

Title of Paper: *Business demography in Poland and Spain. Is a cross-country comparison possible?*

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Abstract: The paper identifies the difficulties involved in creating indexes which can describe the complex nature of companies, and presents the internationally recommended methods for obtaining data relating to the basic demographic processes such as the birth, death and survival of companies. The research, whose aim was to assess the availability and comparability of data for Spain and Poland, revealed numerous problems connected with analysing the data. At the current stage of development in business demography statistics only a limited comparison of data for Spain and Poland can be conducted. The fragmentary data obtained from a variety of sources which are different in scope together with the short time period covered by the analysis do not allow an in-depth comparative interpretation.

1. Introduction

The processes which influence the size and structure of the population of companies have at the beginning of the 21st century become the focus of interest among researchers and policy-makers worldwide [Ahmad, 2006; Vale, 2006, Schrör, 2007, 2008, 2009; De Morais Sarmiento & Nunes, 2010]. To address a growing demand for information which can be the basis for economic analyses and political decisions, a branch of research called business demography is rapidly developing. Until recently the statistics produced within this branch were intended primarily for domestic use, and their international applicability was not considered to be important. The data for various countries were not comparable due to different definitions and different methodological approaches being adopted, which could lead to an erroneous interpretation of the results of any comparisons. In the last few years, however, efforts have been made on the part of the OECD and European Union institutions to create a methodological framework which would harmonise the methods for obtaining information about the demographic processes affecting companies in the member countries.

The aim of this paper is to investigate the methodology and the available statistics on business demography in Europe, and to evaluate the possibility of a cross-country comparison between Spain and Poland. The first part of the paper identifies the difficulties involved in creating indexes which can describe the complex nature of companies, and presents the internationally recommended methods for obtaining data relating to the basic demographic processes such as the birth, death and survival of companies. The second part of the paper examines the data which form part of the European *Structural Indicators* and the OECD's *Entrepreneurship Indicators Project*. Also, statistics provided by the Spanish and Polish statistical offices are explored in order to evaluate the availability and the comparability of the data on business demography between these two countries.

2. Comparability of business demography statistics – methodological issues

Business demography indicators should help academics and policy-makers to answer questions such as, for example, the following: *How large is the active population of enterprises?; How many new enterprises are created and how many of them survive up to five years after birth?; as well as What are the death rates of enterprises?* For this purpose, various indicators are devised to measure the existing stock of active enterprises and their dynamics. In general, business demography refers mainly to the following issues [Dominiak, 2005, p. 184]:

- The size of the population
- The structure of the population according to the size of business enterprises
- The structure of the population according to the type of business activity
- The dynamics of the population
- The average size of a company
- The rate of birth
- The rate of death
- The rate of survival

In practice, the interpretation of the business demography indicators, especially in cross-country comparisons, seems to be very complicated. It has been demonstrated in many OECD working papers that a straightforward analysis of raw data from different sources can lead to misleading interpretations [Ahmad, 2006, Vale, 2006]. Data is collected by different institutions for specific purposes, which is why different approaches are usually adopted. Some differences regarding the recommendations for defining the indicators were identified even between the OECD and Eurostat. However, those two institutions agreed to collaborate in order to develop a joint methodological framework for the harmonised measurement of entrepreneurial activity [Ahmad & Hoffman, 2008]. Before the common recommendations of Eurostat and the OECD in the field of business demography are presented, some problems in defining the behaviour of companies and the demography indicators should be highlighted.

The problem of the comparability of data is largely due to the complex nature of business enterprises and their behaviour. In economic sciences defining a business enterprise poses a great deal of difficulty, and numerous theories have appeared which try to explain its essence [Ahmad & Seymour, 2008; Noga, 2009]. Similarly, it is also a difficult task to create a methodological framework for this subject area for the purposes of statistical analysis as specific rules for obtaining data must be established. When attempting to interpret statistical data in the field of business demography, researchers ought to consider the following issues [Ahmad, 2006; Vale, 2006]:

- The definition of a business
- The differences between business entries and births and between business exits and deaths
- The basis for calculating rates (a percentage of businesses or human population)
- Point-in-time vs life-over-period approach.

The definition of a business is the first important step in all investigations concerning business demography, but all the above elements play a role in establishing a methodological framework [Ahmad, 2006, p. 6]. There are also a variety of other factors (political, economic, social and cultural), which are not included in the methodology of business demography statistics, but which can explain some differences in the data across countries, for example the impact of tax or subsidy policies or the political system [Ahmad, 2006, p.15]. The table below presents the summary of the factors which influence the comparability of business demography statistics.

Table 1: Typology of factors affecting the comparability of business demography statistics

| | | |
|----|--------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Units | Statistical unit used to measure businesses |
| 2. | Source | Register, a census or a survey, reliability of the source |
| 3. | Coverage | Types of businesses included or excluded based on specific attributes (e.g. economic activity or legal form) |
| 4. | Thresholds | Explicit or implicit size thresholds applying to the source |
| 5. | Purity | Distinction of real births (and deaths) of businesses from other demographic events (such as mergers, take-overs, reactivations etc) |
| 6. | Timing | Point at which entries, exits, births and deaths are identified |
| 7. | Periodicity | Period over which births and deaths are measured and the measurement of very short-lived businesses |
| 8. | Type of Population | Businesses or people used in constructing the denominator for the rates |
| 9. | Temporal basis | Measurement of the population at a specific point in time or during a given period |

Source: Ahmad, N. (2006), "A Proposed Framework For Business Demography Statistics", OECD Statistics Working Papers, 2006/03, OECD Publishing, p.15

The nine factors listed above have a great influence on the construction and the comparability of business start-up rates, which are based on two components, *the numerator* (new businesses), and *the denominator* (a population) [Vale, 2006, pp. 5-6]. The next table shows a grouping of those factors according to their importance for the components of the business start-up rate.

Table 2: Factors affecting the components of the business start-up rate

| Numerator factors | Denominator factors | Factors affecting both |
|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Purity • Timing • Periodicity | <ul style="list-style-type: none"> • Type of Population • Temporal Basis | <ul style="list-style-type: none"> • Source • Units • Coverage • Thresholds |

Source: Vale, S. (2006), "The International comparability of Business Start-up Rates Final Report", OECD Statistics Working Papers, 2006/04, OECD Publishing, p.5-6

In cross-country studies, it is recommended to decompose business start-up rates into numerator and denominator components and to look for the factors which influence both of them. In some cases, analytical adjustments can be made in order to reduce the impact of those factors on international comparability, but the interpretation of the data still requires a lot of caution [Vale, 2006, p.9].

An example of the differences in relation to the concept of business birth, which can affect the structure of start-up rates, is presented in Table 3. The preferences of the OECD and Eurostat differ; however, these two organisations are working together on the standardisation of data collection methods. Some indicators and rules described in the common Manual on Business Demography Statistics published in 2007 are presented in section 2.1 of the paper.

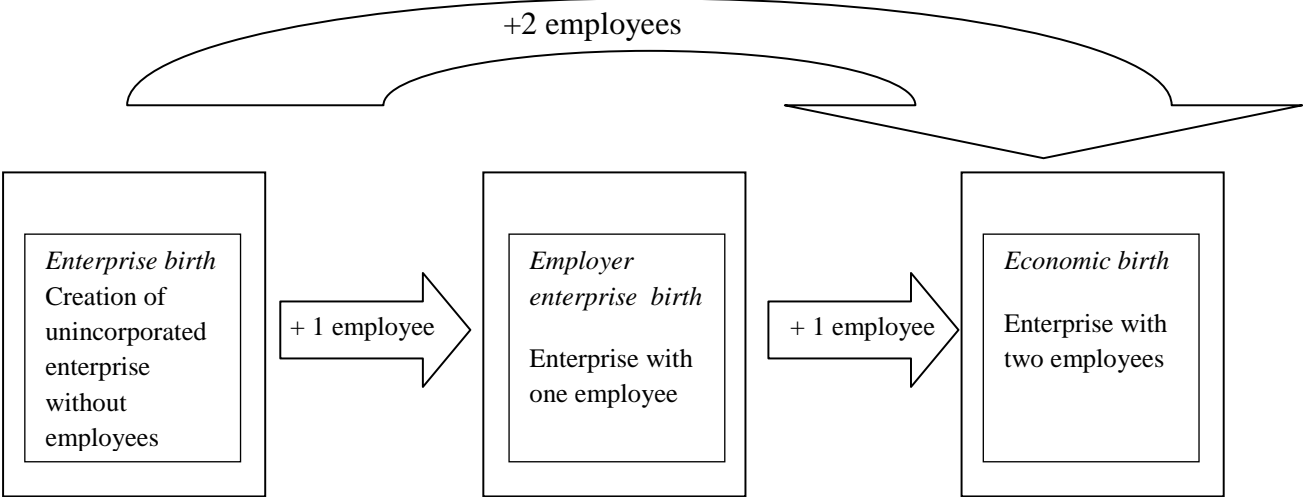
Table 3: The concept of business birth – OECD and Eurostat preferences

| OECD | Eurostat |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • new combinations of production factors (e.g. location, organisational structures, legal form) • a merger of two enterprises does not result in the birth of an enterprise • <i>employees and turnover are both greater than zero for the first time</i> • <i>enterprises with no employees that become enterprises with employees are also births</i> | <ul style="list-style-type: none"> • new combinations of production factors (e.g. location, organisational structures, legal form) • a merger of two enterprises does not result in the birth of an enterprise • <i>enterprise is created</i> • <i>includes unincorporated enterprises without employees</i> |

Source: Own compilation based on Ahmad, N. (2006), “A Proposed Framework For Business Demography Statistics”, OECD Statistics Working Papers, 2006/03, OECD Publishing

Both organisations agree that a business birth occurs when a *new combination* of production factors is created. Other demographic events, such as a merger or take-over, are not counted as births. The main difference refers to the threshold based on the number of employees. According to the OECD’s approach, a birth occurs when the number of employees and the turnover are both greater than zero for the first time, which means that enterprises with no employees are excluded, whereas Eurostat’s definition of birth includes unincorporated enterprises without employees. Those two definitions should be complemented with the concept of *economic birth*, which occurs when “*employees are greater than one and turnover greater than zero for the first time*” [Ahmad, 2006]. These different concepts of business birth demonstrate that it depends on the objectives of the institution which collects the data whether the creation of an enterprise qualifies in the statistics as a birth or not. Figure 1 shows how the same enterprise could be recognized in the statistics as a birth at a different point in time, according to the number of employees.

Figure 1. “Three births” of an enterprise based on the employment criterion



Source: Own compilation based on Ahmad, N. (2006), “A Proposed Framework For Business Demography Statistics”, OECD Statistics Working Papers, 2006/03, OECD Publishing

2.1. Manual on Business Demography Statistics – a common methodological framework

The Eurostat-OECD Manual on Business Demography is an element of the OECD Entrepreneurship Indicators Project supported by a grant from the Ewing Marion Kauffman Foundation. At the EU level this document has an advisory character, but the production of business demography statistics has a legal basis¹. The data collected by Eurostat covers all enterprises including self-employment. For better comparability with other OECD countries, the manual also recommends other indications, such as employer enterprises or high growth enterprises [Eurostat-OECD Manual on Business Demography Statistics, 2007, p.3].

The main issues and recommendations included in the *manual* are listed below:

- *The statistical business register* should be the main *source* of data
- *The statistical unit* for business demography data collections should be *the enterprise* (versus other types of statistical units, such as: establishments (or local kind of activity unit) and enterprise groups) defined as²:

“the smallest combination of legal units that is an organisational unit producing goods or services, which benefits from a certain degree of autonomy in decision-making, especially for the allocation of its current resources. An enterprise carries out one or more activities at one or more locations. An enterprise may be a sole legal unit.”

- *The economic activities* covered in demography statistics are as follows: production, construction, distributive trades and services (agriculture, public administration, non-market activities of households and extra-territorial agencies are excluded)
- *The legal forms* included in demography indicators are market oriented forms, e.g. limited liability companies, sole proprietors, partnerships, and public corporations (units in the central and local government sectors are excluded)
- The main reason for the differences in business demography statistics across countries is *the existence of different thresholds* (e.g. turnover or employment levels) adopted in the registers
- *The duplication of units* is a potential problem, especially in countries where the system of enterprise registration is not properly developed yet
- *Demographic events*³ are divided into existential changes such as births and deaths (when a new combination of production factors appears or disappears), and changes in the distribution of production factors. Table 4 shows the typology and the effects of changes caused by the main demographic events.

¹Council Regulation (EC, EURATOM) No 58/97 of 20 December 1996 concerning structural business statistics

²Council Regulation (EEC) No 696/93 of 15 March 1993 on the statistical units for the observation and analysis of the production system in the Community

³Described in the EU Business Registers Recommendation Manual

Table 4: Main demographic events and their consequences

| Event | Real observable world | | Business register | |
|------------------------------------------|------------------------------|-----------------------------|-------------------|-----------|
| | Enterprises before the event | Enterprises after the event | Creations | Deletions |
| Enterprise birth | - | 1 | 1 | - |
| Enterprise death | 1 | - | - | 1 |
| Change of ownership | 1 | 1 | - | - |
| Merger | n | 1 | 1 | n |
| Take-over | n | 1 | - | n-1 |
| Break-up | 1 | n | n | 1 |
| Split-off | 1 | n | n-1 | - |
| Creation of a joint venture | n | n+1 | 1 | - |
| Cessation of a joint venture | n | n-1 | - | 1 |
| Restructuring within an enterprise | 1 | 1 | - | - |
| Restructuring within an enterprise group | n | n | 0 or more | 0 or more |
| Change of group | 1 | 1 | - | - |
| Complex restructuring | n | n | 0 or more | 0 or more |

Note: n=2 or more

Source: Eurostat-OECD Manual on Business Demography (2007), p. 25

- *The continuity of the enterprise* is verified on the basis of the continuity rules, which include *the continuity of control, economic activity and location*
- Different types of definitions for *enterprise birth and death* are distinguished:
 - *Enterprise births and deaths* – births and deaths of all enterprises (employer enterprises and enterprises without employees)
 - *Employer enterprise births or deaths* – births and deaths of enterprises with at least one employee
 - *Economic enterprise births and deaths* – births and deaths of enterprises with at least two employees
- *Events* which should be *excluded from the statistics of enterprise death* are a closure of an enterprise due to a merger, disappearance of production factors, take-over, change of legal form and the reactivation of an enterprise within a period of 2 calendar years
- *An enterprise* created in year xx or before is considered to *have survived* to year xx+1 if it is active at any point of the year xx+1 (from 1.01 to 31.12) in terms of turnover and/or employment
- The recommendation for the *high-growth enterprise* definition is as follows:

“All enterprises with average annualised growth greater than 20% per annum, over a three year period, should be considered as high-growth enterprises. Growth can be measured by the number of employees or by turnover”

3. The availability of Spanish and Polish business demography statistics

In this part of the paper the availability and comparability of the data concerning Spanish and Polish business demographics will be studied. Both countries are members of the Organisation for Economic Co-operation and Development and the European Union. However, the experiences of these two countries in implementing community policies and recommendations differ significantly. In order to answer the question about the possibility of a comparison between Spanish and Polish data, the statistics available at the international level will be presented, and as a second step, the national systems of statistical data collection on business demography will be analysed.

As it has been demonstrated in the methodological part of the paper, all cross-country comparisons should be made with caution, and special attention must be paid to the sources and definitions which were adopted in the methodology of data collection. Business demography is a relatively new domain which is still developing and it will be some time before statistics can be obtained on the basis of harmonised rules.

In the case of Poland there are no directly and fully comparable data on business demography available at the international level yet. However, it is possible to find some historical statistics, which were developed within different projects, but which reflected the approach adopted in the European Union. Section 3.1 of this paper shows the findings of those projects during the period from 1997 to 2000. In section 3.2 more detailed and long term data provided by Eurostat and the OECD for Spain are presented. Finally, in section 3.3 statistics available from Spanish and Polish central statistical offices are explored.

3.1. Early data collection within the European approach

Indicators relating to the births, survivals and deaths of enterprises form a part of the structural indicators established at the European Council meeting of March 2000 in Lisbon. The publication entitled “Business demography in Europe. Results for 10 Member States and Norway” published in 2003 and 2004 presents the results of the first and second standardised data collection for the years 1997-2000⁴ (1997-2001)⁵. This project of the European Commission and Eurostat includes information on business demography in Spain. For Poland, which joined the European Union on the 1st of May 2004, some data for a similar period are available because the country participated in various projects concerning the demography of SMEs in candidate countries. The results of the work were consolidated in the DOSME⁶ Extension project, whose objective was to “improve the quality of the DOSME database and to produce business demography for the ten central European countries”⁷.

Taking into consideration some quality limitations, estimates for DOSME countries can be compared with the data published by Eurostat due to the conversion of the DOSME data to fit the EU methodology. Some problems in DOSME projects which could affect the quality of the data and prevent a more extensive analysis were as follows⁸:

⁴*Business demography in Europe. Results for 10 Member States and Norway* (2003)

⁵*Business demography in Europe. Results for 10 Member States and Norway* (2004)

⁶Acronym *DOSME* (Demography of Small and Medium-sized Enterprises in central European countries)

⁷Eurostat (2004) “DOSME Extension Final Report” no 2002 24200 014. UK Office for National Statistics with input from Infostat & GUS Poland, 14 January, p.2

⁸*Ibid.* p. 9

- the lack of stratification by size in DOSME samples; the data reflect mainly small enterprises with less than 50 employees
- a different concept of 'enterprises active during the year'; in the DOSME project the population of *active in year* is calculated on the basis of the stock of enterprises at the end of the previous year and the births during the year
- typically, the cessations of enterprises were not recorded in the business registers in DOSME countries

Table 5 below shows the number of active enterprises (NACE C-K sections) for selected “old” UE and DOSME countries.

Table 5: Population of active enterprises in 1998, 1999 and 2000

| | 1998 | 1999 | 2000 |
|--------------------|-----------|-----------|-----------|
| <i>Spain</i> | 2 519 299 | 2 546 000 | 2 603 475 |
| Finland | 235 617 | 234 375 | 234 342 |
| Italy | 3 596 450 | 3 677 890 | 3 760 098 |
| Portugal | 711 485 | 723 778 | 734 552 |
| The United Kingdom | 1 678 575 | 1 715 710 | 1 732 605 |
| <i>Poland*</i> | 2 146 373 | 2 142 172 | 2 074 168 |
| Bulgaria | 504 237 | 497 646 | 476 783 |
| Czech Republic | 1 060 919 | 1 099 160 | 1 089 661 |
| Hungary | 550 524 | 557 354 | 572 354 |
| Romania | 628 231 | 625 165 | 610 036 |

Source: Own compilation based on *Business demography in Europe. Results for 10 Member States and Norway* (2003) and “DOSME Extension Final Report” (2004)

*Estimates for Poland, Bulgaria, Czech Republic, Hungary and Romania from the final longitudinal DOSME database (using trend corrected cessation dates); enterprises exclude non-profit bodies but include public enterprises

A general overview of the data presented above suggests a relatively similar and high number of active enterprises in Spain and Poland in comparison to other countries in the period analysed. It should be mentioned that the total human population during those years also tended to be similar in both countries⁹.

The next three tables (6-8) present the compilation of data on enterprise birth and death rates available for Spain from the Eurostat database and for Poland from the DOSME database. The Polish data within the DOSME projects cover the years 1994-2000, and the statistics for Spain provided by Eurostat are available from 1997 to 2008. For comparison purposes in this section only data for the “common” period 1997-2000 will be presented.

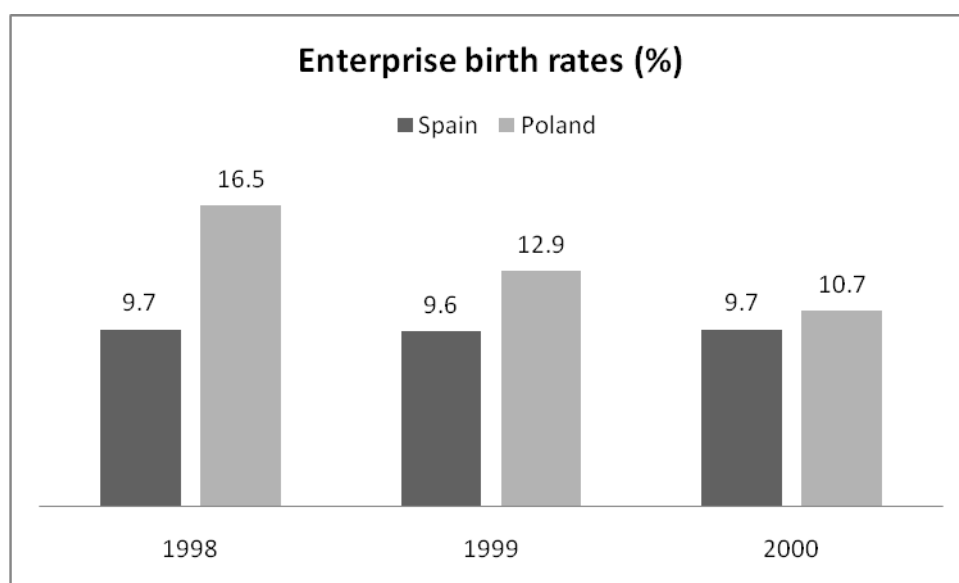
⁹At 1 January of 2000 (Eurostat) Spain had 40 049 708 and Poland 38 653 559 of inhabitants

Table 6: Enterprise births and birth rates in Spain and Poland in 1997, 1998, 1999 and 2000

| | Spain | Poland |
|-----------------------------|-----------|-----------|
| Enterprise population 1997 | 2 463 402 | 2 061 366 |
| Newly-born enterprises 1997 | . | 346 890 |
| <i>Birth rate 1997(%)</i> | . | 16.8 |
| Enterprise population 1998 | 2 519 299 | 2 146 373 |
| Newly-born enterprises 1998 | 245 173 | 354 406 |
| <i>Birth rate 1998(%)</i> | 9.7 | 16.5 |
| Enterprise population 1999 | 2 546 000 | 2 142 172 |
| Newly-born enterprises 1999 | 243 983 | 276 662 |
| <i>Birth rate 1999(%)</i> | 9.6 | 12.9 |
| Enterprise population 2000 | 2 603 475 | 2 074 168 |
| Newly-born enterprises 2000 | 251 328 | 222 224 |
| <i>Birth rate 2000(%)</i> | 9.7 | 10.7 |

Source: Own compilation based on *Business demography in Europe. Results for 10 Member States and Norway* (2003) and “DOSME Extension Final Report” (2004)

Figure 2: Enterprise birth rates in Spain and Poland in 1998, 1999 and 2000



Source: Own compilation based on *Business demography in Europe. Results for 10 Member States and Norway* (2003) and “DOSME Extension Final Report” (2004)

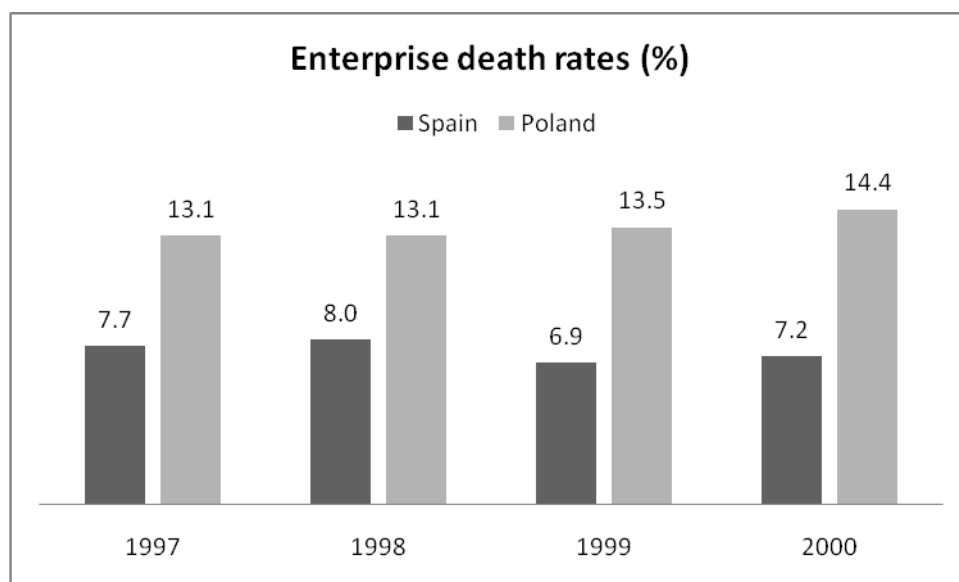
The short period for which the data presented in this section are available does not allow the making of any generalizations or an extensive comparison of the indicators of Spanish and Polish business demography. As far as the rates of enterprise births are concerned, the statistics reveal a more dynamic process in the Polish economy in the years 1998, 1999 and 2000. The rates of births in Poland are higher, but they have become lower in subsequent years; whereas the Spanish rates are stable, at a level of approximately 9.7%.

Table 7: Enterprise deaths and death rates in Spain and Poland in 1997, 1998, 1999 and 2000

| | Spain | Poland |
|----------------------------|-----------|-----------|
| Enterprise population 1997 | 2 463 402 | 2 061 366 |
| Death of enterprises 1997 | 189 545 | 269 400 |
| Death rate 1997(%) | 7.7 | 13.1 |
| Enterprise population 1998 | 2 519 299 | 2 146 373 |
| Death of enterprises 1998 | 202 426 | 280 862 |
| Death rate 1998(%) | 8.0 | 13.1 |
| Enterprise population 1999 | 2 546 000 | 2 142 172 |
| Death of enterprises 1999 | 176 555 | 290 228 |
| Death rate 1999(%) | 6.9 | 13.5 |
| Enterprise population 2000 | 2 603 475 | 2 074 168 |
| Death of enterprises 2000 | 188 257 | 298 146 |
| Death rate 2000(%) | 7.2 | 14.4 |

Source: Own compilation based on *Business demography in Europe. Results for 10 Member States and Norway* (2003) and “DOSME Extension Final Report” (2004)

Figure 3: Enterprise death rates in Spain and Poland in 1997, 1998, 1999 and 2000



Source: Own compilation based on *Business demography in Europe. Results for 10 Member States and Norway* (2003) and “DOSME Extension Final Report” (2004)

The rates of enterprise deaths for the years 1997, 1998, 1999 and 2000 also confirm a dynamic transformation in the population of active Polish enterprises. The rates for Polish enterprises were higher and continued to rise in subsequent years. For the year 2000 the value of this indicator was twice as high as the same indicator in the Spanish economy (14.4 % in comparison to 7.2%). The next table presents the results of adding the business birth and death rates for Spain and Poland in 1998, 1999 and 2000.

Table 8: Business churn (birth rate + death rate) in Spain and Poland in 1998, 1999 and 2000

| Business churn | Spain | Poland |
|----------------|-------|--------|
| 1998 | 17.7 | 29.6 |
| 1999 | 16.5 | 26.4 |
| 2000 | 16.9 | 25.1 |

Source: Own compilation based on *Business demography in Europe. Results for 10 Member States and Norway* (2003) and “DOSME Extension Final Report” (2004)

The higher birth and death rates for Poland and the generally more dynamic processes affecting the population of active enterprises in this country are probably connected with its different phase of economic development and some economic changes introduced at that time¹⁰.

The data on survival rates available in various DOSME surveys show that around 60% of the enterprises which were created in Poland in 1998 survived until September 2001. The three-year survival rate of enterprises born in 1998 in Spain seemed to be quite similar (61.6%)¹¹.

3.2. Eurostat and OECD business demography indicators

The objective of this section is to present more detailed and recent long term data on business demography provided by two sources: the Eurostat and the OECD databases (*the European Structural Indicators and Entrepreneurship Indicators Project*). There is no possibility of a direct comparison of data for Spain and Poland because of the lack of statistics available for the second country. To illustrate the differences between the Eurostat and the OECD approaches, only data for Spain will be presented in this section of the paper.

Table 8 shows a wide range of business demography indicators for the Spanish economy between 1998 and 2008 according to the European methodology described in the Eurostat-OECD Manual on Business Demography Statistics. Data for 2008 reflect the new Statistical Classification of Economic Activities in the European Community (NACE Rev.2).

The rates of enterprise births in the private sector of the Spanish economy are higher than the rates of enterprise deaths in all consecutive years since 1998, except for 2008 which is difficult to evaluate because of the lack of data on enterprise deaths. The rate of enterprise births in 2008 is significantly lower (7.47%) in comparison to *the average rate* of births in previous years (9.71% for the years from 1998 to 2007), which reflects the deterioration of the economic situation in this country during the world crisis.

Figures 4 to 6 present the different rates of survival of Spanish enterprises. Survival rate 1, reflecting the rate of enterprises born one year before the reference year (t), is over 80% for all years except 2008, when the indicator is at a level of 78.70%. All 3-year survival rates in the period analysed are higher than 60%. Up until 2004 this indicator was on the increase, but since 2005 it has started to decrease. Finally, the data show that only slightly more than 50% of Spanish enterprises have survived for up to five years after their birth.

¹⁰“DOSME Extension Final Report” (2004). Op. cit.

¹¹*New enterprises and development of enterprises in Central European Countries* (2002). Luxembourg: Office for Official Publications of the European Communities and Eurostat database

Table 9: Business demography indicators for Spain (I)

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008* |
|---------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|-----------|-----------|
| Active population | 2 519 299 | 2 546 000 | 2 603 475 | 2 655 699 | 2 724 645 | 2 824 112 | 2 929 796 | 3 047 021 | 3 158597 | 3 280 514 | 3 286 851 |
| Births | 245 173 | 243 983 | 251 328 | 241 270 | 253 507 | 276 188 | 284 049 | 317 857 | 327 457 | 313 254 | 245 423 |
| Deaths | 202 426 | 176 555 | 188 257 | 182 392 | 173 661 | 174 483 | 179 097 | 211 575 | 197 004 | 244 670 | . |
| Churn (%) | 17.77 | 16.52 | 16.88 | 15.95 | 15.68 | 15.96 | 15.81 | 17.38 | 16.60 | 17.01 | . |
| Birth rate (%) | 9.73 | 9.58 | 9.65 | 9.08 | 9.30 | 9.78 | 9.70 | 10.43 | 10.37 | 9.55 | 7.47 |
| Death rate (%) | 8.04 | 6.93 | 7.23 | 6.87 | 6.37 | 6.18 | 6.11 | 6.94 | 6.24 | 7.46 | . |
| Born t-1 survived t | . | 203118 | 196761 | 206200 | 201126 | 217982 | 229116 | 240250 | 272015 | 270475 | 246 408 |
| Born t-2 survived t | . | . | 169945 | 170956 | 178847 | 178051 | 191765 | 198652 | 213659 | 233399 | 218 973 |
| Born t-3 survived t | . | . | . | 151106 | 151764 | 160592 | 159266 | 165297 | 178078 | 187111 | 194 773 |
| Born t-4 survived t | . | . | . | . | 136392 | 138233 | 145833 | 140121 | 149987 | 159171 | 159 623 |
| Born t-5 survived t | . | . | . | . | . | 125696 | 127004 | 129890 | 128071 | 135205 | . |
| Survival rate 1** | . | 82.85 | 80.65 | 82.04 | 83.36 | 85.99 | 82.96 | 84.58 | 85.58 | . | 78.70 |
| Survival rate 2 (%) | . | . | 69.32 | 70.07 | 71.16 | 73.80 | 75.64 | 71.93 | 75.22 | . | 66.97 |
| Survival rate 3 (%) | . | . | . | 61.63 | 62.20 | 63.90 | 66.01 | 65.20 | 64.48 | . | 61.39 |
| Survival rate 4 (%) | . | . | . | . | 55.63 | 56.66 | 58.02 | 58.08 | 59.16 | . | 56.54 |
| Survival rate 5 (%) | . | . | . | . | . | 51.27 | 52.05 | 51.68 | 53.08 | . | . |

Source: own compilation based on Eurostat database

*New classification NACE Rev.2 - business economy except activities of holding companies

**Survival rate 1: number of enterprises in the reference period (t) newly born in t-1 having survived to t divided by the number of enterprise births in t-1

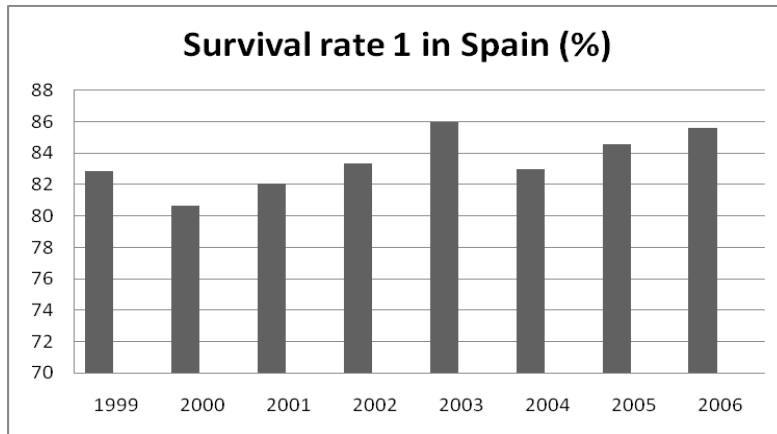
Survival rate 2: number of enterprises in the reference period (t) newly born in t-2 having survived to t divided by the number of enterprise births in t-2

Survival rate 3: number of enterprises in the reference period (t) newly born in t-3 having survived to t divided by the number of enterprise births in t-3

Survival rate 4: number of enterprises in the reference period (t) newly born in t-4 having survived to t divided by the number of enterprise births in t-4

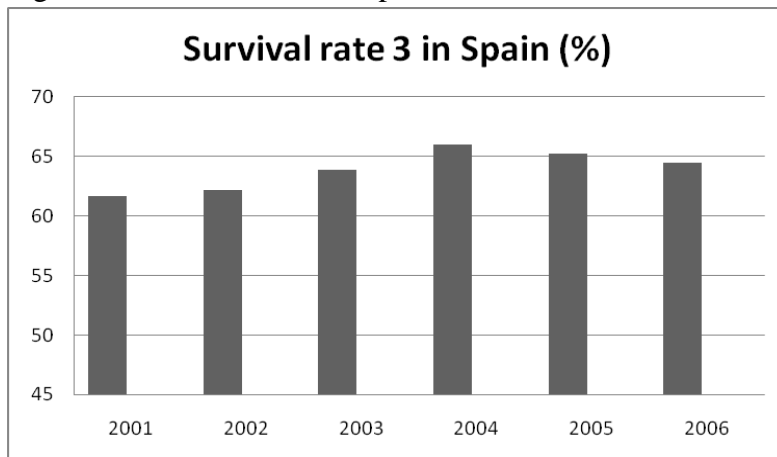
Survival rate 5: number of enterprises in the reference period (t) newly born in t-5 having survived to t divided by the number of enterprise births in t-5

Figure 4: Survival rate 1 in Spain



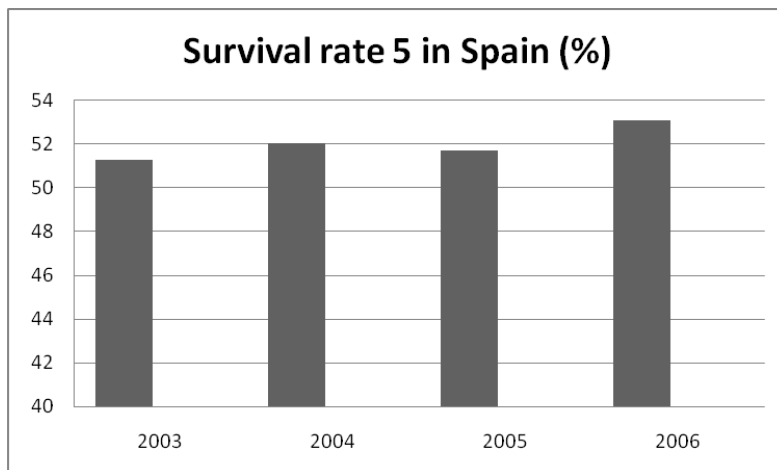
Source: own compilation based on Eurostat database

Figure 5: Survival rate 3 in Spain



Source: own compilation based on Eurostat database

Figure 6: Survival rate 5 in Spain



Source: own compilation based on Eurostat database

The OECD launched the Entrepreneurship Indicators Programme (EIP) in 2006 with the aim of developing relevant and internationally comparable business demography indicators. The data collected in the EIP do not cover all enterprises, but only enterprises with at least one employee. According to the OECD approach, employer enterprises are more relevant for the economy and have a greater impact on innovation and job creation¹². The data presented in the following tables form a part of the OECD Structural and Demographic Business Statistics (SDBS) Database. Table 10 presents a compilation of data on business demography of employer enterprises in Spain in 2005, 2006 and 2007.

Table 10: Business demography indicators for Spanish employer enterprises in 2005, 2006 and 2007

| <i>Employer enterprise birth rate</i> | 2005 | 2006 | 2007 |
|-------------------------------------------|------|------|------|
| Total industry and market services | 12.3 | 11.8 | 11.1 |
| Total industry except construction | 6.2 | 5.8 | 5.8 |
| Construction | 15.4 | 14.9 | 13.6 |
| Total services | 12.6 | 12.0 | 11.3 |
| <i>Employer enterprise death rate</i> | 2005 | 2006 | 2007 |
| Total industry and market services | 8.1 | 8.6 | |
| Total industry except construction | 6.4 | 6.5 | |
| Construction | 9.2 | 10.0 | |
| Total services | 8.1 | 8.6 | |
| <i>Employer enterprise survival rates</i> | 2005 | 2006 | 2007 |
| <i>Total industry and market services</i> | | | |
| 1-year survival rate | 81.3 | 83.2 | 81.0 |
| 2-year survival rate | | 70.7 | 69.3 |
| 3-year survival rate | | | 59.2 |
| <i>Total industry except construction</i> | | | |
| 1-year survival rate | 85.6 | 86.5 | 86.1 |
| 2-year survival rate | | 76.5 | 75.8 |
| 3-year survival rate | | | 66.6 |
| <i>Construction</i> | | | |
| 1-year survival rate | 80.1 | 82.4 | 78.3 |
| 2-year survival rate | | 67.8 | 66.4 |
| 3-year survival rate | | | 54.8 |
| <i>Total services</i> | | | |
| 1-year survival rate | 81.2 | 83.2 | 81.5 |
| 2-year survival rate | | 70.9 | 69.6 |
| 3-year survival rate | | | 59.8 |

Source: SDBS Business Demography Indicators, OECD

The rates of births and deaths for employer enterprises tend to be higher than the rates of births and deaths calculated for all enterprises, including non-employers provided by Eurostat. The highest rates of births and deaths in the period analysed were registered in the construction sector, followed by services. Only in the industry sector were the dynamics of enterprise death greater than the dynamics of enterprise birth (an average of 6.5% vs 5.9%). 1-

¹²OECD Statistic Brief (2010) "Measuring Entrepreneurship." November - No. 15

year survival rates for employer enterprises were lower than the same rates for all enterprises including non-employers. Only in the case of the industry sector did this indicator show slightly higher rates of survival (85.6% for employer enterprises created in 2004 and 86.5% for all enterprises created in 2005).

3.3. National systems of business demography data collection

The Spanish Central Statistical Office (INE) provides information related to companies located in the territory of Spain¹³:

- the statistics on companies and their local units provided by the Central Companies Directory (CCD). Data available from 1999 contain information on new, existing and former companies according to economic activity, legal condition and employee stratum
- the standardised demographics of companies according to the methodology developed in the European Union, available for 2008
- the statistics on affiliates of foreign companies in Spain

The data utilized by the Spanish CCD come from different sources within the public administration (mainly tax and social security administrations) and cover all enterprises involved in business activities which contribute to the GDP of the country, except agricultural and fishing production, administrative services at central, autonomous and local levels, homeowner community activities and domestic service.¹⁴ Table 11 shows the compilation of information on business demography in Spain provided by the Central Companies Directory and harmonised data developed in line with the European Union methodology.

The most important differences can be observed between the non-harmonised data on company registration and shut-downs from the Central Companies Directory, and the statistics on enterprise births and deaths from the Eurostat database. The data published on the INE website not only contain “pure” births and deaths, but also registrations and de-registrations reflecting other demographic events. Some events registered by the CCD do not correspond to events observable in the real world. In most cases, companies that have undergone purely administrative changes should not be recorded in the statistics of births and deaths. One of the most problematic issues is the treatment of business reactivations.¹⁵ The figures for both the registrations and the shut-downs of companies are higher than the figures for business births and deaths recorded within the European methodology.

¹³The Spanish Central Statistical Office (INE), www.ine.es

¹⁴Central Companies Directory (2010) “Methodological note.” www.ine.es

¹⁵Central Companies Directory (2010) “Enterprise movements.” www.ine.es

Table 11: Business demography indicators for Spain (II)

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|-----------------------------------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Active companies (NACE-93) CCD | 2 518 801 | 2 595 392 | 2 645 317 | 2 710 400 | 2 813 159 | 2 942 583 | 3 064 129 | 3 174 393 | 3 336 657 | 3 422 239 | 3 355 830 |
| Active companies Eurostat | 2 546 000 | 2 603 475 | 2 655 699 | 2 724 645 | 2 824 112 | 2 929 796 | 3 047 021 | 3 158 597 | 3 280 514 | 3 286 851 | . |
| Active companies (CNAE 2009*), harmonised data INE | . | . | . | . | . | . | . | . | . | 3 711 835 | . |
| Registrations CCD | 339 162 | 344 432 | 344 806 | 327 068 | 343 221 | 366 343 | 374 094 | 415 275 | 426 321 | 410 975 | 334 072 |
| Births Eurostat | 243 983 | 251 328 | 241 270 | 253 507 | 276 188 | 284 049 | 317 857 | 327 457 | 313 254 | 245 423 | . |
| Creation of companies (CNAE 2009*), harmonised data INE | . | . | . | . | . | . | . | . | . | 287 550 | . |
| Remaining in business CCD | 2 179 639 | 2 250 960 | 2 300 511 | 2 383 332 | 2 469 938 | 2 576 240 | 2 690 035 | 2 759 118 | 2 910 336 | 3 011 264 | 3 021 758 |
| Survivals of companies created in 2004, harmonised data INE* | . | . | . | . | . | 323 525 | 273 427 | 243 455 | 213 491 | 184 074 | . |
| Survivals of companies created in 2004 (%) | . | . | . | . | . | . | 84.51 | 75.25 | 65.99 | 56.90 | . |
| Survivals of companies created in 2005, harmonised data INE* | . | . | . | . | . | . | 357 945 | 306 055 | 262 965 | 220 790 | . |
| Survivals of companies created in 2005 (%) | . | . | . | . | . | . | . | 85.50 | 73.47 | 61.68 | . |
| Survivals of companies created in 2006, harmonised data INE* | . | . | . | . | . | . | . | 369 304 | 305 153 | 248 770 | . |
| Survivals of companies created in 2006 (%) | . | . | . | . | . | . | . | . | 82.63 | 67.36 | . |
| Survivals of companies created in 2007, harmonised data INE* | . | . | . | . | . | . | . | . | 356 358 | 281 857 | . |
| Survivals of companies created in 2007 (%) | . | . | . | . | . | . | . | . | . | 79.09 | . |
| Shut-downs CCD | 302 014 | 269 070 | 280 900 | 274 365 | 255 393 | 243 236 | 251 539 | 288 661 | 260 122 | 322 528 | 398 229 |
| Deaths Eurostat | 176 555 | 188 257 | 182 392 | 173 661 | 174 483 | 179 097 | 211 575 | 197 004 | 244 670 | . | . |
| Provisional demises of companies, harmonised data INE* | . | . | . | . | . | . | . | . | . | 342 264 | . |

Source: Own compilation based on INE (www.ine.es) and Eurostat databases

*Harmonised data contains business enterprises plus human health and social work activities, the arts, entertainment and recreation, and other service activities

Polish enterprises are obligatorily recorded in the REGON register, which is the main source of information for statistical databases and surveys. The register contains information on all¹⁶:

- legal persons
- organizational units without the status of a legal person
- natural persons running businesses including private farms
- local units of above subjects

The total number of registrations in the REGON register does not reflect the population of active Polish enterprises. In 2009 there were 3 880 237 enterprises registered and 99.9 % of them belonged to the SMEs sector¹⁷. Figure 7 presents the evolution of the number of registrations and the population of active Polish enterprises in 2003-2009. The number of active enterprises covers all natural persons, legal persons and organizational units without the status of a legal person which run a businesses in Poland regardless of the number of employees, classified according to the Polish Classification of Activities (PKD 2004) into the following sections¹⁸:

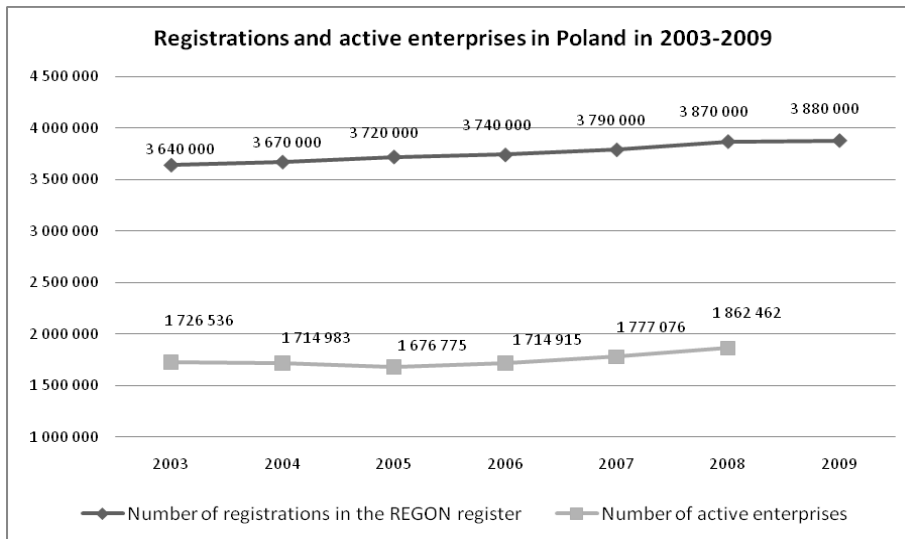
- forestry (section A – part 02),
- fisheries and fishing (section B – part 05),
- industry (sections C, D and E),
- construction (section F),
- commerce (section G),
- hotels and restaurants (section H),
- transport, inventory management, and communications (section I),
- property management, rental, and business operations (section K),
- education (section M),
- health care (section N – categories 85.12-85.20, group 85.3),
- remaining municipal, social and individual services (section O – parts 90, 92, 93).

¹⁶ The Polish Central Statistical Office, www.stat.gov.pl

¹⁷ Łapiński, J. (2010) “Registrations and active enterprises in the years 2008-2009.” *A report on the condition of the SME sector in Poland in the years 2008-2009*. Warszawa: PARP, p. 31

¹⁸ Ibid. p. 32

Figure 7: The evolution of active Polish enterprises and registrations in the REGON register in 2003-2009

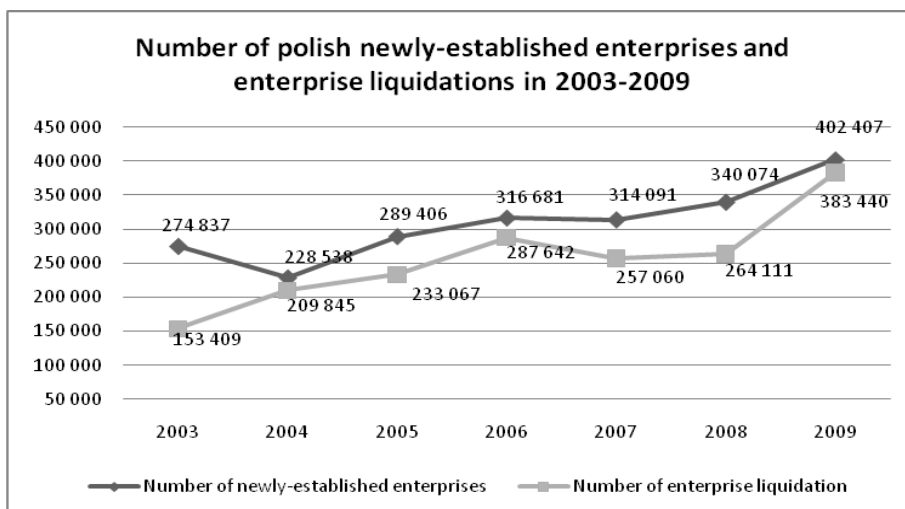


Source: Łapiński J. “Registrations and active enterprises in the years 2008-2009.” *A report on the condition of the SME sector in Poland in the years 2008-2009*. Warszawa: PARP

According to the data presented above active enterprises accounted for less than 50% of all the enterprises registered in the REGON register in the period 2003-2008. Information on active non-financial enterprises is collected by the Polish Central Statistical Office on the basis of reports submitted by enterprises with 10 or more employees; and in the case of micro-enterprises, using a representative survey method.¹⁹

Figure 8 shows the number of newly-established enterprises and the number of enterprise liquidations over the same period.

Figure 8: Polish enterprises established and closed down in 2003-2009



Source: Łapiński J. “Registrations and active enterprises in the years 2008-2009.” *A report on the condition of the SME sector in Poland in the years 2008-2009*. Warszawa: PARP

¹⁹Central Statistical Office (2010) “Activity of non-financial enterprises in 2008.” Warszawa: www.stat.gov.pl

The number of established enterprises was higher than the number of liquidations in each year of the period analysed. The number of enterprise liquidations grew significantly in 2009 as a result of a deterioration in the general economic conditions for running businesses, but also as a result of a revision of the REGON database according to a new PKD classification²⁰. The concepts of “newly-established enterprises” and “enterprise liquidations” are based on the new registrations and de-registrations in the REGON database, so they do not necessarily reflect the “real births and deaths” according to the European methodology.

The survival rates of Polish enterprises are calculated on the basis of the information collected by the Polish Central Statistical Office by means of panel surveys among small and micro-enterprises. The entities surveyed are representative of the Polish economy. The surveys carried out in subsequent years were adjusted to the new requirements of the European NACE Rev. 2 classification. Table 12 below presents the results of those surveys.

Table 12: Survival rates of Polish enterprises

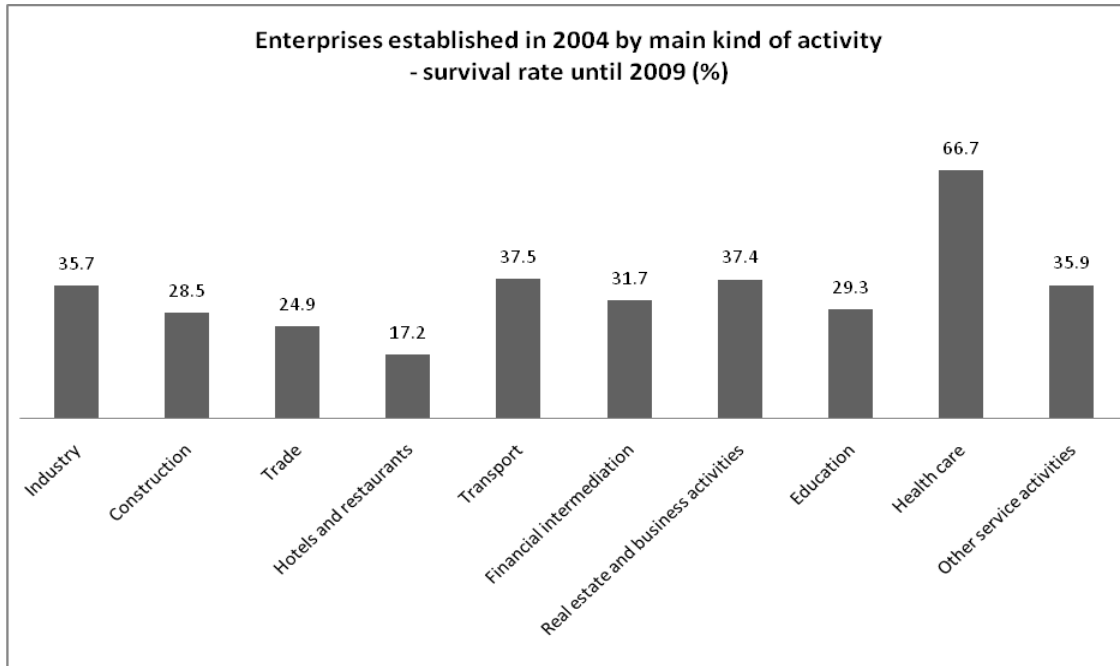
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|------------------------------------------------------------------------|------|------|------|------|------|------|------|------|
| One-year survival rates of polish enterprises created in 2001-2008 (%) | 64.5 | 61.5 | 64.4 | 62.3 | 67.6 | 66.5 | 70.7 | 76.4 |
| Survival rates up to 2009 of enterprises created in 2004-2008 (%) | | | | 31.4 | 36.7 | 41.0 | 54.1 | 76.4 |

Source: Łapiński J. based on *Creation and operations conditions, development prospects of polish enterprises established in the years 2004-2008* (2010). Warszawa: Central Statistical Office

The one-year survival rates of Polish enterprises were initially very low in comparison to the one-year survival rates of Spanish enterprises, but the situation has been improving in the last few years. The indicators are getting close to the level of 80%. However, the 5-year survival rates of Polish enterprises are still very low. Only about one third of companies survive up to 5 years after their creation in comparison to a level of more than 50% in the Spanish economy. Figure 9 shows the 5-year survival rates for Polish enterprises involved in different kinds of activities. Compared to other activities, only in the area of health care is there a significantly elevated rate of survival (66.7% after 5 years of functioning).

²⁰ Central Statistical Office (2010) “Activity of non-financial enterprises in 2008.” Warszawa: www.stat.gov.pl

Figure 9: Survival rates of Polish enterprises established in 2004 according to principal economic activity



Source: Central Statistical Office (2010) "Creation and operations conditions, development prospects of polish enterprises established in the years 2004-2008." Warszawa: www.stat.gov.pl

4. Conclusions

The aim of this paper was to highlight the difficulties involved in creating and using statistical data relating to the fundamental demographic processes affecting companies, as well as presenting the available business demography statistics for Spain and Poland obtained from various sources. Among others, data relating to the number of companies as well as their birth, survival and death rates has been presented, which was obtained from the Eurostat and OECD databases as well as from the Spanish and Polish Central Statistical Offices.

The research, whose aim was to assess the availability and comparability of data for Spain and Poland, revealed numerous problems connected with analysing and interpreting the data. Standardised rules for obtaining data which have been established at the international level are being systematically implemented into national systems of obtaining statistical data. However, the process of harmonising statistics is likely to be long and arduous because of the differences which exist in this respect between countries. The problem of data comparability over a time period is connected with, among others, changes in the classification of economic activity and extending the scope of obtaining data to new categories distinguished in the classification. Additionally, it is a major problem when events are reflected in the national statistics which are not actually connected with the creation of a new enterprise, understood as a new combination of production factors, but only relate to various transformations of already existing companies. Another problem is registering the events connected with the actual cessation of a company's activity. Data from national statistical systems usually contain information about the registrations and de-registrations of companies which differs significantly from the concepts of real enterprise births and deaths adopted in the Eurostat approach.

The data published so far at the international level (Eurostat and OECD) does not include statistics for Poland, which is why conducting full and reliable long-term comparisons is not possible. The information presented in this paper provides a general overview of the quality and availability of business demography statistics. The fragmentary data obtained from a variety of sources which are different in scope together with the short time period covered by the analysis do not allow an in-depth comparative interpretation. The data presented above ought to be treated with great caution; however, some observations can be made on the basis of them:

- The economies of both countries are dominated by micro-enterprises (0-9 employees)
- The statistical unit in the Polish and Spanish systems for obtaining data is the company, and data about the local units of companies are additionally collected
- The national statistical systems are undergoing systematic changes in order to harmonise data at the European level
- The data collected according to the European approach indicate a similar number of active enterprises in Poland and Spain during the period preceding Poland's accession to the European Union, whereas the data published in the national statistical systems in subsequent years reveal considerable differences between the numbers of active enterprises in the two countries
- The business churn (birth rates + death rates) for the initial period of the analysis was more dynamic in Poland than in Spain, which was connected with the economic changes taking place in Poland during the pre-accession period
- It is difficult to determine the rates of enterprise birth and death during the later period on the basis of the data collected by the national statistical offices
- One-year survival rates of companies are higher in Spain than they are in Poland, although this indicator has been on the increase in Poland in recent years
- Just over half of Spanish companies survive for 5 consecutive years, whereas in the case of Polish companies this indicator is significantly lower (only about 30%)

At the current stage of development in business demography statistics only a limited comparison of data for Spain and Poland can be conducted, and any interpretations must be made with caution. Further research will be necessary to present more detailed data according to the sector of activity, the number of employees and the legal status of enterprises, as well as trying to explain the causes of any observed differences which reflect the dynamics of business demography.

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