demand approach

After the time of production approach it is time to balance commodity flows in the expenditure approach. At the end of the 1990's, the current lack of price indicators for services made national

---

[10] The delicate issue is how "enterprises" funding SBS statistics can provide so many data according to a dimension "products", supposed to rely exactly with production of "KAU -establishments".

accountants take only Consumer Price Indices (CPI)[11] for common price indices of all resources and uses for a given product in services :

- The simplicity of this kind of commodity flow suggests the same technique with "SPPI BtoB" in the case of services without private final consumption. It is certainly the implicit motivation for original European *STS* regulation, with a curious list of miscellaneous products/activities.

- Moreover, Consumer Price Index (CPI) is the main price indicator, the most significant for GDP expenditures approach, and it is very delicate not to respect it totally. Especially, whether users of official economic statistics seek to compare annual rates of change of the CPI and the deflator of the household final consumption[12].

But for business services, e.g. more dedicated to transactions between companies, quite numerous, National Accountants would probably appreciate a framework more similar to goods, with other price indicators than "SPPIs_BtoAll", in order to deflate directly Intermediate Consumption, Final consumption in other areas than private households (Public and private administration), Gross Fixed Capital Formation (GFCF) and exports.

INSEE has chosen to provide also NA with SPPIs BtoB (business to business for the domestic market), BtoX (business to business for the non-domestic markets), and in some specific cases BtoC (business to consumers), particularly in the cases where the scopes of the CPI do not correspond to concepts tracked by Final consumption in NA.

And it is hard to go further … because of the lack of information and also the absolute constraint of consistency of the NA results published in volume terms!

In order to balance in volume the lines of the products and services depicted in the SUT table, national accountants are sometimes forced out to adjust certain deflators, analyzing the credibility of and the regulatory of the accounting system. If frequently, Intermediate Consumption price (IC) indices which are adjusted, other price indices could also be adjusted. For instance, if SPPIs_BtoB and so on are better known as SPPIs-BtoAll index (relying on some assumptions for the weights by uses/"markets"), NA would certainly solve on production the commodity flow in volume rather than IC.

In this context, it is not sure that it is necessary to develop more SPPIs (and more generally PPIs) detailing prices evolution of particular customer of the different products or services.

---

[11] *Note that CPI has sometimes to be adjusted on (change of) VAT rates, for resources or uses that deduct VAT.*

[12] *As it is possible for some products like FISIM, insurances, gambling, non-market services …*

4. - As a conclusion: SPPIs definitions should integrate NA concepts

As national accounts are recognized as the main user of SPPIs, their particular concepts should be integrated in the definitions of SPPIs, for insuring a better integration of economic indicators among the different domains of economic statistics (short-term business statistics in one hand, national accounts – NA- in the other hand).

4.1 - Peculiarities of NA to be taken into account in SPPIs

4.1.1 - NA should become the source of weights,

- SPPI weights should aim to be consistent with complete treatments of national accounts which differ from business statistics not only because of some specific concepts (for instance hidden economy, measures at basic price) but because activities and products covered by *STS* regulations are still incomplete;

- a supplementary question is to interpret these weights as representative of the "total economy" or only "enterprises" business (S11 + S12 + S14 except pure households), although NA will use these price indicators for all kinds of market producers …

- **Finally, NA should be the source of SPPIs weights, at least in their definitive version (Y+3) as no further price indicator will be available afterward.**

- Eurostat instead proposes to use SBS data for weigthing SPPIs while INSEE prefer national accounts data, in line with their use of PPIs.

- In France, the weights used to aggregate the quarterly evolution of SPPIs are updated each year in June in order to calculate the final first quarter, from the sources of national accounts and the latest possible structural statistics, generally covering the year Y-2.

  For establishing SPPIs_BtoB, SPPIs_BtoC and SPPIS_BtoX weights at firm level, structural business statistics (SBS) survey is used. The following information is available in this survey:

  - the output of the firm split between the nationality of customers (national customers, foreign customers inside European Union (EU), foreign customer outside EU);
  - the output split between kinds of customers: households and companies (including civil service and local and regional authorities);
  - the output split between industries, at NACE 4-digits level.

  Within the industry level (CPA 4-digits), transactions prices are weighted by the corresponding turnover according to the distribution of the turnover collected by the INSEE engineer surveyor from the firms, dissociated by destination (SPPIs_BtoB / SPPIs_BtoC / SPPIs_BtoX in Euro area / SPPIs_BtoX with the rest of the world). Sometimes, just an estimation is availabe for defining this distribution of the turnover, especially for isolating Euro area data.

4.1.2 - NA would expect several kinds of SPPIs at basic prices

SPPIs_BtoB (or "corporate price indices") have been set in order to complete Consumer Price Indices, close to SPPISs_BtoC concept, but it is not exactly what National Accountants would expect:

In NA, for each flow of product and service, severall kinds of SPPIs are expected (as seen above) b**ut for many of them, the definition has to be clarified:**

- firstly, "total output price indices" (All_to_All) should be defined for every products or services. Considering that, at the commodity flow stage, the institutional sectors of producers are usually no longer distinguished. Hence, if SPPIs are restricted to "business" producers, they will anyway be used for "total economy" producers. Actually, "Pure" households (*i.e.,* which are not "enterprises") can be economic producers in some cases, especially for rental of dwellings (even out of the case of owners-occupiers).
- an Intermediate Consumption price index, including all kinds of producers <u>and</u> imports would be more realistic (see above), but how to determine the correct weights?

4.2 - International trade of services, the new frontier of SPPIs

The classification of products, even their identification and the step where the prices are measured, should be aligned with NA concepts. And one of the difficult problem is to take into account the country of residence (or of economic interest) of the customer.

4.2.1 - Which SPPIs for domestic and external markets?

- **Sales to non-resident <u>pure</u> households on the economic territory should remain in private final consumption (SPPIs_BtoC), but ...**
  Accommodation and "touristic" services present also some NA peculiarities. If an accommodation service is consumed (on the economic territory) by a non-resident household, it is recorded in private final consumption, and it is only globally, by a specific "territorial correction" commodity flow, that the private final consumption on the economic territory is adjusted to the private final consumption of the residents, with imports of "tourism services" (private final consumption of residents abroad) and exports of "tourism services" (private final consumption of non-residents on the economic territory). It means we did not need to compute SPPIs for exports of theses kinds of services.

- **… sales to non-resident enterprises should be classified in exports (SPPIs_BtoX);**
  But if the accommodation service is provided to a non-resident enterprise (a business traveler for instance), it should be recorded in exports, not in the Intermediate Consumption. Conversely, the intermediate consumption of resident enterprises in foreign hotels should be recorded in imports. SPPI should take into account this phenomenon, although Eurostat recommends to use CPI as a good proxy.

- Moreover, a final consumption price index and CPI suits this definition. But sometimes, it is not sufficient and it is necessary to go further in order to measure correctly the nature of flows

for which National accountants use CPI as deflators. For instance, NA uses CPI of Air passenger transport as Private consumption deflator. But, this index mixes different concepts as it includes prices from foreign companies which should be used for Production Price Indices of <u>imported</u> services.

4.2.2 - Imported Service Price indices would be appreciated

Although national accounts would appreciate a simultaneous development of export and import price indices for services, the compilation of the first category is relatively easy, while the second one is much more difficult:

- selection of Services producers, in order to get domestic SPPI, includes naturally the Services producers that export some of their output. The only point is to identify and record them apart (for the countries that would already include them in SPPIs_BtoB); As the SPPIs_BtoE contributes directly to the estimation of GDP in volume, and because of the perpetual movement of globalization, we should increase the importance of such indicators. Hence, they should receive more and more attention by international organizations and stakeholders;

- there are no **natural administrative database for calculating SPPIs of importers**, or not very detailed. The customs can provide detailed data (by goods) for what is called "services" in the Balance of Payments but which belongs in fact to manufacturing industries: manufacturing services on inputs owned by others (goods for processing) and maintenance and repairs. The Balance of Payments database is rarely much detailed by services...