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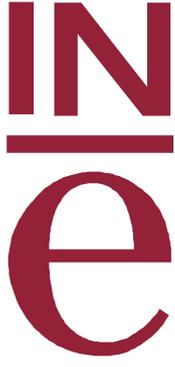
Harmonised Demographics of Enterprises

General Methodology

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INE National Statistics Institute

1 Introduction

The management of Company Directories is one of the strategic activities of Organisations with jurisdiction in Public Statistics, since they are key tools in the effective development and coordination of surveys, favouring the balanced distribution of the response workload. The availability of an operational Directory is essential, as it takes part both in the design and sample selection, and in the creation, of elevation factors.

Within the scope of the European Union, domestic processes for managing Economic directories have undergone gradual adaptation over time. Currently, the National Statistics Institutes of the Member States must fulfil the commitments of Regulation (EC) no. 177/2008 of the European Parliament and Council, of 20 February 2008, which establishes a common framework for Company Directories used for statistical purposes. The aforementioned legal instrument is part of the set of requirements on infrastructure, together with the Classifications and Statistical Units, which all countries must comply with prior to significantly harmonising on a supra-national level.

The Central Business Register of the INE (CBR) covers the central objective required as an infrastructure tool, that is, to serve as a central sampling framework for the majority of surveys targeting companies and collected in the National Statistical Plan. Aside from basic usefulness, in recent years the CBR has been playing a relevant role in other areas of interest, such as corporate demography, implying the development of new practices and initiatives with strong innovative components. These applications strengthen the role of the CBR as a statistical-data-generating element, taking into account not only static aspects, but also those linked to business dynamism.

The findings of the Lisbon European Council in 2000 formed the cornerstone of statistical development of Corporate Demographics. The policies geared towards creating companies are based on the establishment of conditions that favour innovation, competitiveness, the use of new technologies and the creation of employment. In this sense, the business fabric is considered a crucial element for achieving the objectives proposed in the Lisbon strategy, identified as a key factor for driving economic growth.

In the last decade, the Statistical Office of the European Union (Eurostat) promoted an action programme known as the Business Demography Project. In the year 2000, a Working Group was created with the purpose of generating a methodology and common processes to be applied by all participating countries. Phase one of the project consisted of performing a Viability Study restricting certain branches of economic activity. In so doing, the capability of Member States to generate relevant information in this field was quantified, and the level of adaptation of this information to harmonised methodological requirements was identified. As of the year 2002, the project has been carried out progressively on a wide range of economic activities, identifying populations of interest, as well as associated classification variables. Currently, the statistical data on Company Demographics has been included in Regulation (EC) No. 295/2008 of the European Parliament and Council, of 11 March 2008, regarding

the structural statistics of companies, which obliges Member States to contribute information on company demographics at yearly intervals.

Lastly, this means that Harmonised Demographics of Enterprises are shown in the Inventory of State Administration Statistical Operations (IOE), with code 30204, and that it is included in the 2015 Annual Statistical Programme, with number 6282.

2 Objectives

The general objective of the Harmonised Demographics of Enterprises is to provide aggregated information regarding the population of companies located in the country, considering the aspects linked to business dynamism, and applying a methodology agreed on within the scope of the European Union.

This methodology provides the guidelines that enable identifying populations and generating indicators regarding the stock, births, deaths and survival of companies, through a harmonised statistical operation of the Company Directories managed in Statistics Offices.

In addition, the information obtained on a national level has the purpose of meeting the legal requirements of (EC) Regulation No. 295/2008 and becoming a part of the set of structural indicators of the European Union, essential for the annual assessment of the situation and evolution of the European economy.

The indicators on Harmonised Demographics of Enterprises must therefore fulfil several objectives, comprising a statistical base to be used as a useful instrument for assessing the effectiveness of economic policies, profiling policies to be carried out in the future, enabling the work of researchers, or even identifying the best time for companies themselves to invest in new resources or undertake organisational changes.

3 Source of data and time frame reference

The processes developed for generating demographic indicators take as their starting point the data contained in the INE Central Companies Directory. The CBR is an organised information system with data for identifying, locating and classifying companies operating within Spain, and which is updated at yearly intervals. The scope of the maintenance processes affects the population total and enables the detection of the most significant changes relating both to the existence, and to the main features, of the registered units. This is all possible thanks to the reception of a very broad set of sources for which the Management Unit of the CBR has access in identified microdata format.

The prior categorisation of the set of units entering, remaining in and leaving the system constitutes the basic initial subpopulations. In addition, it is necessary to consider the activity status of the units in historical versions of the CCD, in order to delimit survivals following a number of years.

The time frame reference considered for the demographic information corresponds to the calendar year, a requirement that is compatible with the update period of the CCD. Specifically, the data appearing in this publication has the year 2013 as the time frame reference, though in order to be able to properly study the phenomenon of company survivals, following Eurostat methodology, previous years are turned to.

4 Reference statistical unit

The demographic indicators are obtained for the enterprise unit, which according to Council Regulation 696/93 on statistical units, is defined as the smallest combination of legal units constituting an organisational unit for producing goods or services, and which enjoys a certain degree of autonomy in decision-making, especially for the allocation of its resources.

In practice, it is possible to obtain data from legal units, given that the end result of all the processes to be carried out is sufficiently close to the established concepts of actual births and real deaths of companies.

In order to improve international comparability, the harmonised methodology establishes taking into account companies carrying out any economic activity, with the exception of agrarian, livestock and fishing activities, those of the public administration, households that employ domestic personnel and extraterritorial organisations. Similarly, holding companies, or non-market-oriented units, will not be taken into account.

5 Demographic categories and general processing

Delimiting populations of interest is carried out by means of an ordered set of procedures varying in nature, designed in accordance with the harmonised methodology principles. Basically, the work is geared towards identifying the following aggregates:

- *Enterprise stock*.- Set of units that have remained active during all or part of the year. The companies that are entered are those that remain active at the end of the period, as are those companies that have completely ceased their activities during said period.

- *Births of enterprises*.- Set of units that over the course of the year have created a combination of new production factors. There is no connection with other, previously existing companies.

- *Deaths of enterprises*.- Set of units that over the course of the year have dissolved all their production factors. There is no connection with other companies that may begin operating.

- *Survival of* enterprise*s*.- Restricted to each birth cohort, this corresponds to the set of units that continue to be active in each of the following five years.

As a consequence, the harmonised demographic analysis is not limited to a mere quantification of flows obtained in the Directory updating processes. The delimiting and tabulating of the set of legal units entering, remaining in and leaving each year is normally obtained from movements detected in the administrative sources supplying information. In Spain, this type of data is disseminated periodically on the INE website, under the title Movements of the CCD and constitutes an informative base connected to the operation Statistical use of the CCD. Although the analysis of movements from administrative sources provides an initial preview of unit renewal processes, the statistical work to be carried out for obtaining harmonised demographic indicators demands an additional effort, contributing added value to the administrative information. Indeed, the purpose is to obtain data most pertinently reflecting the economic reality and its evolution over time. In accordance with this principle, the correct delimitation of demographic categories requires the incorporation of at least the following procedures:

- Detection and removal of listings/delistings of units due to redistribution of production

  Demographic events that affect companies may be due to existential changes in the production factors or to changes in the distribution factors of existing production.

  Existential changes are due to birth or dissolution processes of production factors, and are linked to the births or deaths of companies. They are featured because a single company is involved after the event and none before it (birth) or viceversa (death).

  However, changes in distribution require the presence of at least one company, both before and after the event. In this typology, there are company

integration phenomena, for example, under merger or absorption modalities, which generate a concentration of production means and a resulting reduction in terms of units. Conversely, the events of total or partial split generate a dispersion of production factors and an increase in the number of existing companies. The units involved in this type of phenomenon should not be entered as birth or death events.

- Statistical continuity criteria

  These criteria have been set to mark differences between administrative and statistical events. In practice, a large proportion of demographic events may be detected from the unit flows present in the administrative sources.

  However, not all administrative changes are sufficient for conditioning the identity or continuity of the company as a statistical unit, and therefore, should not be treated as demographic-type movements. In this sense, the harmonised methodology has established a simple set of continuity rules.

  The agreed criteria for deciding on the continuity of a company are: legal support, main economic activity and main location. When at least two of these elements change, then there is considered to have been a loss in continuity. As a result, the birth or death of a company should be entered.

- Special monitoring of large companies

  The relative weight of this population in the corporate fabric justifies the development of special control operations in order to suitably classify movements associated with these units. The data processing techniques must be supplemented with validation operations aimed at capturing pertinent information regarding the causes associated with the phenomena of birth and death. Other alternative procedures, such as querying specialised databases or access to websites, are highly recommended.

The methodology underlying the Harmonised Demographics of Enterprises has been conceived in order to obtain demographic indicators on a national level, given that the objective is to have access to a comparable statistical base for European Union countries. Therefore, the previous processes are applied for the set of units resident in the national territory. Development of a similar methodology, albeit centred on lower territorial scopes such as Autonomous Community, would generate demographic indicators that would not be consistent with the national aggregate. For example, a company that changes activity within an Autonomous Community (even if the main activity at a national level does not change), or moves from one Autonomous Community to another, may give rise to different demographic events if observed from different geographical contexts. Nonetheless, this publication has proceeded to break down, by Autonomous Community, the national data of the stock of companies, the birth and death of companies, for the purpose of providing a territorial approximation of the most relevant phenomena of corporate demography.

6 Specific procedures

The company stock is determined once the annual CBR maintenance processes have finished, considering the set of active companies at the end of the year, plus companies that have ceased activity during the course of the year.

As for births, the objective is to produce data regarding the birth of enterprises, from scratch, and which have truly begun to mobilise new production factors. Therefore, excluded from the CBR are those listings of legal units due to mergers, splits, internal restructuring of a group of companies or simple changes of activity. In addition, the following cases are excluded:

– New units that simply take the activities from a previously created company.

– New units created for the sole purpose of providing a single production factor (such as estates or personnel) or of developing an auxiliary activity for a previously existing company.

– Legal changes to an existing company.

– Reactivated companies, when resuming their activity within the 2 years subsequent to the previous ceasing of activities.

– Temporary unions of companies that do not imply the birth of new production factors.

The following offers a general perspective on the set of processes.

Identification of companies created (Year t)

Population	Criteria used	Aggregates
Companies in the CCD (t)	Movilise production factors in t	N_t
Companies in the CCd (t-1)	Movilise production factors in t-1	N_{t-1}
Listings in the CCD (t)	Contrast by the Identifier between both reference periods, with elimination of reactivations	X_t
Populations obtained by crossing or other procedures	Crossing by Localisation + Activity (X_t and N_t)	X_1
	Crossing by Localisation + Name (X_t and N_t)	X_2
	Crossing by Activity + Name (X_t and N_t)	X_3
	Sole Changes of the Legal Exploiting Unit	X_4
	Identification of the auxiliary Legal Units and Temporary Units of Companies	X_5
	Access to external information (Mercantile Registers, Chambers of Comerse, Private databases, Internet, etc.)	X_6
	Capture of information via validation operation (Control of large companies)	X_z
Real creation of companies in t		$X_t - U (X_1, ..., X$

Regarding the death of companies, the process is similar to identifying the birth of companies. As a consequence, CBR delistings due to mergers, absorptions, splits or internal restructuring at the heart of company groups should not be entered. The application of statistical continuity criteria likewise entails that simple changes of activity or legal changes should also be excluded. With regard to temporary ceasing of activity, companies resuming their activities within the two years subsequent to the earlier ceasing will not be entered either. Therefore, it is necessary to have the CBR updates available, corresponding to the years t+1 and t+2, in order to remove the reactivated units.

With regard to the phenomenon of survivals, a company active in year t-1 is considered to have survived in year t:

- If the unit serving as main legal support for the company remains active during year t (survival without changes).

- If said legal unit has been delisted in the CBR, but its activities are regarded as a new legal unit created to manage the previously existing production factors (survival)The survival phenomenon must always be observed between two consecutive years. Thus, a company which came into being (was created) in year t-2 must be considered to have survived in year t, but only if it was also active in year t-1.

Companies that have recently come into being do not usually start moving large amounts of resources in the year in which they are created. In order to assess their actual impact on the economy, it is necessary to carry out monitoring for a longer period of time. Specifically, the harmonised methodology establishes that each birth cohort be studied for a period of five years. In practice, survivals at the end of the different years are identified from populations generated from the birth of companies, and from monitoring the populations in subsequent versions of the CCD.

7 Classification variables

For each demographic category identified, listed below are the classification variables used and the modalities adopted in this publication, which are consistent with those established in the harmonised methodology.

Following the recommendations of the *ESS guidelines on Seasonal Adjustment*, it is considered essential for the transparency of the entire seasonal adjustment process and the correct analysis of the series, to disseminate the following sets of data and metadata:

7.1 Legal condition

The legal condition of the company is obtained from the first character of the tax identification number (N.I.F.) corresponding to the unit used as legal support. The following modalities have been considered:

- Individuals
- Public Limited Companies and Private Limited Companies
- Other types

7.2 Employee stratum

The following categories have been considered:

- 0 employees
- 1 to 4 employees
- 5 to 9 employees
- 10 employees or more

7.3 Main economic activity code

The level of detail corresponding to Divisions (2 digits) was set, in accordance with the National Classification of Economic Activities, CNAE-2009.

As with the previous time frame reference, in order to ensure comparability at a European level, the submission of the harmonised indicators to Eurostat refers to the NACE Rev. 2 Classification, which, with the exception of small changes at a four-digit level, is similar to National Classification CNAE-2009.

7.4 Autonomous Community

The national data on the stock, birth and death of companies has been broken down by Autonomous Community, according to the region where the company headquarters are located.

8 Demographic indicators

The indicators proposed in the methodology quantify the relative significance of the phenomena of birth or death of companies as part of the business fabric of Spain. The survival phenomenon is similar, but taking as a reference the population of companies created detected in the initial observation period. Shown below:

Birth rate

$$TR_i^t = \frac{R_i^t}{N_i^t} \times 100$$

$R_i^t = Births\ of\ enterprises\ in\ activity\ i\ in\ year\ t$

$N_i^t = Enterprise\ stock\ in\ activity\ i\ in\ year\ t$

Survival rate

$$TS_i^{t+k} = \frac{S_i^{t+k}}{R_i^t} \times 100$$

$S_i^{t+k} = Survival\ in\ activity\ i\ at\ the\ end\ of\ t+k,\ k = 1,2,...$

$R_i^t = Births\ of\ enterprises\ in\ activity\ i\ in\ year\ t$

Death rate

$$TD_i^t = \frac{D_i^t}{N_i^t} \times 100$$

$D_i^t = Deaths\ of\ enterprises\ in\ activity\ i\ in\ year\ t$

$N_i^t = Enterprise\ stock\ in\ activity\ i\ in\ year\ t$

9 Data series

The presentation of the results on the Harmonised Demographics of Enterprise has been structured in a set of tabulations, divided into four series, corresponding to each target demographic category of study: Company stock, Birth of enterprises, Survival of enterprises and Death of enterprises, with 2013 being the main reference year. In additional, included in the Annex is set of graphs obtained from the demographic indicators described. These enable users to view the significance of the different events considered, even with a broad time perspective.

Described below is the list of tables generated, according to the classification variables used and the content of the annex.

Series 1: Enterprise Stock

Stock of enterprises, by employee stratum and main activity

- National total
- Autonomous City and Community

Stock of enterprises, by legal status and main activity

- National total
- Autonomous City and Community

Series 2: Birth of Enterprise

Births of enterprises, by employee stratum and main activity

- National total
- Autonomous City and Community

Births of enterprises, by legal status and main activity

- National total
- Autonomous City and Community

Series 3: Survival of Enterprise

Survival of enterprises, by year and main activity

This series is obtained for the birth cohorts from 2008, 2009, 2010, 2011 and 2012.

As a result of the re-encoding work of the CBR, the cohorts of companies created in 2008, 2009, 2010, 2011 and 2012 already had their main activity encoded in CNAE-2009.

Series 4: Death of Enterprise

Provisional deaths of enterprises, by employee stratum and main activity

- o **National total**
- o **Autonomous City and Community**

Provisional deaths of enterprises, by legal status and main activity

- o **National total**
- o **Autonomous City and Community**

It should be borne in mind that the data on the death of companies referring to 2013 is provisional, since it has not yet been possible to identify the companies reactivated in 2015, and which should be subject to removal, in accordance with the harmonised methodology. The data appearing in the tables is estimated by taking the deaths detected in 2013 and that have not been reactivated in 2014. A small percentage of units is randomly excluded from that population base, in accordance with the experience of previous years regarding reactivations in the second year.

Reference to the graph annex

The series of graphs included in the annex with this publication has the purpose of showing, from a time perspective from 2005 to 2013, the main magnitudes obtained for Spain in the area of the harmonised demographics of companies.

In order to properly interpret the results, it should be borne in mind, as previously indicated and in accordance with European Union regulations, the updating of the CCD as of the year 2008 has used National Classification of Activities CNAE 2009 as an encoding tool. Its implementation entails the application of specific rules that involve changes in company classification criteria.

The most significant changes between the CNAE-93 and CNAE-2009 classifications may be found on the INE website http://www.ine.es/en/daco/daco42/clasificaciones/cnae09/cnae2009_en.pdf. Moreover, users may view the correspondence between the two classifications, using the GESCLA application available at the following INE link: http://www.ine.es/gescla/pages/inicio.jsf.

As a result, the adaptation of the CBR to the new Classification does have repercussions on the structural distribution of the business fabric by economic sector, which implies that the aggregates broken down by this variable since 2008 are not comparable with those from previous years.

The following lists the graphs obtained:

Series 1.- Company stock

    Graph 1.1: Distribution by economic sector

    Graph 1.2: Distribution by employee stratum

    Graph 1.3: Distribution by legal form

Series 2.- Births of enterprises

    Graph 2.1: Rates by economic sector

    Graph 2.2: Rates by employee stratum

    Graph 2.3: Rates by legal form

Series 3.- Survival of enterprises

    Graph 3.1: Survival rates in cohorts, from 2005 to 2012

    Graph 3.2: Survival rates in cohorts from 2008 by economic sector

Series 4.- Deaths of enterprises

    Graph 4.1: Rates by economic sector

    Graph 4.2: Rates by employee stratum

    Graph 4.3: Rates by legal form

Series 5.- Net rates

   Graph 5.1: Net rates (births – deaths) on total units

Series 6.- Autonomous Communities

   Graph 6.1: Birth and death rates in 2013, by Autonomous City and Community