



**The Dynamics of Employer Enterprise Creation in Portugal Over the Last Two Decades: A Firm Size, Regional and Sectoral Perspective\***

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**abstract** **resumo / résumé**

The Portuguese economy underwent a process of growth and structural transformation during the twentieth century, while the last two decades conveyed a period of considerable creative destruction of firms. Indeed, following a period of rapid economic expansion in the second half of the 1990s, the deterioration of the economic situation felt since 2001 contributed to the deceleration of economic growth, which has also had an impact on firm turbulence. Using Quadros de Pessoal and the Eurostat and OECD methodology (Manual on Business Demography Statistics), this article describes employer enterprise dynamics in Portugal over 1985-2007, and discusses the main stylized facts related to firm creation, performance, and firm size distribution by region and sector.

A economia portuguesa viveu um processo de transformação estrutural no século XX, em particular nas suas duas últimas décadas, que se consubstanciaram numa considerável «destruição criativa» a nível empresarial. Após um período de rápida expansão económica na segunda metade dos anos 90, a deterioração sentida desde 2001 contribuiu para a desaceleração da actividade económica, patente igualmente no comportamento da demografia empresarial. Este artigo descreve a dinâmica empresarial de empresas empregadoras em Portugal, ao longo de duas décadas (1985-2007), com recurso a uma base de dados concebida a partir dos Quadros de Pessoal, que adopta a metodologia preconizada pela OCDE e Eurostat no «Manual on Business Demography Statistics». São também analisados os principais factos estilizados sobre a demografia, performance e distribuição de empresas de acordo com a sua caracterização dimensional, regional, e sectorial.

L'économie portugaise a connu un processus de croissance et de transformation structurelle au cours du XXe siècle. Les deux dernières décennies représentent une période où beaucoup d'entreprises ont été créées ou détruites. Après une période d'expansion économique dans la seconde moitié des années 90, la détérioration sentie depuis 2001 a contribué au ralentissement de l'activité économique, aussi bien qu'à la stabilisation de la turbulence des entreprises. Cet article aborde la dynamique des entreprises qui emploie plus d'un travailleur, au long de deux décennies (1985-2007), en utilisant un ensemble de données conçue à partir du Quadros de Pessoal, basé sur la méthodologie «Manual on Business Demography Statistics» de l'Eurostat et OCDE. Sont également abordés les principaux faits stylisés concernant la création, performance et distribution d'entreprises par taille, région, et principaux secteurs économiques.

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## 1. Introduction



Entrepreneurship policies became a central part of policy orientation in recent years in Portugal, as it is widely understood that enterprise dynamics allows tackling many problems related to competitiveness and innovation and the growing uncertainty faced in international markets. But most studies on enterprise dynamics in Portugal still lack a long run perspective, required to detect underlying structural changes in the entrepreneurial fabric.

This analysis provides a threefold perspective of the main stylized facts<sup>1</sup> of enterprise creation in Portugal, consolidated over a period of two decades. It focuses on employer enterprises (enterprises with more than one employee), which are an important source of job creation, thus playing a fundamental role in economic activity. The main data source in Portugal for this purpose is *Quadros de Pessoal*. This annual mandatory survey, conducted by the Portuguese Ministry of Labour and Social Security<sup>2</sup>, provides a rich and comprehensive matched employer-employee-establishment dataset. According to the registers of the Portuguese Social Security, it is composed of all enterprises with at least one paid employee during the 1985-2007 period. Our database, extracted from *Quadros de Pessoal*, follows the Eurostat and OECD methodology «Manual on Business Demography Statistics» (Eurostat and OECD, 2007), and focuses on the analysis of entrepreneurial performance indicators of enterprise creation. Specifically, our derived dataset consists of an annual average of 215,903 employer enterprises, with an annual average of 36,803 births and 23,743 enterprise deaths.

According to the Eurostat and OECD methodology, the core measure of births reflects the concept of employer enterprise birth. A birth amounts to the «creation of a combination of production factors with the restriction that no other enterprises are involved in the event» (Eurostat and OECD, 2007: 34). Births do not include reactivations of units which are dormant within a period of two years. Thus, this population consists of enterprises that have at least one paid employee in its birth year and also of enterprises that, despite existing before the year in consideration, were below the one employee threshold. An employer enterprise birth is thus counted in the dataset as a birth after recruitment of the first employee. The employer enterprise birth rate is obtained dividing the number of births by the number of enterprises with one or more employees during the reference period.

The following sections describe the dynamics of employer enterprise creation over the last two decades (section 2) and analyse some stylized facts by looking at firm size categories and distribution (sections 3 and 4), regions (section 5) and sectors (section 6). Section 7 provides some concluding remarks.

## 2. Performance Indicators for Employer Enterprises

The body of research published so far on entry has engendered a series of persistent and compelling stylized facts about firm dynamics, which are observed in a wide spectrum of countries (Carreira and Teixeira, 2011; Klapper et al., 2009; Plehn-Djowich, 2009; Cabral, 2007; Bartelsman et al., 2005; Geroski, 1995; Siegfried and Evans, 1994). One of the less controversial stylized facts is that net entry is far less important than the corresponding gross flows of entry and exit. In fact, a high number of firms enter and exit the market every year. Most new entrants are involved in the search process rather than competing against their rivals in the market (Bartelsman et al., 2004).

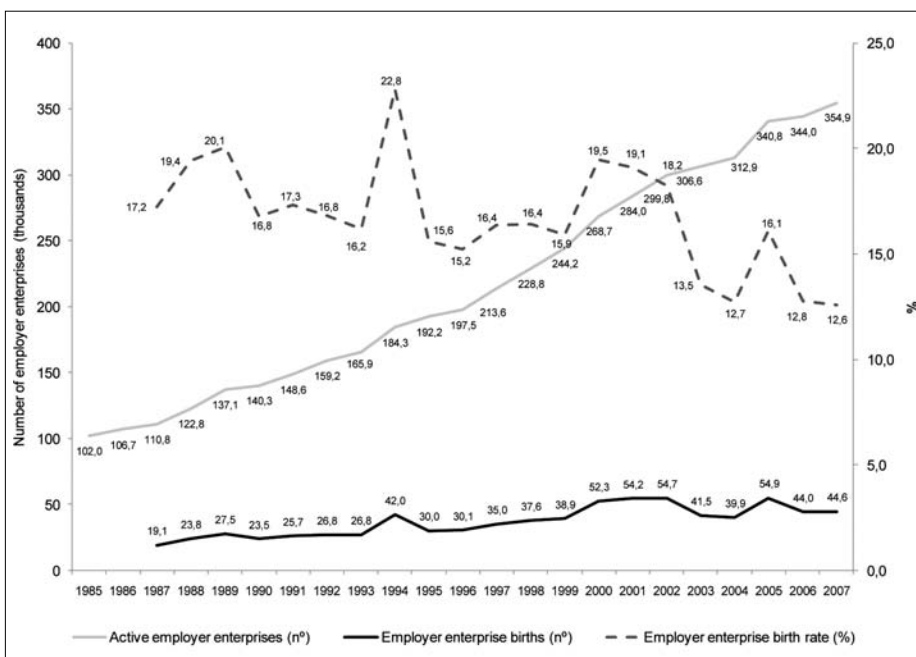
1. A stylized fact is a simplified presentation of an empirical finding, often used in social sciences and, in particular, in economics. It is conveyed as a broad generalization, often made across different countries, which summarizes more complex statistical analysis.

2. Gabinete de Estratégia e Planeamento do Ministério do Trabalho e da Segurança Social.



In Portugal, the population of employer enterprises has been growing steadily from 1985 to 2007, surpassing the 300,000 threshold after 2003 (Figure 1).

**Figure 1 – Population of Employer Enterprises, Enterprises Births and Birth Rates, 1985-2007**



**Note:** All figures and tables are based on our own calculations from *Quadros de Pessoa*.

The analysis of the growth rate of Portuguese employer enterprise creation (i.e. births, according to the Eurostat and OECD's methodology) shows a considerable level of turbulence (defined as the amount of firms that either enter or exit the market in a given year) during the 1987-2007 period. Various studies have documented substantial rates of entry/exit in a number of countries (Klapper et al., 2008; Cabral, 2007; European Commission, 2003; Caves, 1998; Masso et al., 2004; Scarpetta et al., 2002; Ahn, 2001). Among European countries, Portugal records one of the highest rates of new firms relative to the stock of existing enterprises, irrespective of the selected methodology (OECD, 2009; Schrör, 2009; INE, 2009; Cabral, 2007; Bartelsman et al., 2004; Scarpetta et al., 2002). The Structural Business Statistics data by Eurostat (Schrör, 2009) shows that in 2005, Portugal had the second highest business entry rate among twenty countries. Approximately the same ranking is obtained if the entry rate based on *Quadros de Pessoa* or that from Statistics Portugal<sup>3</sup> (INE, 2009), were considered instead (Sarmiento and Nunes, 2010b).

3. In 2006, within a panel of sixteen countries, Portugal is ranked the third highest, after Estonia and Romania (INE, 2009). Statistics Portugal (INE) also follows the Eurostat and OECD's (2007) methodology, but considers a larger universe of «enterprises», where sole proprietors are also included.



In what concerns enterprise births, four main «peaks» are clearly shown in Figure 1, namely 1989, 1994 (with a 57% year on year growth rate and the highest birth rate throughout the period), 2000 and 2005.

Over the entire period, the annual average growth rate of employer enterprise births was 4.3%, but from 1996 to 2000, an economic recovery period<sup>4</sup>, it becomes substantially higher (14.9%), decreasing subsequently to less than 1% (see Table 1). The average birth rate is in line with this change, in particular after 2000. From 1990 to 1995, it averages 18%, decreases during 1996 to 2000 and continues to fall in the following five-year period (approximately 16%). From 1987 to 2000, around 17 out of 100 enterprises were new. From 2000 to 2007, less than 16 were new enterprises.

**Table 1 – Average Birth Rate and Annual Average Growth**

Period	Average birth rate (%)	Annual average growth of births (%)
1987-2007	16.7	4.3
1987-2000	17.5	8.1
2000-2007	15.6	-2.3
1990-1995	17.6	4.9
1996-2000	16.7	14.9
2001-2005	15.9	0.3

Overall, the rhythm of growth of enterprise births has been decreasing since the 2000 «peak»<sup>5</sup>. Following a long period of rapid expansion in the second half of the 1990s, the economic deterioration felt since 2001 contributed to the slowdown in Portuguese domestic demand, leading to a sharp deceleration of activity. The readjustment process of balance sheets among households and firms, in order to correct economic imbalances was partly related to general cyclical developments in the European economy, but also to downward adjustment of expenditure patterns, bringing spending more in line with incomes and revenues. Although this coincided largely to what was happening in the European Union (EU) economy at large, the amplitude of the downsizing was more pronounced in Portugal (European Commission, 2004).

### 3. Employer Enterprises by Size Class

The majority of enterprises in OECD countries and in the EU are small and medium enterprises (SMEs) (Schrör, 2009; OECD, 2000; Storey, 1994). Overall, the weight of SMEs in the economy has been growing in recent years due to the increasing predominance of services, the outsourcing activities by large firms to smaller counterparts and the development in information technologies, which have lowered entry costs thus allowing smaller firms to enter into specific market niches. Small and micro units prevail therefore in the population of firms in most countries, with firms with less than ten employees representing approximately three quarters of the total (Schrör, 2009; Bartelsman et al., 2005; Bartelsman et al., 2004).

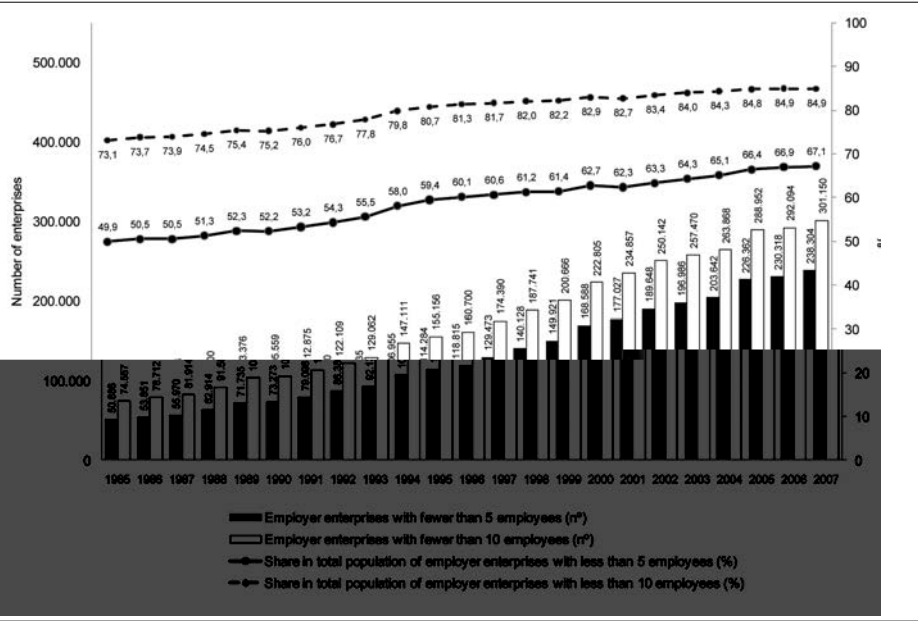
4. There is a close association between firm creation and the business cycle. Within the period 1996 to 2006, we observe positive correlations between the GDP and lagged GDP at current prices and firms' birth rate (47.7% and 96.6%, respectively, the latter being statistically significant at 1%).

5. Except for 2005, which it is considered to be due to the start of the electronic delivery of *Quadros de Pessoal* (which increased the data coverage and reliability) and the slight recovery occurred in 2007.



As shown in Figure 2, in the 1996-2007 period, more than 60% of all employer enterprises are micro firms (i.e. firms with less than four employees<sup>6</sup>, and more than 81% have fewer than ten employees (Sarmento and Nunes, 2010a). There is also a clear upward trend in the share of small firms with fewer than ten employees in the population: 74% in 1986, 82% in 1997 and 85% in 2007. In 2007, almost 98% of the Portuguese enterprises employed less than fifty workers, compared to 95% in 1985.

Figure 2 – Active Employer Enterprises



A second stylized fact in the literature is that firm entry is more likely to occur in smaller size classes (see, for instance, Segarra and Callejón, 2002). In general, due to the uncertainty regarding future profitability, most firms prefer to enter with a relatively small scale in order to have minimum costs in case of exit. Thus, births (and deaths) are traditionally more concentrated in smaller size classes, when compared to the overall firm population (OECD, 2009). On the other hand, firms with better information about their future success tend to enter with a bigger size<sup>7</sup>. Another well-documented cause is that firms start small due to financing constraints (Silva and Carreira, 2011; Cabral and Mata, 2003; Brito and Mello, 1995).

6. Firms are divided into six different size classes: 1-4, 5-9, 10-19, 20-50, 50-250 and > 250 employees. This complies with the methodology applied to the dataset (Eurostat and OECD, 2007; Ahmad, 2006) which is due to grant greater international comparability. Different size thresholds in the sources of data on business demography are known to impact severely on data comparability. According to the OECD (2008: 10), «the size class breakdown used provides for the best comparability across countries given the varying data collection practices across countries».

7. Firms that start up bigger also have a higher probability of survival (Carreira and Teixeira, 2011; Nunes and Sarmento, 2012; Geroski et al., 2010). The role of size is even more substantial in the service sector as firm's current size dimension highly determines its survivability (Nunes and Sarmento, 2010).

In Portugal, small firms are created at a faster pace than larger firms, gaining share both in terms of both enterprise and employment coverage (Sarmiento and Nunes, 2010a). In the period from 2000 to 2007, an average of 48,259 new enterprises debuted per year (Table 2). Among these, 40,297 were firms with less than five employees (84% of total enterprises) and 48,011 were below the fifty employees' range (99.5%).



**Table 2 – Average Employer Enterprise Births by Period and Size Class**

Period	Average enterprise births	Overall (score)					
		1-4	1-9	1-19	1-49	1-249	All
1987-2000	31,368	24,442	28,900	30,476	31,147	31,347	31,368
% of total	100	77.9	92.1	97.2	99.3	99.9	100.0
1987-2007	36,803	29,555	34,256	35,885	36,574	36,781	36,803
% of total	100	80.3	93.1	97.5	99.4	99.9	100.0
1992-1999	33,383	26,483	30,982	32,511	33,162	33,363	33,383
% of total	100	79.3	92.8	97.4	99.3	99.9	100.0
2000-2007	48,259	40,287	45,543	47,286	48,011	48,233	48,259
% of total	100	83.5	94.4	98.0	99.5	99.9	100.0

During 1993, a year characterized by a widespread international economic crisis and speculative currency attacks within the European Monetary System, Portugal's GDP growth was negative. Firms with over fifty employees were particularly hit. In 1994, the economy started to recover and the second Community Support Framework (QCA<sup>8</sup>II) began. In 1994, the rate of growth of births was the highest in all entire period (i.e. 57%), in particular in the over 250 employees class (i.e. 600%). The second highest growth rate occurred later in 2000 (35%), coinciding with the start of the third Community Support Framework (QCAIII), being particularly prominent for micro firms (with a growth rate of 38%).

As shown in Table 2, most enterprise births are in the smallest size class, in particular during the period 2000-2007 (84%), when compared to the previous period of 1992-1999 (79% of total). The annual average rate of growth of firms with fewer than five employees is one percentage point above the economy's average (4%) from 1986 to 2007. This growth is only surpassed by the largest firms with over two hundred and fifty employees, with a 6% growth rate. In 1995, firms with fewer than five employees represent more than 80% of the share of total businesses and have shown a steady increase since then, at the expense of all other size classes. The shift-share analysis provided by Sarmiento and Nunes (2010a) shows that the greatest contribution to the rate of growth of births comes mainly from the smallest size class firms.

According to Schrör (2009), Portugal shows the highest share of enterprise births of firms with fewer than five employees (2005 and 2006 averages). The increasing number of start-ups in smaller size classes (Figure 2), combined with a smaller average entrant size and specialization effects towards industries with a smaller efficient scale, have led to a decline in average firm size in Portugal over time, from around five employees on average in 1987 to three in 2007.



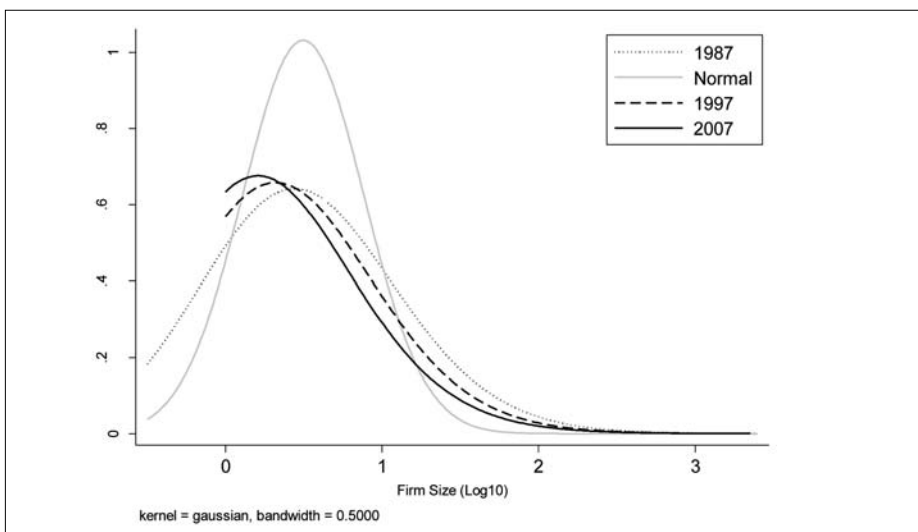
#### 4. Firm Size Distribution

There is a considerably large amount of evidence in favour of the idea that the share of micro and small size firms relative to medium and large scale enterprises is increasing (Schaper et al., 2008; OECD, 2000; 2005; Storey, 1994; Loveman and Sengenberger, 1991), and also that the shift in firm size distribution towards smaller production units is an ongoing process since the 1970s (Ribeiro, 2007).

A third stylized fact points to the creation of new firms being in general of a smaller size than incumbents, thus making the firm distribution right skewed, with proportionally more small than large firms with respect to the lognormal distribution. In order to assess if the increasing presence of smaller firms is indeed affecting the composition of the population of firms, an analysis of the size distribution of employer enterprises was considered. The firm size distribution obtained for the subset of firms based on *Quadros de Pessoal* follows Cabral and Mata's methodology (Cabral and Mata, 2003)<sup>9</sup>. A nonparametric estimation method (a gaussian kernel density smoother with a bandwidth of half per cent to the logarithm of firm size) was chosen to test if firm size (expressed as the log of the employment of the firm) distribution was stable and approximately lognormal for the population of enterprises.

As shown in Figure 3, the resulting firm size distribution of firm entrants is right skewed<sup>10</sup>, with a distinct shape from the normal distribution, in line with Cabral and Mata's results. Secondly, the distribution is not stable over time. It has been shifting towards the smallest size classes, in line with the total economy, revealing the effect of the increasing prevalence of smaller firms in the population of employer enterprises. These results are also confirmed by looking at different firm cohorts, enterprises deaths and firm dynamics at the sectoral level (Sarmiento and Nunes, 2010a).

**Figure 3 – Firm Size Distribution by 1985, 1995, and 2005 Cohorts of Entrants**



9. It is important to keep in mind that the type of distribution depends heavily on the data source considered (Cabral, 2007; Ribeiro, 2007; Cabral and Mata, 2003).

10. It has long been noted that the distribution of firms is skewed (Schaper et al., 2008; Cabral, 2007; Klette and Kortum, 2004; Ijiri and Simon, 1977). More recently, the availability of large micro data sets allowed uncovering

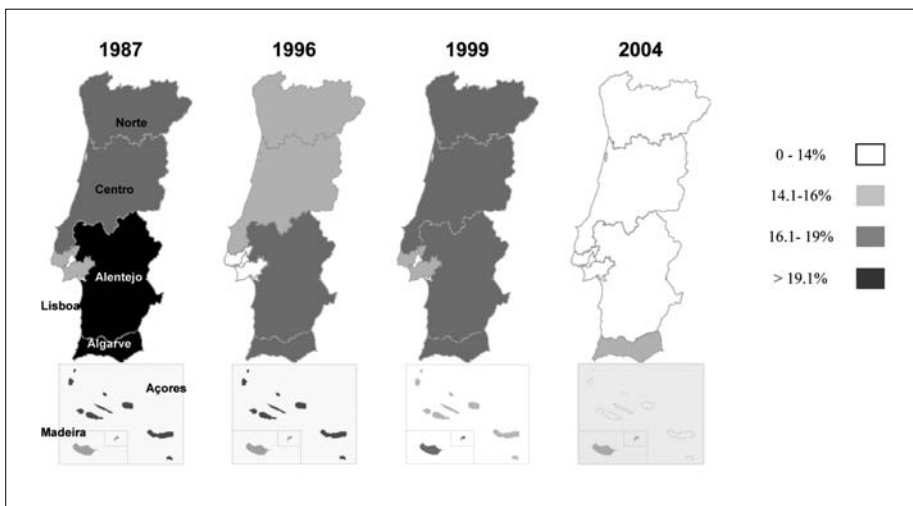


Barbosa and Eiriz's (2011) work uncovers further evidence whereby for a majority of Portuguese districts, firm size is related to firm growth. It is also a widely accepted stylized fact that small firms grow faster than large firms<sup>11</sup> and that exit rates decline with size (Bartelsman et al., 2005; Fariñas and Moreno, 2000). Thus, firm size dynamics tend to be scale dependent, but on the other hand, this dependency from growth and exit rates is also systematically reflected in the size distribution of firms. Peretto (1999) tackled this issue theoretically and developed an endogenous growth model which included a market structure framework. His results indicate that the size distribution is not neutral with respect to growth. However, a contemporaneous empirical piece of research by Acs, Mork and Yeung (1999) reveals a positive association between size and growth for manufacturing in the United States. Furthermore, Pagano and Schivardi's (2003) sectoral evidence drawn from eight European countries also gives support to the hypothesis that firm size distribution has a causal impact on growth at the industry level, the mechanism being innovation. Higher average size is associated with higher productivity growth, corroborating the existence of a relationship between firm size distribution and economic growth.

## 5. Employer Enterprises by Region

Enterprise creation is also a primary indicator of the level of entrepreneurship at the regional level. Among the seven Portuguese NUTII regions<sup>12</sup>, Algarve displayed the highest annual average growth over the 2000-2007 period (at 9% compared to a national average of 6%) due to the dominance of services, especially those related to tourism activities (see Figure 4).

**Figure 4 – Birth Rate by NUTII**



that firm sizes are likely to be distributed as a Pareto distribution, instead of a log-normal (Gaffeo et al., 2003; Axtell, 2001).

<sup>11</sup> This has been widely demonstrated by many researchers since the work of Mansfield (1962). Consider for instance the surveys of Caves (1998), Sutton (1997) and Hall (1987), which document the robustness of these results over time, different industries and across countries.

<sup>12</sup> The Portuguese NUTII regions are Norte, Centro, Lisboa, Alentejo, Algarve, Açores and Madeira.





From 2000 to 2007, Norte and Madeira displayed the second greatest annual average growth (4.5%). However, Norte, the Portuguese region where the manufacturing sector is relatively more predominant, suffered from the highest regional volatility, particularly from 1993 to 1998. Despite Norte having the greatest share of enterprises and the greatest amount of small enterprises in the country, the weight of SMEs is the highest in Algarve (mainly due to services and construction from 2000) and Alentejo (mainly in services, agriculture and fishing sectors).

By combining the regional with the size class dimension, the predominance of small firms in most regions at the NUTII level can be observed (Table 3), in particular in the Algarve, Açores, and Alentejo. Small firms share of employment increased, particularly in Norte and Centro (Sarmiento and Nunes, 2010c; 2010d), where manufacturing firms (of an average bigger size) are relatively more concentrated, thus revealing the effects of deindustrialization.

**Table 3 – Employment Share of Employer Enterprises with Fewer than 20 Employees by NUTII (in percentage)**

Regions	Enterprise share of enterprises with fewer than 20 employees												
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Norte	46.9	47.4	47.4	48.3	49.4	49.4	49.9	51.3	52.8	55.1	56.4	57.1	57.6
Algarve	52.8	53.4	53.9	54.7	58.4	58.4	60.6	62.0	63.8	65.7	67.0	67.0	67.7
Centro	49.3	50.4	50.5	51.2	52.4	52.2	53.7	54.9	56.2	59.1	60.6	61.4	61.8
Lisboa	51.0	51.2	51.3	51.6	52.3	52.1	53.1	53.8	54.8	57.7	59.1	59.9	60.2
Alentejo	52.9	54.8	54.7	57.1	58.6	58.5	59.7	60.2	61.9	63.6	65.3	65.1	66.7
Açores	66.6	66.2	66.4	66.4	65.2	64.5	64.9	64.8	66.8	65.1	67.6	68.4	68.2
Madeira	47.4	48.4	47.8	49.4	50.3	52.2	53.2	55.3	55.1	57.6	57.6	57.8	57.7
Portugal	49.9	50.5	50.5	51.3	52.3	52.2	53.2	54.3	55.5	58.0	59.4	60.1	60.6

Regions	Employment share of enterprises with fewer than 20 employees												
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Norte	34.7	35.2	36.2	37.5	38.6	40.4	41.0	43.2	43.3	43.0	43.5	42.8	42.4
Algarve	58.2	59.4	60.3	59.9	59.7	60.0	59.6	62.2	61.1	60.8	60.5	59.5	58.4
Centro	41.4	42.4	43.3	44.1	45.4	46.6	47.3	50.5	50.7	49.5	49.8	49.4	49.1
Lisboa	27.9	28.7	28.9	28.6	28.8	29.2	29.2	30.9	30.5	29.6	28.9	28.6	28.4
Alentejo	55.5	54.7	54.5	55.2	55.4	57.0	56.4	58.2	57.5	54.6	55.5	54.2	54.9
Açores	47.8	46.8	47.4	44.7	45.3	44.2	43.4	43.5	44.5	42.9	43.3	44.3	42.0
Madeira	39.2	37.7	38.4	39.5	41.0	42.9	42.5	42.0	42.1	42.0	42.5	43.2	43.2
Portugal	35.1	35.9	36.6	37.1	37.9	39.0	39.3	41.6	41.5	40.7	40.8	40.2	39.9

Average firm size of entrants has also been decreasing throughout the country's regions, except for size class of 20-49 employees, which has been able to show systematic recoveries and maintain its average range between 25-31 employees. The Açores had the smallest sized enterprises up to 2003, averaging less than five employees. From 2005, this region was overthrown by Norte. On the other hand, the biggest sized enterprises<sup>13</sup> are located in Lisboa,

<sup>13</sup> We refer to the biggest size class when firms are over two hundred and fifty employees.



although average firm size has been decreasing considerably in recent years (1,645 employees on average in 1989 to 624 in 2007). The tendency for firms to concentrate on core competences, deregulation and the successive privatization and downsizing waves that have swept Europe, have also taken a severe toll on larger Portuguese enterprises. In turn, the regional distribution of start-up rates is relatively uneven across the seven NUTII regions (see Table 4).

**Table 4 – Employer Enterprise Birth Rates by NUTII (in percentage)**

Regions	Employer enterprise birth rates															
	1987	1990	1994	1995	2000	2001	2002	2003	2004	2005	2006	2007	1987-1995	1990-1995	1996-2001	2002-2007
Norte	18.6	17.4	23.4	16.1	19.3	20.6	18.8	14.3	13.4	19.9	12.9	12.8	18.4	17.9	17.9	15.3
Algarve	25.7	22.8	28.9	17.7	22.3	23.4	20.9	14.7	14.1	16.9	14.9	15.3	23.7	22.1	19.8	16.0
Centro	16.9	16.9	23.2	16.0	20.8	18.1	18.1	12.3	11.6	14.4	11.3	10.8	18.5	18.4	17.4	13.0
Lisboa	14.4	14.8	20.8	14.0	18.4	17.5	17.4	13.2	12.7	13.0	13.6	13.5	16.1	16.0	15.8	13.9
Alentejo	20.4	18.5	22.8	16.7	19.7	17.9	17.2	13.5	12.0	14.5	12.1	11.8	19.9	18.6	18.0	13.5
Açores	18.9	15.1	20.3	15.3	15.2	16.8	17.4	13.7	13.4	12.4	12.5	11.4	16.8	16.2	14.8	13.4
Madeira	15.9	16.6	25.1	17.6	17.4	19.4	18.3	16.6	14.8	13.2	13.6	12.0	18.3	18.8	17.4	14.6
Portugal	17.2	16.8	22.8	15.6	19.5	19.1	18.2	13.5	12.7	16.1	12.8	12.6	18.0	17.7	17.3	14.3

Norte makes up for most of the enterprise births in the country, with an average share of 36% of total enterprises in the twenty year period under consideration, with a birth rate greater than the national average<sup>14</sup>. This region also presents the highest dispersion, followed by Centro and Lisboa. Lisboa and Açores have smaller birth rates than the country's average throughout most of the observed period, while the Algarve is systematically the region with the highest birth rates in Portugal. In higher firm birth rate years overall firm dimension increases, revealing some heterogeneity at the regional level, particularly from 2000 to 2002 (Sarmento and Nunes, 2010c; 2010d).

Colantone and Sleuwaegen (2008), when analysing entries and exits in eight European countries, point out that globalization is bringing an increasing level of risk, tougher competitive pressure and increasing barriers to entry the market for potential entrepreneurs, which have resulted in declining entry rates. Most Portuguese regions follow the country's general trend of decreasing birth rates, in particular after 2000, a phenomenon also depicted by decreasing annual average growth rates of enterprise births. The Algarve is the only region challenging this tendency and maintaining a positive annual growth rate of enterprise births (1%), during the period 2000 to 2007 (Sarmento and Nunes, 2010a).

## 6. Employer Enterprises by Sector

We have already accounted for the increasing presence of small firms in Portugal and its NUTII regions. Next, a sector dimension is added to the analysis, supporting small business dominance in all broad economic sectors<sup>15</sup>, both concerning the number of enterprises and their number of employees (see Tables 5 and 6).

<sup>14</sup> With the exception of years 1991, 1992, and 2000.

<sup>15</sup> Broad economic sectors are Agriculture and Fishing, Construction, Manufacturing and Services. Only sections A to P of ISIC Revision 3 were considered for the total economy.

**Table 5 – Share of Employer Enterprises with Fewer than 20 Employees, as a Percent of Sector's Total, by Broad Sectors**

Sectors	Enterprises			Employment		
	1995-2007	1995-1999	2000-2007	1995-2007	1995-1999	2000-2007
Agriculture and Fishing	96.5	95.6	96.9	67.2	61.7	70.0
Manufacturing	81.5	79.6	82.6	25.1	22.5	26.8
Services	94.7	94.6	94.8	42.9	43.8	42.5
Construction	92.9	92.2	93.1	52.1	46.5	54.4
Total economy	92.4	91.5	92.8	38.9	36.6	40.2

**Table 6 – Average Employer Enterprise Size by Broad Sectors**

Period	Average number of employees				
	Agriculture and Fishing	Manufacturing	Services	Construction	Total economy
1995-2007	4.9	18.9	8.4	8.9	10.0
1995-1999	5.5	20.8	8.6	9.5	10.9
2000-2007	4.5	17.4	8.3	8.3	9.4

During the period 1995-2007<sup>16</sup>, 93% of total enterprises in the economy employed fewer than twenty workers with all sectors, but manufacturing, having a share over 90%. From the 1995-1999 to 2000-2007 the number of small enterprises rose in all sectors. Manufacturing displays the highest increase, higher than the overall average, indicating a faster reduction in enterprise size over time. The inflow of smaller ventures has reduced not only the overall average size of the firm population, being most evident in the manufacturing sector. While the average size of manufacturing firms is still at least twice as large as in the service sector, it tends to decrease faster than that of the remaining sectors, from an average of twenty one employees, during 1995-2000, to seventeen, after 2000. New technologies have severely reduced the importance of scale economies and challenged mass production techniques in many sectors. In addition, the relative smaller average size of most services, enhanced by the effects of the information revolution, created more opportunities for business ownership. Furthermore, globalization and the increase of competition from lower cost Eastern countries have accelerated the deterioration of comparative advantages of many Portuguese traditional industries, particularly in the manufacturing sector.

In line with the literature, the employment share of small firms is lower than its share in the total number of firms (see Table 5). In parallel to enterprise behaviour, the share of employment in enterprises with fewer than twenty employees also rises (c.f. Table 3) in all sectors of activity, except in services. From 1995 to 2007, small firms with fewer than twenty workers employed 39% of the total workforce in the dataset. It is in the Agriculture and Fishing and in the Construction sector where small firms account for the largest share of employment. The construction sector, which lived through an expansion period, both in terms of share of

<sup>16</sup> In analyzing the sector dimension, we only take into account the period from 1995 to 2007. This has to do with the start of European System of Accounts (ESA) in 1995 and to compatibility issues introduced by the new Portuguese Classification of Economic Activities Revision 3, implemented in 2007.



enterprises and employment, between 1995 and 2000<sup>17</sup>, shows a marked decline after 2003 in terms of enterprises, employment share and average size<sup>18</sup>. Over the 1990s, the development strategy followed in Portugal concentrated on the modernisation of its transport infrastructure (Pereira and Andraz, 2004), as it was long thought that one of the fundamentals holding back the rapid convergence towards the EU average was the lack of upgraded infrastructures. This was greatly assisted by a generous inflow of Community Structural Funds. In fact, survival rates for construction firms became the highest of all broad sectors during 1996-1998. From 1999 onwards, firm survival in the service sector overcame survival in the construction sector that kept on falling at a relatively higher rate than in other sectors (Nunes and Sarmiento, 2010).

The revival of the small business sector has not only been influenced by the level of economic activity and the dynamics of entry and exit into the market, but also by its industry structure, where an economy with a growing service sector and a declining influence of the manufacturing sector, such as Portugal, is more likely to display a growing share of both SMEs and its weight in total employment.

Over this period, the service sector reinforced its importance in the Portuguese economy, a phenomenon which is not unfamiliar to other countries (López-García and Puente, 2006), given the increasing reliance on intangibles, information technologies and globalization (Colantone and Sleuwaegen, 2008), among other factors (Sarmiento and Nunes, 2010a; Carree et al., 2002). According to *Quadros de Pessoal*, the service sector leads both in the number and in the share of employer enterprises, mainly after 2001 and in what concerns its weight in employment, but holds the lowest average firm size of the three main sectors (Table 6). In 2006, the service sector was responsible for 72% of all new ventures (3% more than in 1996). Moreover, 62% of total employment was generated by start-ups in services (6% more than in 1996), which is higher than service sector's share in total employment (60% in 2006 compared to 50% in 1996) (OECD, 2005; Ahn, 2001).

Figure 5 shows the enterprise birth rates and that considerable discrepancies across Portuguese sectors still abound. Manufacturing birth rates have been decreasing since 2001, with a slight recovery in 2005, which was extended to all broad sectors. From 1998 to 2001, construction was the most dynamic sector. The birth rate was higher than 20% and was accompanied by an increasing weight in the share of total births. From 1996 to the early 2000s, the construction sector contributed the greatest to the overall growth of enterprise births (Sarmiento and Nunes, 2010a). In 2001, 29 out of 100 were new construction enterprises. A similar trend can be found in other countries, particularly in Spain (European Commission, 2003; Fundación INCYDE, 2003).

A fifth stylized fact is that turbulence<sup>19</sup> is usually higher in services than in the manufacturing sector. For the period 2005 and 2006, the OECD (2009) observed that birth (and death) rates are significantly higher in the service sector for the vast majority of countries. According to *Quadros de Pessoal*, the service sector is ranked as having the second highest birth rate<sup>20</sup> from 1996, taking the lead from 2003 onwards (in 2005, 16 out of 100 were new service enterprises). High birth rates are also pointed out by the OECD. In 2006, Portugal had the highest birth rate in the service sector, above twenty other countries (OECD, 2009).

<sup>17</sup> The European Commission (2003) records the construction sector as having the highest number of enterprises and employees between 1998 and 2001 among ten member states.

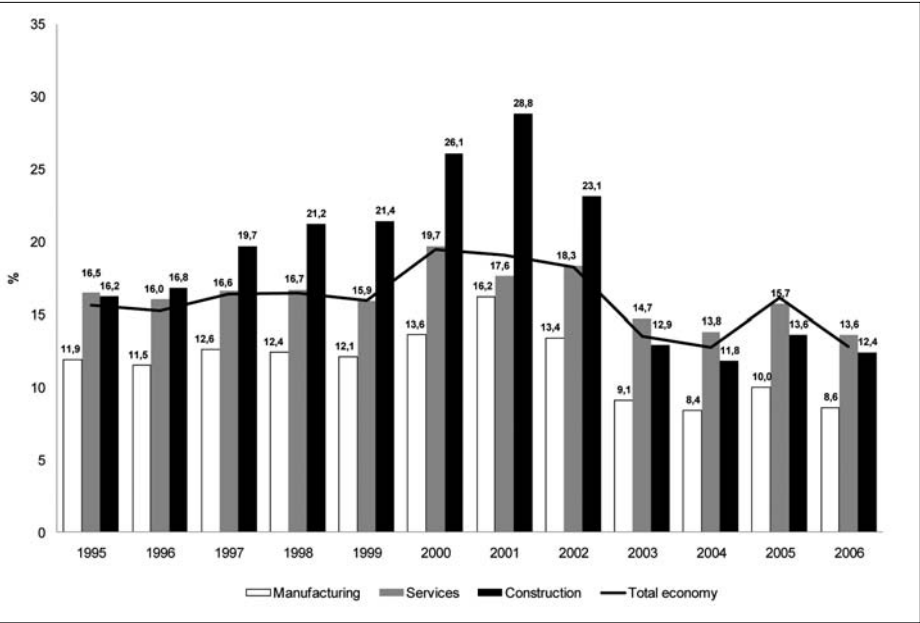
<sup>18</sup> See also Sarmiento and Nunes (2010a) and Sarmiento (2010).

<sup>19</sup> Turbulence is given by the sum of birth and death rates. Sarmiento and Nunes (2010a) also find significant high levels of correlation between average birth and death rates – a 10% significant positive Pearson correlation of 43.8%, from 1987 to 2005, and a 5% significant positive Pearson correlation of 92%, from 2000 to 2005.

<sup>20</sup> Industries characterized by high entry rates, at the moment of birth, find post-entry survival more difficult (Nunes and Sarmiento, 2010).



Figure 5 – Birth Rate by Broad Sectors, 1995-2006



Moreover, births of small enterprises are also concentrated in the service sector in Portugal. More small ventures (with fewer than twenty employees) are born in the services sector relatively to the remaining sectors, with the exception of Agriculture and Fishing, where firms are created predominantly in this size class (Table 7).

Table 7 – Average Share of Employer Enterprise Births with Fewer than 20 Employees, by Broad Sectors						
Period	Enterprise births with fewer than 20 employees					
	Agriculture and Fishing	Manufacturing	Services	Construction	Total births	Total enterprises
1995-2007	99.1	94.3	98.5	97.8	97.9	92.4
1995-1999	98.8	93.8	98.5	97.8	97.7	91.5
2000-2007	99.2	94.6	98.5	97.9	98.0	92.8

The proportion of firms born below the threshold of twenty employees is higher than the total weight of these enterprises in the population, revealing that newcomers have on average a smaller size than incumbents. This is also verified for all sectors and time periods (Sarmento and Nunes, 2010a). From the first sub-period to the second, proportionately more enterprises are

being born with fewer than twenty employees in all sectors, particularly in manufacturing, which reveals the greatest decrease in average size. Throughout the period, entrants (and exiting firms) are smaller than the average size of firms already in operation<sup>21</sup>.



## 7. Main Conclusions

The Portuguese economy underwent a process of growth and structural transformation during the 20<sup>th</sup> century. In what concerns business demography, the last two decades were a period of considerable creative destruction of Portuguese firms, but the period following 2001 depicts a lower level of firm turnover, throughout all size classes, regions and broad sectors.

Some of the factors that contributed during the 1990s to the many imbalances felt in the Portuguese economy after 2000, are related to the cyclical position of the Portuguese economy relatively to other EU member states, the impact of the 1993 liberalization of capital movements, the financial deregulation on credit markets and the sharp decline in nominal and interest rates in the run-up to the Euro's accession. The upward revision in permanent income perceptions and the easing of liquidity constraints shifted the expenditures of households and firms to higher levels. Indebtedness of the household sector and the non-financial sector as a share of GDP more than doubled between 1995 and 2002. Following the period of rapid expansion in the second half of the 1990s, the economic deterioration felt since 2001 contributed to the deceleration in Portuguese economic activity, which is also conveyed by firm dynamics. Despite the deceleration in enterprise creation, Portugal still displays at the European and at the OECD level one of the highest rates of new firm creation relative to the stock of existing enterprises, even when other reference populations and methodologies are considered.

The number of employer enterprises has been growing steadily over more than twenty years, especially due to the contribution of a growing wave of smaller sized entrants. The increasing predominance of small firms is clearly observable in Portugal. Smaller enterprises are being created at a faster pace, in particular firms with fewer than five workers in most regions and in all Portuguese broad economic sectors. From 1987 to 2000, 78% of enterprises had fewer than four workers compared to 83.5% in the period of 2000 to 2007. In 2007, 98% of the enterprises employed less than fifty workers. This phenomenon is due to deindustrialization and increasing dominance of the service sector in the economy which leads enterprise creation since 2003 in terms of the number of enterprises and employees, but also to the gradual decrease of average firm size occurring in all broad sectors.

Consequently, we observe a gradual decrease of employer enterprises average size in Portugal over a period of more than twenty years, which is extended to all broad sectors, NUTII regions and entrants in the market. Average size of enterprise births has also decreased, from around five employees in 1987 to three in 2007. The revival of small enterprises has caused firm size distribution for the total and for entries into the population to shift over time to the smallest size classes, showing the entry of proportionally smaller than larger firms.

It is thus important to consider the long run effects of this 20-year trend towards smaller business and alternative public policy measures that should be envisaged therein, given that these smaller firms are in general more exposed to financial and administrative constraints and that recent research seems to point at the existence of a relationship between firm size and growth in Portugal.

<sup>21</sup> The small size of new entrants is a determinant factor, inhibiting enterprise survival (Nunes and Sarmiento, 2010).



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