

Sector paper

Mini-presentation on
ISIC 5812 and 5813
(SPPI)

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1. Descriptions and characteristics of the industry

1.1. Definition of the industry

1.1.1. DEFINITION OF SERVICE

Publishing is a process through an artistic, scientific, literary, informative or playful work is made public. It includes its transformation in a printed or digital format used for its dissemination.

So that a text arrives printed to the final reader, the joint action of three sectors is needed: the publishing industry, the printing industry and the commercial sector. These three sectors are closely related and many times the same company performs all these activities.

Nowadays, with the rise of information technology and the internet, digital publishing is increasing. A great development of on-line services exists, which considerably increases free services through the web (newspapers, magazines, games...). In those cases, the income received by publishers isn't mostly because of the access to the product (for example via subscriptions) but rather because of advertisement. This income already existed in printed versions, but it has appreciably increased in digital versions.

1.1.2. CLASSIFICATION ISSUES

In Spain, for statistical purposes, we use CNAE 2009 which is the Spanish version of NACE Rev. 2.

In division 58, both CNAE 2009 and NACE Rev. 2 are almost identical to ISIC classification except in class ISIC 5813 which is divided, in NACE and CNAE in two:

NACE 5813 – Publishing of newspapers

NACE 5814 – Publishing of journals and periodicals

The following explains what the CNAE 2009 includes for 5812, 5813 and 5814 classes:

CNAE 5812 comprises the publishing of lists of facts/information (databases), which are protected in their form, but not in their content. These lists can be published in printed or electronic form. For instance, it includes publishing of mailing lists, telephone books and other directories and compilations, such as case law, pharmaceutical compendia, etc.

CNAE 5813 comprises the publishing of newspapers, including advertising newspapers, appearing at least four times a week. Publishing can be done in printed or electronic form, including on the Internet.

CNAE 5814 comprises the publishing of periodicals and other journals, appearing less than four times a week. Publishing can be done in printed or electronic form, including on the Internet. Publishing of radio and television schedules is included here.

In relation to the classification of products, in Spain we use the Classification of products by Activity (CPA) 2.1 which is the European version of Central Product Classification (CPC) prepared and recommended by the UN. The CPA differs from the CPC in the structuring criteria. While the classification criterion in the CPC is the nature of the products, the CPA follows the production origin criterion; in other words, in the CPC products are grouped according to their physical properties and composition whereas in the CPA products are grouped according to the economic activity where they originate. Thus, the structure of CPA 2.1 adjusts to the European classification of economic activities NACE Rev.2.

According to CPA 2.1, the services of these activities are:

58.12 – Publishing services of directories and mailing lists

58.12.1 – Directories and mailing lists printed or on physical media

58.12.10 – Directories and mailing lists printed or on physical media

58.12.2 – On-line directories and mailing lists

58.12.20 – On-line directories and mailing lists

58.12.3 – Licensing services for the right to use directories and mailing lists

58.12.30 – Licensing services for the right to use directories and mailing lists

58.12.4 – Sale of advertising space in directories and mailing lists

58.12.40 – Sale of advertising space in directories and mailing lists

58.13 – Publishing services of newspapers

58.13.1 – Printed newspapers

58.13.10 – Printed newspapers

58.13.2 – On-line newspapers

58.13.20 – On-line newspapers

58.13.3 – Advertising space in newspapers

58.13.31 – Advertising space in newspapers, printed

58.13.32 – Advertising space in newspapers, electronic

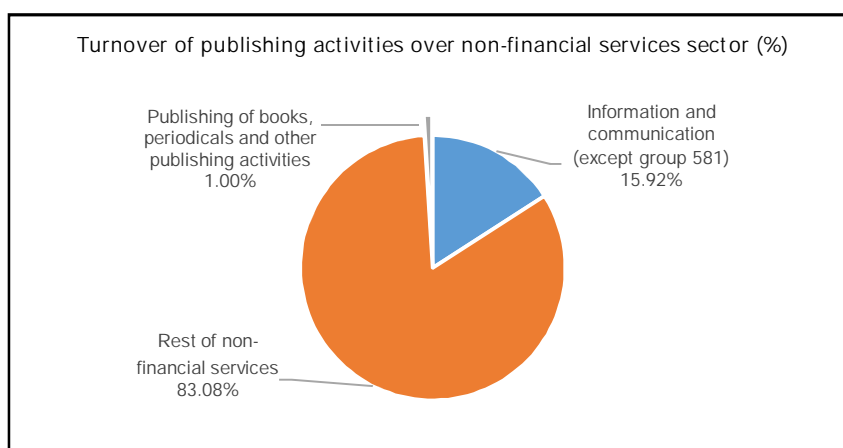
58.14 – Publishing services of journals and periodicals

- 58.14.1 – Printed journals and periodicals
 - 58.14.11 – Printed general interest journals and periodicals
 - 58.14.12 – Printed business, professional and academic journals and periodicals
 - 58.14.19 – Other printed journals and periodicals
- 58.14.2 – On-line journals and periodicals
 - 58.14.20 – On-line journals and periodicals
- 58.14.3 – Advertising space in journals and periodicals
 - 58.14.31 – Advertising space in journals and periodicals, printed
 - 58.14.32 – Advertising space in journals and periodicals, electronic
- 58.14.4 – Licensing services for journals and periodicals
 - 58.14.40 – Licensing services for journals and periodicals

1.2. Market conditions and constraints

For more knowledge of this market we have the information of the Structural Business Survey (SBS) in the services sector. This statistic provides information about structural and economic characteristics of services sector. To achieve this purpose information regarding several characteristics of companies is collected, such as main activity, legal nature, activity period, premises, variables on the employment structure and accounting data. The population framework for this survey is the Central Business Directory generated from administrative registries.

Services sector (excluding trade and financial services), according to SBS 2017, has a turnover of 503,942,693 thousand euros. The total turnover of section J, Information and communications represents 16.9% of the non-financial services sector (85,282,442 thousand euros) and within it, the publishing services are framed with a weight of 1.2% on the non-financial services sector (6,026,406 thousand euros).



| | Turnover (thousand €) |
|--|--------------------------|
| Non-financial services Sector | 503,942,693 |
| Information and communication | 85,282,442 |
| Publishing activities | 6,026,406 |
| Publishing of books, periodicals and other publishing activities | 5,060,233 |

According to the Structural Business Survey, the turnover of group 581 in 2017, the breakdown into ISIC classes is as follows:

| | Turnover (thousand €) | % |
|-------|-----------------------|--------|
| 58.11 | 2,139,255 | 42.28% |
| 58.12 | 105,020 | 2.07% |
| 58.13 | 2,521,500 | 49.83% |
| 58.19 | 294,457 | 5.82% |
| TOTAL | 5,060,233 | 100% |

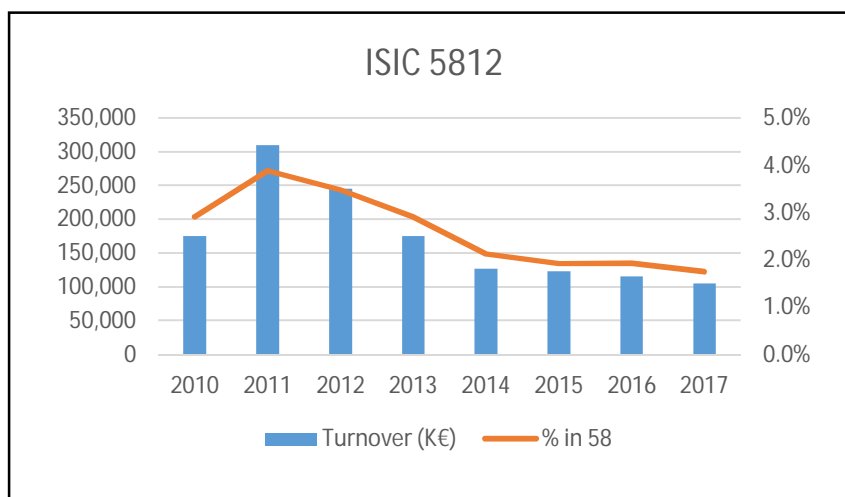
1.2.1. PUBLISHING OF DIRECTORIES AND MAILING LISTS

Specifically, companies whose main activity is 58.12 have the following characteristics:

| | Number of companies | Turnover (thousand €) | Number of employees |
|-------|---------------------|-----------------------|---------------------|
| 58.12 | 42 | 105.020 | 882 |

Source: SBS 2017

This is a very small sector, whose evolution shows that not only the turnover is decreasing, but also its relative importance within the publishing sector is going down, according to SBS data:

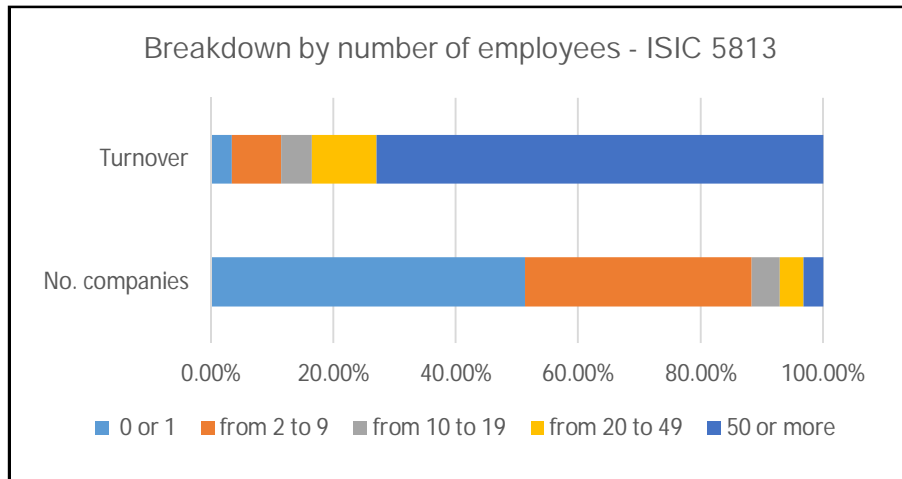


1.2.2. PUBLISHING OF NEWSPAPERS, JOURNALS AND PERIODICALS

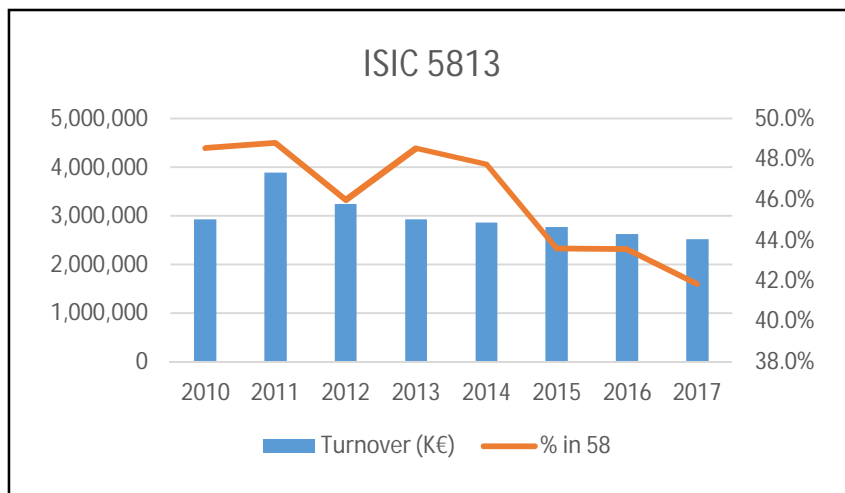
As in the Spanish classification this class is divided in two classes, we have data separately from these two activities:

| | Number of companies | Turnover (thousand €) | Number of employees |
|--|---------------------|-----------------------|---------------------|
| Publishing of newspapers | 829 | 1,605,406 | 13,031 |
| Publishing of journals and periodicals | 1,940 | 916,094 | 8,107 |

Both sectors are quite concentrated, since the biggest companies (3%) invoice more than 70% of total turnover:



In last years the evolution of the publishing of newspapers, journals and periodicals has been as follows:



1.2.3. TYPE OF CONSUMER OF THE SERVICES

According to National Accounts (Supply and Use Tables) in 2015 the 25.8% of the domestic production of publishing at basic prices was destined to Spanish households.

We don't have this information available for each of the classes in section 58, but it makes sense to suppose that publishing of directories is mainly B2B whereas in publishing of newspapers and journals there is a significant percentage of B2H.

1.2.4. HORIZONTAL / VERTICAL INTEGRATION

In publishing of newspapers, journals and periodicals there are large publishing groups which concentrate most of the turnover. In these business groups, companies often specialize in the type of newspaper/magazine, even establishing independent companies for the most important newspapers or periodicals in the group. Other times the division is made according to the type of dissemination (traditional paper or on-line dissemination).

1.3. Specific characteristics of the industry

One of the most important challenges in publishing industry is to be able to measure the impact that new technologies have. In recent years, the electronic format in publishing has dramatically increased, but currently in Spain we don't have a statistic of products to measure that growth.

We also have to take into account the income that this industry has for advertising activities. Although the main activity is considered as publishing (both directories, newspapers and journals), in many cases its main income comes from the advertising included in these products, reaching the case of free newspapers or directories, which are funded totally by ads included in them.

Again, in Spain we don't know the volume of advertising within the publishing sector since we don't have a survey of products for this sector.

In the SPPI, a question about the percentage that different products represent in the company's total turnover is included. These data are used to establish the weighting scheme of the companies in the survey. In this sector, one of the products included in this breakdown is the advertising, in that way, we can estimate, roughly, the weight of advertising in that industry (always taking into account that the sampling used in SPPI is a cut-off and the survey is not designed to give structural data of the sector).

Currently in Spain, SPPI for publishing only include the activities of publishing of newspapers (NACE 58.13) and publishing of journals and periodicals (NACE 58.14) so we only have advertising data for these sectors:

| | % advertising over total turnover |
|---|-----------------------------------|
| NACE 58.13 Publishing of newspapers | 44% |
| NACE 58.14 Publishing of journals and periodicals | 39% |

Source: SPPI 2018

2. Measurement of SPPI

2.1. General framework

The Spanish price index for publishing is under development and it's calculated based on CNAE 2009 (equivalent to NACE in this division).

The main use of SPPI for publishing activities will be as deflator, both for the compilation of services production index (volume index deflated by SPPI) and for national accounts.

Currently we are collecting prices for this activity, but we are still in the methodological development stage, evaluating different compilation alternatives.

The Spanish SPPI for publishing (division 58) is aggregated from the indices of the two groups, 581 and 582. Within group 581, we don't include the activities of directories and mailing lists publishing, so the following sections only refer to newspaper publishing and journal and periodical publishing (5813 and 5814 NACE Rev 2).

2.2. Measurement issues

2.2.1. PRODUCT STRUCTURE IN INDUSTRY

One of the great challenges in a SPPI development is the identification of the most representative products in the sector. For this, not only it's necessary to know what services are provided in the industry but also their weight within it. In the case of publishing of newspapers, journals and periodicals, the main problem is that in Spain there are no statistics on products for this industry so the weight of the products is not known.

The two main sources of income in this industry are the sale of newspapers and magazines and the advertising revenue.

The prices of the sale of newspapers, journals and periodicals are collected through a survey conducted specifically for companies in the sector, while prices for advertising can be obtained from the SPPI for advertising since in Spain this index includes prices of each of the different media, including newspapers and magazines.

2.2.2. TYPE OF SPPI. SAMPLING UNIT USED

All the Spanish SPPI are chained Laspeyres indices with a quarter periodicity, so the reference period of the prices is the last quarter of the year immediately preceding to the current year.

Always when the concentration of the sector allows it, the sample used to obtain the prices is based on a cut-off sampling, consisting of ordering the items to be sampled in a decreasing order according to their values (in this case, turnover) and selecting for the sample those that exceed a minimum threshold established. In the case of publishing of newspapers, journals and periodicals, the threshold is the 70% of the total turnover.

The methodology used in the compilation of Spanish SPPI is based on product. The sampling units (companies) are those which provide any of the products included in the index. In publishing, those companies whose main activity is the division 58 are included, but taking into account all the products within that division, not only the ones related to the main activity. For instance, if a company has as main activity the publishing of newspapers (NACE 58.13) but as a secondary activity it provides magazine publishing services (NACE 58.14) that company will belong to the sample of both activities (as long as it is above the sample thresholds in both of them).

In 2019, the sample in this activities is as follows:

| | Number of companies | Number of prices |
|---|---------------------|------------------|
| NACE 58.13 Publishing of newspapers | 63 | 107 |
| NACE 58.14 Publishing of journals and periodicals | 29 | 70 |

Prices of advertising in newspapers and magazines are obtained through a collaboration agreement with a company that carries out the exhaustive control of the advertising activity in Spain and which is a reference for the entire advertising sector.

The calculation method for SPPI is the same in all the activities and it's made in different phases:

1. Elementary indices

In the index calculation, the elementary aggregate is the component with the lowest level of aggregation for which indices are obtained, and in whose calculation no weights are involved. In Spain, this aggregate is made with geometric means (since they give the same importance to the variations of all prices, regardless of their level).

Within each product two strata are established: the first one is formed by the companies with the highest turnover of the sample, and the second one with the rest of the selected companies. The weight of each product is divided into these two strata according to the weight of each of them. In this case, the elementary aggregate is the stratum-product.

The index of the elementary aggregate i is obtained as the quotient of the average price of that elementary aggregate in the current period and the average price in the reference period of the prices, that is, the fourth quarter of the previous year:

$${}_{4Q(t-1)}I_i^{mt} = \frac{\bar{P}_i^{mt}}{\bar{P}_i^{4Q(t-1)}} \times 100$$

where:

| | |
|------------------------|--|
| ${}_{4Q(t-1)}I_i^{mt}$ | is the index, referring to the fourth quarter of the year $(t-1)$, of the elementary aggregate i in the quarter m of the year t . |
| \bar{P}_i^{mt} | is the average price of the elementary aggregate i in the quarter m of the year t . |
| $\bar{P}_i^{4Q(t-1)}$ | is the average price of the elementary aggregate i in the fourth quarter of the year $(t-1)$. |

2. Aggregate indices (unchained):

Aggregate indices are calculated as weighted arithmetic mean of the elementary indices. Thus, different functional aggregations can be obtained, as detailed below.

In order to calculate the index referred to the fourth quarter of the prior year of any aggregation A (products, classes, etc.), the following formulae is used:

$${}_{4Q(t-1)}I_A^{mt} = \frac{\sum_{p \in A} {}_{4Q(t-1)}I_{Ap}^{mt} * {}_{4Q(t-1)}W_{Ap}}{\sum_{p \in A} {}_{4Q(t-1)}W_{Ap}}$$

where:

${}_{4Q(t-1)}W_{Ap}$ is the weighting of the functional aggregation A in the stratum p , referring to the *fourth quarter of (t-1)*, which comes into effect in the first quarter of the year t .

${}_{4Q(t-1)}I_{Ap}^{mt}$ is the index, referenced to the fourth quarter of $(t-1)$, of the functional aggregation A in the stratum p , in the quarter m of the year t .

3. Chained aggregate indices

Once the aggregate indices are calculated as detailed above, it is necessary to chain them. These indices give continuity to the series published.

For any functional aggregation A , the index in base 2015 is calculated as follows:

$$\begin{aligned} {}_{15}I_A^{mt} &= {}_{15}I_A^{4T(t-1)} * \left(\frac{{}_{4Q(t-1)}I_A^{mt}}{100} \right) = \frac{{}_{15}I_A^{4Q(t-1)}}{100} * {}_{4Q(t-1)}I_A^{mt} \\ &= C_A^t * {}_{4Q(t-1)}I_A^{mt} \end{aligned}$$

That is, the published fourth quarter index is multiplied by the change of the unchained indices between last quarter of the previous year and the current index.

2.3. Pricing methods

2.3.1. PRICE METHOD

Although we are still carrying out test with the indices, our idea is to split each class in two products, one of the publishing itself and another of advertising within the corresponding medium (newspaper or periodical).

For publishing services, the company is who chooses several products from among the most representative (specific newspapers and magazines that generate the most turnover). The companies must specify the necessary characteristics so that the product is unequivocally identified for the price collection of successive quarters.

The main characteristics that determine the price in the publishing of newspapers and periodicals are:

- Type of newspaper or periodical (normally informants give the name of the newspaper or magazine).
- Periodicity.
- The edition format (paper, online).
- The type of distribution (price to a distributor, retail price (without VAT), subscription for both paper and online copies...)

The direct use of prices of repeated services is used. Once the service has been identified, the informant provides the average price of this service in the reference quarter.

To measure the price of advertising, we will use price of unit values. We have both, advertising turnover and advertising occupancy in number of pages by type of medium. So the price is calculated as turnover/occupancy.

The occupancy is measured by number of pages, for instance, an advertisement which occupies a quarter of the page is added to the total as 0.25 pages.

The type of newspapers included are:

- o Sports
- o Economic
- o National
- o Regional
- o Free

The type of magazines are:

- o Automobile
- o Decoration
- o Economy-finance-business
- o Fashion
- o General information
- o Men's magazines
- o Maternity
- o Motorcycle
- o Sports
- o Tabloid magazines
- o Travel and tourism
- o Rest

2.3.2. INDEX ESTIMATION PROCEDURE

The estimation procedure in these activities is the same as for the rest of the SPPI. As a general rule, the method for estimating missing prices consists of applying the average variation of the rest of the prices collected for the same product in the other companies of the sample, within the activity to which it belongs.

2.3.3. QUALITY ADJUSTMENT METHODS

The accuracy with which the SSPI estimates price changes depends on the stability over time of the conditions initially established. This implies that the product selected for the sample should not change its technical and commercial characteristics.

However, this requirement for uniformity is not always possible, especially in the services sector, because of the heterogeneous nature of services and the segmentation of the market. These problems are most important in certain sectors. In such cases, a quality adjustment is needed to estimate the price variation without taking into account the change in the characteristics of the service.

Specifically in publishing activities this problem can be solved by making an appropriate selection of products (services). As a general rule, when a price variation occurs as a result of a change in specifications in a service, it is assumed that the variation is not due solely to a price variation, and if no additional information is available to calculate what part of the variation is due to the price variation and what part to the quality change, the price variation is estimated with the average variation of the rest of the prices of that product.

When a particular publishing product (newspaper or magazine) has to be replaced by another, it is necessary to apply a quality change adjustment. When this happens, it is necessary to determine what part of the price difference between the new periodical chosen and the previous one is due to the differences between both.

Substitutions may be due to several reasons:

- the company does not provide the service corresponding to the product collected anymore;
- the service is no longer representative in the company;
- the company is no longer representative, closes or changes its economic activity.

The basket of services must remain fixed over time as it is composed of the most sold services, but some of them will have to be replaced when they lose representativeness.

When the product that disappears and the new one coexist in time, it is possible to establish a relationship between both, and the quality adjustment is almost automatic. However, there is not always an overlap period between the products, nor is there an identity between a service and the one that replaces it. It is therefore necessary to estimate which part of this price difference is due to changes in conditions in the service provided and what part is pure price variation.

The quality adjustment methods that are the most habitually used in the SSPI base 2015, are the following:

a) Total quality adjustment.

The difference between the price of the substituted product and the substitute product is due to the difference in quality between them. It is therefore considered that the difference in prices between the two products is due only to the different quality so that the index will not reflect price variations. With this adjustment it is assumed that if the substituted product had continued for sale, its price would not have changed.

b) Adjustment due to identical quality.

The quality of the substitute product is the same as the substituted product, i.e. the price difference between the two is due to a real price change. With this adjustment, it is assumed that the prices of both products would have been the same.

c) Other adjustments.

This section includes all those adjustments for which the value of the difference in quality between one service and its substitute is estimated. The most frequent practices are:

- Imputation prices.

It is imputed the variation of the average price of an aggregate to which the product belongs.

- Information provided by experts:

Experts or specialists on the product are asked which amount of the difference between the prices of the products (substitute and substituted) is due to the difference in quality between both.

- Overlap prices:

The value of the quality difference between the substituted and the substitute product is the price difference between them in the overlap period, i.e. in the period in which both products are for sale.

In most cases, the method used to make quality adjustments in the SSPI is the imputation prices.

2.4. Evaluation of comparability of price data with output data

In Spain, the sample of SPPI and the sample the Services Sector Activity Indicators (turnover indices) are obtained from the same sample universe.

The Structural Business Survey (SBS) is used as sampling frame as the turnover information is necessary to do the cut-off sampling.

Both, turnover indices and SBS are based on main activity, which means the entire turnover of the company is charged to its main activity, while the SPPI is carried out by product. In the current activities, publishing of newspapers and periodicals, there is not a big difference, since the secondary activities of these companies do not have a great weight in the total volume of the company (based on the data they declared in the SPPI survey). This difference, larger in other activities, will be with the entry of the new Regulation of the European Union (FRIBS) where the sample unit is changed to the KAU for both statistics. For structural statistics, the sample unit will be the enterprise, but in order to continue using its data as weights for the SPPI, in Spain a customized analysis will be carried out by KAU.

Another difference that exists between SPPI and turnover indices is the periodicity. The former is collected and published on a quarterly basis while the latter are monthly. This is another challenge for using SPPI as volume index deflator to calculate the production index of the services sector, which will also be monthly.

3. Evaluation of measurement

Currently, the Spanish SPPI for publishing activities is under development. So far we have not integrated the price data of publishing of newspapers and magazines with the prices of advertising in these media. As there was still no information on the weights, the test indices do not include information on advertising.

With the collection from the fourth quarter of 2018 and the first quarter of 2019 data, we have obtained information on the breakdown of the company's turnover in each of the products of this sector (with special emphasis on advertising).

When the SPPI of this activity is calculated with all the available information and the data is validated, it will be able to be used to deflate the volume indices and thus calculate the production indices of this sector, as well as deflators in the National Accounts.

It's not foreseen that the dissemination of these indices will be done before the next change of base. Currently, all SPPI publish in Spain are B2B indices, as required by the current European Regulation. However, in the next EU Regulation (FRIBS), SPPIs are expected to be B2All, which is why the indices of new activities are already being developed under this new approach. All the new activities required by FRIBS will be published for the next change of base including the indices of publishing, although they are more advanced than the rest.