Harmonised Demographics of Companies

Methodological note
Annual

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1 Introduction

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 balanced distribution of the response workload. Availability of an operational Directory is essential, participating both in design and in sample selection and in creating elevation factors.

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

The Central Companies Directory of the INE (CCD) covers the central objective required as an infrastructure tool, that is, to serve as a central sampling framework for the majority of surveys aimed at companies and collected in the National Statistical Plan. Aside from basic usefulness, in recent years the CCD has been playing relevant role in other domains of interest, such as corporate demography, implying development of new practices and initiatives with strong Innovation components. The applications strengthen the role of the CCD as a statistical data generating element, taking into account not only statistical 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. Policies geared towards creating companies are based on the establishing of conditions that favour innovation, competitiveness, the use of new technologies and creation of employment. In this sense, business fabric is considered a crucial element for achieving the objectives dealt with in the Lisbon strategy, identified as a key factor for driving economic growth.

During the past decade, the Statistical Office of the European Communities (EUROSTAT) promoted an action programme entitled Business Demography Project. In the year 2000 a Working Group began 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, statistical data on Company Demographics has been included in Regulation (CE) No. 295/2008 of the European Parliament and Council of 11 March 2008 relating to companies' structural statistics, which obliges Member States to contribute information on company demographics at yearly intervals.

Lastly, it means that Harmonised Demographics of Companies are shown in the Inventory of State Administration Statistical Operations (IOE) with code 30204, and that it will be collected in the 2011 Annual Statistical Programme with number 5915.
2 Objectives

The general objective of the harmonised demographics of companies 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, creations, demises and survivals 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 objective 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.

Indicators on Harmonised Demographics of Companies must therefore fulfil several objectives, forming 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

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

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

The time frame reference considered for demographic information corresponds to the calendar year, a requirement that is compatible with the action period of the CCD. Specifically, the time frame reference data appearing in this publication is the year 2008, although in order to be able to properly study the phenomenon of company survivals, following EUROSTAT methodology, previous years are turned to.
4 Statistical unit reference person

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

In order to improve international comparability, the harmonised methodology establishes the taking in account of companies carrying out any economic activity with the exception of agrarian, livestock and fishing activities, those of 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 treatments

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

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

- **creation of companies.**- 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.

- **Demise of companies.**- 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 companies.**- Restricted to each creation 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. Delimiting and tabulating the set of legal units entering, remaining in and leaving each year are normally obtained from movements detected in 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, 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 existing production factors.

  Existential changes are processes of creation or dissolution and are linked to creations and demises of companies. They are featured because a single company is involved after the event and none before it (creation) or vice versa (demise).

  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 modalities of merger or absorption, which generate a concentration of production means and a consequent 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 phenomena should not be entered as creations or demises.

- **Statistical continuity criteria**

  These criteria have been set to mark differences between administrative events and statistical ones. In practice, a large proportion of demographic events may be detected from unit flows present in 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 consequence, a company’s creation or demise 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. Data processing techniques must be supplemented with checking operations aimed at capturing pertinent information on the causes associated with the phenomena of creation and demise. Other alternative procedures such as querying specialised databases or access to websites are highly recommended.

The methodology underlying the Harmonised Demographics of Companies 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 national territory. Development of a similar methodology albeit centred on lower territorial scopes such as Autonomous Community, would generate demographic indicators that were not 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.
6 Specific procedures

*Company stock* is determined once the CCD annual 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.

With relation to *creations*, the objective is to produce data regarding the creation of companies from scratch which have truly begun to mobilise new production factors. Therefore, excluded from the CCD are 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 production factor (such as estate or personal goods) or developing an ancillary activity to an 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 Joint Ventures that do not entail creating new production factors.

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

<table>
<thead>
<tr>
<th>Población</th>
<th>Criterios utilizados</th>
<th>Agregados</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empresas en DIRCE (t)</td>
<td>Movilizan factores de producción en t</td>
<td>$N_t$</td>
</tr>
<tr>
<td>Empresas en DIRCE (t-1)</td>
<td>Movilizan factores de producción en t-1</td>
<td>$N_{t-1}$</td>
</tr>
<tr>
<td>Altas en DIRCE (t)</td>
<td>Contraste por el Identificador entre ambos periodos de referencia con eliminación de reactivaciones</td>
<td>$X_t$</td>
</tr>
<tr>
<td>Poblaciones obtenidas por cruce u otros procedimientos</td>
<td>Cruce por Localización + Actividad ($X_t$ y $N_t$)</td>
<td>$X_t$</td>
</tr>
<tr>
<td></td>
<td>Cruce por Localización + Nombre ($X_t$ y $N_t$)</td>
<td>$X_t$</td>
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<td></td>
<td>Cruce por Actividad + Nombre ($X_t$ y $N_t$)</td>
<td>$X_t$</td>
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<tr>
<td>Cambios Exclusivos de Unidad Legal Explotadora</td>
<td></td>
<td>$X_4$</td>
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<tr>
<td>Identificación de Unidades legales auxiliares y Uniones Temporales de Empresas</td>
<td></td>
<td>$X_5$</td>
</tr>
<tr>
<td>Accesos a información externa (Registros Mercantiles, Cámaras de Comercio, Bases de datos privadas, Internet,...)</td>
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<td>$X_6$</td>
</tr>
<tr>
<td>Captura de información mediante operación de verificación (Control de grandes empresas)</td>
<td></td>
<td>$X_z$</td>
</tr>
<tr>
<td>Nacimientos reales en $t$</td>
<td>$X_t = U(X_1, ..., X_z)$</td>
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</tbody>
</table>
In relation to *demises* of companies, the process is similar to identifying creations. As a consequence, CCD delistings due to mergers, absorptions, splits or internal restructuring at the heart of company groups should not be entered. Applying 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 CCD updates 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 desisted in the CCD, but its activities are regarded as a new legal unit created to manage the previously existing production factors (survival with changes).

The survival phenomenon must always be observed between two consecutive years. Thus, a company which came into being in year t-2 should be considered to have survived in year t, 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 set up. In order to assess their actual impact on the economy it is necessary to carry out monitoring for a longer period. Specifically, the harmonised methodology establishes that each creation 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 creations and 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.

#### 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 a legal support. The following limitations 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
- from 1 to 4 employees
- from 5 to 9 employees
- 10 employees and over

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. The work plan devised in order to implement this Classification in the National Statistical System, entails the recoding of the joint population of the CCD in the update corresponding to 2008.

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

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

Creation rate

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

\[R_i^t = Nacimientos de la actividad \ i en el año \ t\]

\[N_i^t = Stock de la actividad \ i en el año \ t\]

Survival rates

\[
TS_{i+k}^t = \frac{S_{i+k}^t}{R_i^t} \times 100
\]

\[S_{i+k}^t = Supervivencias de la actividad \ i a finales del t+k, \ k = 1,2,...\]

\[R_i^t = Nacimientos de la actividad \ i en el año \ t\]

Rate of demise

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

\[D_i^t = Muertes de la actividad \ i en el año \ t\]

\[N_i^t = Stock de la actividad \ i en el año \ t\]

9 Data series

The presenting of results on Harmonised Demographics of Companies has been structured in a set of tables, split into four series corresponding to each demographic category studied: Company stock, Creations, Survivals and Demises of companies, 2008 the main reference year. Additionally, included in the Annex is a set of graphs obtained from the demographic indicators described. These enable users to view the significance of the different events considered, including with a broad time perspective, when integrating information obtained in the initial years of development.

Described below is the list of tables generated in accordance with the classification variables used and the content of the annex.

SERIES 1: COMPANY STOCK

Table 1.1 Company stock by employee stratum and main activity

Table 1.2 Company stock by legal status and main activity
SERIES 2: CREATION OF COMPANIES
Table 2.1 Creations of companies by employee stratum and main activity
Table 2.2 Company stock by legal status and main activity

SERIES 3: SURVIVAL OF COMPANIES
Table 3.1 Survival of companies by year and main activity
This series is obtained for creation cohorts for 2004, 2005, 2006 and 2007. As a result of the CCD recoding, the cohort of companies created in 2007 already had its main activity encoded in CNAE-2009. As regards the preceding cohorts, encoding procedures have been developed, combining automatic allocation with probabilistic imputation methods.

SERIES 4: DEMISE OF COMPANIES
Table 4.1 Demises of companies by employee stratum and main activity
Table 4.2 Company stock by legal status and main activity
It should be borne in mind that data on demises of companies referring to 2008 are provisional, since it has still not been possible to identify companies reactivated in 2010 and which should be subject to removal in accordance with the harmonised methodology. Data appearing in the tables is estimated by taking demises detected in 2008 that have not been reactivated in 2009. A small percentage of units is randomly excluded from that population base, in accordance with experience of previous years regarding reactivations in the second year.

REFERENCE TO THE GRAPHICAL ANNEX
The purpose of the series of graphs included at the end of this publication is to ascertain, from a time perspective comprising years 2001 to 2008, the main magnitudes obtained for Spain in the scope of harmonised demographics of companies.

In order to properly interpret the results, it should be borne in mind, as previously indicated and in accordance with the European Union regulations, that updating of CCD relating to 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 two classifications may be found on the INE website http://www.ine.es/daco/daco42/clasificaciones/cnae09/cnae2009.pdf. Moreover, correspondences between the two classifications may be consulted using the GESCLA application, available at the INE URL http://www.ine.es/gescla/pages/inicio.jsf.

As a consequence, adapting the CCD to the new Classification has ramifications in the structural distribution of the business fabric by economic sector, which implies that the aggregates broken down by this variable for 2008 are not comparable with previous years.
Listed below are 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 (For form units.

Series 2.- Creation of companies
  Graph 2.1: Results by activity sector
  Graph 2.2: Distribution by employee stratum
  Graph 2.3: Distribution (For form units.

Series 3.- Survival of companies
  Graph 3.1: Survival rates in cohorts 2001 to 2007
  Graph 3.2: Survival rates of the cohort for 2003 by economic sector
  Graph 3.3: Survival rates of the cohort for 2003 by employee stratum

Series 4.- Demise of companies
  Graph 4.1: Rates by economic sector
  Graph 4.2: Rates by employee stratum
  Graph 4.3: Rates by legal forms

Series 5.- Net rates
  Graph 5.1: Net rates (creations – demises) on total units