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The European Size Distribution of Firms and Employment

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Abstract: The policy debate in recent years has increasingly focused on issues concerning size distribution of firms and employment. It is often claimed that we are approaching a new economic era where large enterprises have lost their importance in developed economies. This raises the question of what we can say about the size distributions on the basis of currently available European data. How important are large enterprises and can we detect any changes with regard to their importance? How do countries of the European Union differ in this regard? How reliable is available data – does it permit us to draw any conclusions? Examining the availability and quality of data on European firm size and employment, we find that the existing data is severely limited in a number of respects. Conclusions based on the currently available data must hence be interpreted with considerable caution. However, recent measures by for instance the European Union will greatly improve the availability and quality of firm size data in the future.

Keywords: Business structure; Industrial structure; Size distribution of firms; Size distribution of employment; Small and medium sized enterprises.

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1. Introduction

Micro, small and medium-sized enterprises (MSMEs)[2] are increasingly seen as being fundamental to economic growth and job creation. For instance, the European Union (EU) adopted in June 2000 the European Charter for Small Enterprises, which requires Members States and the Commission to encourage and support the MSMEs. The Charter was seen as an integral part of the EU's declaration at the Lisbon European Council in March 2000 to "become the most competitive…economy in the world" by 2010 (European Council 2000). An MSME perspective is now increasingly integrated in many activities of the EU.

The increased policy focus on MSMEs, and their increasing importance in general, have enhanced the need for detailed statistics on their activities. To this end, EU Member States have been requested to coordinate research and the collection of statistics on the MSMEs, and the EU has launched several project and report series focusing on these firms.

The purpose of this paper is to employ available statistics on the size distribution of firms and employment in the EU to shed light on a number of issues. For instance, can we see any difference in the presence of MSMEs across countries and over time in the EU, and how reliable are these results? Henrekson and Johansson (1999) analyze the size distribution of European firms based on data for the period 1988–1991. In comparison, this paper will use newer data and will also look at the industry distribution of employment. Furthermore, it will briefly analyze how the industry distribution may have influenced the differences between countries and over time.[3]

[2]The abbreviation SME, small and medium-sized enterprises, is often used. However, as will be shown later on, small and medium-sized enterprises have a particular definition in the statistics from the European Union, excluding the very smallest of all enterprises (the so-called micro enterprises). To avoid confusion, the abbreviation MSME is used instead.

[3] In this paper, we will only focus on the old member states of the European Union, belonging to the western part of Europe (the so-called EU–15). The countries of Eastern Europe are in completely different phases of economic development and the statistics are not comparable with the other countries of the European Union.

Before turning to our examination of available data on MSMEs, it may be useful to briefly put today's focus on these firms into a historical perspective. During the 1950s and 1960s, the interest among politicians and economists was totally focused on large-sized enterprises (LSEs). These were seen as the engine of the economy, and economic progress was obtained through mass production of standardized products in capital-intense LSEs. The benefits of scale economies and increased specialization were normally seen to dominate the possible costs in terms of increased communication problems and bureaucracy in larger organizations. MSMEs were not seen to have any particular role to play in the development process (see e.g. Galbraith 1967).

Until the 1970s, LSEs accounted for an increasing share of production in the Western world, and this was seen as a natural process of development; hence, a low share of MSME production was taken as an indication of development. However, during the 1970s, some economists claimed that there was a reversal of this trend. The importance of LSEs had declined and would continue to decline in the future, it was argued. An early important contribution in this field was a paper by Loveman and Sengenberger (1991), which analyzed the declining importance of LSEs for the economic development in six OECD countries. The paper was later followed up by Acs and Audretsch (1993), who examined the re-emergence of small business among developed Western nations.

Several reasons for the revival of MSMEs have been suggested. One is reduced importance of scale economies. Another explanation is the alleged increase in the importance of entrepreneurship and innovation. MSMEs are today often seen as important vehicles for channelling entrepreneurial ambitions. For instance, Baumol (2004) claims that many new innovations in the USA have been developed in MSMEs. Acs and Audretsch (1988 and 1990) also conclude that the MSMEs play an important role in the process of technological change. A third explanation for the revival of MSMEs is the tendency for outsourcing and downsizing among LSEs and their concentration on "core competences". Finally, an increased importance of the service sector, which is characterized by a large share of MSMEs, is yet another suggested reason for the increasing importance of MSMEs (see e.g. Carree et al., 2002, or Carree and Thurik, 2003, for a more detailed discussion).

To conclude, MSMEs have clearly grown in importance during the last 30 years, as measured by their share of production, and there are several explanations for this observed trend. It is thus becoming increasingly important for policy makers and researchers to have access to reliable data on various aspects of these firms.

This article is structured as follows. In section 2 the available data and its limitations are presented and discussed. The next two sections formally examine the European size distribution of firms and employment. In section 3, we make a cross-country comparison of the size distribution of firms whereas section 4 examines how these patterns have changed over time. Finally, section 5 concludes.

2. The Data

For our analysis, we require data that enables us to make cross-sectional comparisons between the European countries to see if, and how, they differ. We also need time-series data enabling us to analyze how the role of MSMEs has changed over time.

2.1. Available Data at the European Level

The European Union has tried to coordinate and improve the statistics about business structure in the member states in several ways. Between 1990 and 2001, the EU published statistics about enterprises and employment in a number of reports entitled *Enterprises in Europe* (see e.g. European Commission, 2001). Altogether, six reports were published and the last report presented statistics from 1996/1997. The statistics are based on national data but differ from the official available national data as EU and the Eurostat have tried to adjust the data to harmonize the information and make it more comparable between countries. This report series has been replaced by a mini-series on *SMEs in Europe* in the Eurostat collection *Detailed Tables* and special issues of *Statistics in Focus* (see e.g. European Commission, 2002, and European Commission, 2003a). In addition, there exists a number of other series published by Eurostat, e.g. *Panorama of the European Union*, which present a large number of detailed data about the business sector in the EU. These reports do not present data about the size distribution of firms or employment, however (see e.g. European Commission, 2006).

In 1992, the European Union also started *The European Observatory for SMEs* to improve and provide additional information on the situation and economic performance of MSMEs. Since 1993, *The Observatory* has also published and produced reports with data and statistics on an irregular basis.[4] The eighth and latest report was released in 2003 and also includes thematic studies about MSME related issues (see e.g. European Commission, 2003b). These reports are nowadays prepared by the European Network of Small Business Research (ENSR) in cooperation with EIM Business & Policy Research in the Netherlands. An accounting scheme, called SEAS (the SME in Europe Accounting Scheme), has been developed in order to adjust and increase the quality of the data and to obtain better estimates.

The European Union has also developed its own classification system concerning business activities, NACE, which is based on the international counterpart, ISIC. Every enterprise must normally belong to an activity in the statistics. If an enterprise operates within more than one activity, the most important (in value added terms) is chosen. The classification system was revised in 2003.[5]

Today, the bulk of all information about European business is derived from Eurostat's Structural Business Statistics database (SBS). It provides information on the structure of businesses in the member states broken down by size classes. SBS will continue to be the main source of data about MSMEs. The database covers information from 1995 and onwards. However, the period between 1995 and 1998 must be seen as a transitional period and the dataset is more complete from the year 1999 and onwards. The SBS database mainly includes what is often called the non-financial business sections, which refer to all enterprises in the NACE sections C to I and K.[6] Before SBS was used, another database called the SME Database was the main source if you were interested in business data. Data from 1985 is available for some countries, but only includes enterprises with more than 20 employees.

[4] After the sixth report, the name was changed to *The Observatory of European SMEs.*
[5] A major revision of NACE will soon be implemented. A specific information and communication section will, e.g., be introduced.
[6] The NACE classification system is presented in the appendix.

2.2. Limitations with the Available Data

There exist two major problems with these sources, which are based on national primary data. First, countries may differ in measurement methods and in their way of collecting data. Secondly, the way of collecting data and the measurements used may change over time. It is not unusual that countries change definitions or measurement methods. The European Union has tried to solve this by introducing a harmonized way of measuring and presenting data. However, the measurement methods and definitions have also been changed by the European Union over time.

There is, e.g., no worldwide official definition of what constitutes a small or medium sized enterprise and many countries have developed their own classification systems in this area. EU has introduced a European classification system, which has been changed and revised several times. Today, enterprises employing fewer than 10 people are called micro enterprises, enterprises employing between 10 and 49 people are called small enterprises, enterprises employing between 50 and 249 people are called medium-sized enterprises and enterprises employing more than 250 people are called large enterprises.[7] Enterprises with less than 250 employed workers are called micro, small and medium-sized enterprises, for short MSME.[8] OECD uses two classification systems when possible. One of these is identical with the classification system used by the EU.

Not all member states transmit complete data in accordance with a harmonized standard. The largest deviation concerns the smallest enterprises. Some countries can only provide data about enterprises above a certain size threshold. It is difficult – or almost impossible – to receive reliable information about the very smallest share of enterprises. The activity coverage may also vary between countries due to poor data availability for some NACE sections. The data about a particular section is hence more reliable than data about the whole economy as the coverage may be incomplete. In general, information about the established manufacturing section seems to be more reliable than data about the service sector. Some countries may, completely or partly, use statistical sample surveys to collect the necessary data in some areas.

[7] The EU has also formally included a maximum amount of annual turnover and balance sheet total for micro, small and medium-sized enterprises.
[8] Cf. footnote 1.

Additional problems refer to the statistical unit. Some countries may only have data referring to the establishment and not the enterprise level. It is almost meaningless to compare data of establishments with enterprises between countries. Data can also be analyzed at the enterprise group level. Unfortunately, this kind of data is not available for most of the EU countries. The national data about employment can, finally, refer to either the number of persons employed (occupied persons) or the number of employees. The difference between these concepts mainly consists of self-employed, which are not included in the definition of employees. Many countries do not include the self-employed in their statistics about the size distribution of employment.[9]

Making reliable comparisons over time can be troublesome. As new and better sources of information and improved measurement methods have been introduced, e.g. through a new database, the statistics and data over time are not directly comparable. This has, above all, affected the number of small enterprises counted. In the sixth report of *The European Observatory for SMEs* (European Commission 2000, p. 77), it is concluded that the differences in the number of enterprises over time that can be seen in the data mainly "reflect differences in registration methods, instead of reflecting trends in economic development". They also conclude that the various reports of *Enterprise in Europe* and *The Observatory for SMEs* reports are not directly comparable over time (p. 44). Thus, it seems problematic to use the available business data from the databases as well as the published statistics to make conclusions about changes in the business structure over time. EIM has, however, tried to construct a database that will make a comparison over time possible based on *The Observatory for SMEs* reports and the SME database.

A complete analysis of the importance of job creation by MSMEs requires a more comprehensive and dynamic analysis of the change in employment and the number of firms. The data cannot be used to follow the employment trends for a particular cohort as it only presents the aggregation of firms and employment in particular size classes in a particular year. When analyzing changes over time in a special size class, the data material can easily be misinterpreted, even if we have

[9] This is, e.g., the case in the statistics that can be found in the Enterprise Database (Företagsdatabasen) from Statistics Sweden (SCB) concerning the Swedish business structure.

perfect data. Enterprises may move from one employment size class to another, due to increasing or decreasing employment levels over time. Many firms may cross the boundaries between classes and be reinterpreted as an MSME or an LSE. An increase in the employment in MSMEs can e.g. be a result of larger enterprises becoming small. Changes in the aggregate distribution between size classes may give a biased picture about what is actually happening at the micro or firm level and where new jobs in reality are created. In an expansion, when many enterprises may change from small to large, the importance of small enterprises may be underestimated. In a contraction, the importance of small enterprises may be overestimated.[10] There has been a long debate in the literature concerning the interpretation of this kind of business statistics (see, e.g., Davis et al., 1996; Harrison, 1994; OECD, 1994, chapter 3 or European Commission, 1995, appendix 1 to chapter 3).

3. A cross-country comparison of the size distribution of firms and employment

In this section we will present and compare the most recent and available data about the size distribution of firms and employment in the countries of the European Union. The section, as well as the next section, contains two parts. The first part presents the general results on the country level and the other part examines the industry distribution and how this might have influenced the results and the differences between the countries.

3.1. The General Results

Tables I and II show the size distribution of firms and employment in the EU, based on the data from the SBS database from the year 2003.[11] In total, the statistics presented in tables I and II include almost 14 million enterprises and almost 100 million workers. In each size class column, the figure of the country with the largest (smallest) share is shown in bold (italics).[12]

[10] See the appendix for a numerical illustration of this problem.

[11] Greece and most sections from Luxembourg are missing and these countries are excluded. Data is also lacking for some sections for the year 2003 and data from 2002 has, if available, been used instead in these cases. Lack of data mainly concerns sections C and E. These sections are very small as compared to the other sections, however.

[12] Figures in bold and italics showing the largest and smallest figure will be used in most tables.

Table I
Size distribution of firms 2003 (%)

Country	–9	10–49	50–249	250–
Austria	86.7	11.3	1.7	0.3
Belgium	92.1	6.7	1.0	0.2
Denmark	86.8	10.9	1.9	0.3
Finland	85.4	13.1	1.2	0.3
France	92.2	6.5	1.1	0.2
Germany	*83.0*	**14.2**	2.3	**0.5**
Ireland	84.2	12.8	**2.6**	**0.5**
Italy	**94.5**	*4.9*	*0.5*	*0.1*
The Netherlands	88.1	9.8	1.8	0.3
Portugal	92.4	6.5	0.9	*0.1*
Spain	92.2	6.9	0.8	*0.1*
Sweden	90.9	7.6	1.3	0.3
United Kingdom	86.4	11.4	1.8	0.4
EU–13	90.6	8.0	1.2	0.2

Source: SBS, Eurostat.
Note: Figures refers to sections C, D, E, F, G, H, I and K.
Section C is excluded for Portugal and Sweden, as data is missing. Section D refers to the year 2002 for Sweden. Section E is excluded for Finland and Sweden, as data is missing. Section F refers to the year 2002 for Sweden and is excluded for Ireland, as data is missing. Section G refers to the year 2002 for Sweden.
EU–13 refers to the first 15 member states of the EU (EU–15), excluding Luxembourg and Greece.

Table II
Size distribution of employment 2003 (%)

Country	–9	10–49	50–249	250–	Size class dominance
Austria	25.5	23.9	19.0	31.7	SME
Belgium	29.0	21.7	15.9	33.3	SME
Denmark	*19.6*	24.9	21.0	34.5	SME
Finland	21.9	18.7	18.4	41.0	LSE
France	23.3	20.7	16.9	39.2	LSE
Germany	*19.6*	21.9	18.7	39.8	SME
Ireland	23.1	23.1	**21.5**	32.3	SME
Italy	**47.1**	22.0	*12.4*	*18.5*	Micro
The Netherlands	28.9	20.6	18.6	31.9	SME
Portugal	39.8	23.5	17.5	19.2	SME
Spain	38.6	**25.8**	14.7	20.9	SME
Sweden	24.4	20.4	17.0	38.2	LSE
United Kingdom	21.1	*17.9*	14.8	**46.2**	LSE
EU–13	28.5	21.5	16.2	33.8	SME

Source: SBS, Eurostat.
Note: Figures refer to sections C, D, E, F, G, H, I and K.
Section C refers to the year 2002 for Italy and is excluded for Denmark, the Netherlands, Austria, Portugal, Finland, and Sweden as data is missing or confidential. Section D refers to the year 2002 for Sweden. Section E refers to the year 2002 for Sweden and Finland and is excluded for Austria as data is missing or confidential. Section F refers to the year 2002 for Sweden and is excluded for Ireland as data is missing or confidential. Section G refers to the year 2002 for Sweden.
A country has a Micro, SME or LSE size class dominance if micro enterprises (–9), small and medium-sized enterprises (10–249) or large-sized enterprises have the largest share of total employment.

As can be seen from table I, the vast majority of all firms are small; 90 per cent of all firms have less than 10 people employed and about 99.8 per cent of all firms have less than 250 people employed, i.e. almost every enterprise is an MSME. The difference is not particularly large between countries. The Mediterranean countries (Spain, France, Italy and Portugal) and Belgium have somewhat more micro enterprises than the other countries. Finland, Germany and Ireland have more medium-sized enterprises and slightly more LSEs.

Table II presents the corresponding size distribution of employment. The differences between countries are more evident in this data. The table also includes a column about size class dominance, showing the largest size class in every country.

While the LSEs only represented a very small share of all enterprises, they contribute 1/3 of total employment in EU (EU–13). Nevertheless, MSMEs account for about 2/3 of the employment and micro enterprises contribute 28 per cent of total employment. Enterprises with less than 250 workers account for an important share although their economic weight concerning employment is not as large as their share of the total number of enterprises. At the country level, the Mediterranean countries (except France) have a larger share of employed in the smallest enterprises whereas UK, Finland, Germany and France have a larger share of employed in the LSEs.

In general, there seems to be a geographical split between the northern and southern part of Europe. In the south, we have a relatively high number of micro enterprises as well as a high share of individuals employed in the micro enterprises, whereas northern Europe is more characterized by larger enterprises. France is an interesting mixed country with a large share of micro enterprises but the largest share employed in the largest enterprises.

The problem with the above data is that it is far from complete and only refers to a subset of all sectors in the economy. According to the *The Observatory of European SMEs* (European Commission 2003b), there are approximately 18 million non-primary private enterprises in EU (EU–13) employing about 135 million individuals in 2003. The SBS data presented in tables I and II includes about 25 per cent less enterprises and employed workers including public enterprises.

Table III
Size distribution of firms 2003 (%)

Country	–9	10–49	50–249	250–
Austria	86.5	11.0	2.0	0.5
Belgium	93.0	5.5	1.0	0.0
Denmark	87.5	10.0	2.0	0.5
Finland	93.0	5.5	1.0	0.5
France	93.0	6.0	1.0	0.0
Germany	88.0	10.0	1.5	0.5
Greece	**97.5**	*2.0*	*0.5*	-
Ireland	85.5	**12.5**	2.0	-
Italy	95.5	4.0	*0.5*	0.0
Luxembourg	*84.0*	12.0	**4.0**	-
The Netherlands	90.5	7.5	1.5	0.5
Portugal	93.5	5.5	1.0	0.0
Spain	93.5	6.0	*0.5*	0.0
Sweden	93.5	5.5	1.0	0.0
UK	89.5	9.0	1.5	0.5
EU–15	92.5	6.5	1.0	0.0

Source: *The Observatory of European SMEs*, European Commission (2003b).
Note: The data from *The Observatory* about LSE in Greece, Ireland and Luxembourg is rounded to zero.

Table IV
Size distribution of employment 2003 (%)

Country	–9	10–49	50–249	250–	Size class dominance
Austria	37.0	19.0	15.5	28.0	Micro
Belgium	40.0	16.5	13.0	30.5	Micro
Denmark	35.5	20.0	17.0	27.5	SME
Finland	34.5	*15.0*	15.0	35.5	LSE
France	37.0	16.0	13.5	33.5	Micro
Germany	34.0	18.0	13.0	35.0	LSE
Greece	**57.0**	17.0	13.0	*13.5*	Micro
Ireland	25.0	23.5	21.0	30.0	SME
Italy	**57.0**	17.0	*10.0*	16.5	Micro
Luxembourg	*24.5*	**24.5**	**24.5**	27.0	SME
The Netherlands	32.0	18.0	16.0	35.0	LSE
Portugal	37.5	23.0	18.5	21.0	SME
Spain	50.5	20.0	11.5	18.5	Micro
Sweden	38.5	16.0	13.5	32.0	Micro
UK	32.0	*15.0*	12.5	**41.0**	LSE
EU–15	39.5	17.5	13.0	30.5	Micro

Source: *The Observatory of European SMEs*, European Commission (2003b).

The figures from SBS can be compared with the latest statistics from *The Observatory of European SMEs* (European Commission 2003b), which also refers to the year 2003. These figures are supposed to include all non-primary private enterprises, i.e. only excluding state-owned enterprises and agriculture, forestry and fishing, and covering NACE sections C–K and N–O. It is important to note that this data is based on estimations where data is missing. This data is, however, supposed to be more comparable between countries. The size distribution based on this data can be seen in tables III and IV. Unfortunately, the data presented by *The Observatory* about firms is rounded to the nearest thousand. Hence, the distribution can be somewhat misleading and in the table below, the result is rounded to the nearest half per cent.

The size distribution of firms does not differ particularly between SBS and *The Observatory of European SMEs*, as can be clearly seen if comparing the results in tables I and III. The vast majority of all enterprises consist of micro enterprises, also according to *The Observatory of European SMEs.*

The differences are, on the other hand, large concerning the size distribution of employment, as can be seen if comparing the results in tables II and IV. On average, the employment share in micro enterprises increases by more than ten percentage units, and the share in all other class sizes decreases by between three and five percentage units. This is a noteworthy difference and the influence from the micro enterprises will appear more important if using the data from the *The Observatory of European SMEs*.

How does this difference arise? The data from *The Observatory of European SMEs* in table IV also includes sections J (financial intermediation), N (health and social work) and O (other personal service activities), compared to SBS data from table II. However, 2 of the 3 divisions in section J are dominated by LSEs and should make the LSE size class larger. Section N and 2 of the 4 divisions in section O are, on the contrary, characterized by micro enterprises, which may have altered the result and made the smallest size class larger. The exclusion of public enterprises in *The Observatory* data is likely to be another reason for the difference, as public enterprises are normally large. However, if this is the main difference between the two sources, the number of enterprises and occupied persons in each section should be higher in

the SBS dataset, whereas in fact, in the comparable sections, it is actually higher in *The Observatory of European SMEs* dataset. This is somewhat puzzling.[13]

Excluding part of the producer and personal services sections or excluding the public enterprises may, hence, heavily influence the result. One problem is that complete, reliable and comparable data about service sections can be hard to find for every country in the EU.

At the country level, it can be noticed that France and Sweden have an LSE class dominance in table II, but a micro class dominance according to table IV. Portugal is the only country where the share decreases in the smallest size class and increases in the largest size class. Germany and the Netherlands are, further, classified as having an LSE class dominance in table IV. It is, however, only in the Netherlands that the actual share of LSE increases.

3.2. The Industry Distribution

Even if tables I and II or tables III and IV are examined, it can be concluded that the size distribution differs among countries. The more to the south, the larger the share of micro enterprises. This may be explained by differences in the business structures among countries. Countries might have specialized in activities and industries that can, in general, be characterized by a particular size distribution. Some activities are more suited to be carried out by MSMEs or LSEs. This section will examine the industry distribution closer to see if and how this may have affected the differences between the countries.

Table V shows the total size distribution of employment in sections C (mining and quarrying), D (manufacturing), E (electricity, gas and water supply), F (construction), G (wholesale and retail trade), H (hotels and restaurants), I (transport, storage and communication) and K (real estate, renting and business activities) among

[13] There can also be a difference if the size distributions are based on the number of employees and not the number of persons employed, as mentioned in section 2. However, the data in both tables II and IV is supposed to be based on the number of persons employed and not employees.

the EU member states based on SBS. As previously, a column with size class dominance is added to the table.[14]

Table V
Size distribution of employment in the C, D, E, F, G, H, I and K sections (%)

Section	–9	10–49	50–249	250–	Size class dominance
C (mining and quarrying)	9.3	13.6	*3.0*	42.8	LSE
D (manufacturing)	13.6	21.9	**23.5**	41.1	SME
E (electricity, gas and water supply)	*3.0*	*5.5*	12.2	**79.4**	LSE
F (construction)	42.8	**32.0**	13.8	*11.4*	SME
G (wholesale and retail)	37.3	20.9	12.0	29.9	Micro
H (hotels and restaurants)	**44.0**	26.4	10.1	19.6	Micro
I (transport, storage and communication)	16.7	15.5	12.8	55.0	LSE
K (real estate, renting and business activities)	31.9	17.7	16.7	33.8	SME

Source: SBS database, Eurostat.
Note: Denmark, the Netherlands, Austria, Portugal, Finland and Sweden are not included in section C. Ireland and Austria are not included in section E. Ireland is not included in section F.

Table VI
Industry distribution of employment (%)

Country	C	D	E	F	G	H	I	K	Section class dominance
Austria	0.2	26.9	**1.4**	10.9	25.5	9.6	10.8	14.8	DG
Belgium	*0.1*	26.7	0.9	10.6	24.9	6.5	11.9	18.4	DG
Denmark	0.2	26.7	1.0	10.5	26.0	5.6	11.4	18.6	DG
Finland	0.3	34.6	1.3	10.2	*20.4*	4.4	**12.8**	15.9	DG
France	0.3	28.0	**1.4**	10.6	22.7	6.0	11.2	19.8	DG
Germany	0.5	**35.3**	1.3	8.2	21.9	5.6	8.7	18.5	DG
Italy	0.3	32.9	0.8	11.8	22.7	7.0	8.2	16.4	DG
Ireland	**0.6**	23.9	1.0	*4.4*	28.3	**14.6**	9.4	17.9	GD
The Netherlands	0.2	*17.7*	0.7	10.3	**29.2**	6.5	10.1	**25.4**	GK
Portugal	0.5	30.9	0.9	15.2	26.9	8.0	*6.5*	*11.1*	DG
Spain	0.3	21.2	*0.5*	**18.7**	24.8	8.9	7.9	17.6	GD
Sweden	0.4	33.0	1.0	9.9	22.9	*4.1*	10.8	18.0	DG
United Kingdom	0.4	19.8	0.7	7.4	27.7	10.5	9.0	24.5	GK
EU-13	0.4	27.6	1.0	10.8	24.3	7.4	9.2	19.3	DG

Source: SBS database, Eurostat.
Note: Section C refers to the year 2002 for Italy and Sweden. Section D refers to the year 2002 for Sweden. Section E refers to the year 2002 for Finland and Sweden. Section F refers to the year 1998 for Ireland and the year 2002 for Sweden. Section G refers to the year 2002 for Sweden.

[14] It is, unfortunately, not possible to do this analysis based on the statistics from *The Observatory of European SMEs*.

As can be seen from the table, three of the sections are SME and LSE dominated whereas two are micro enterprise dominated.[15] Micro, small and medium sized enterprises are particularly important in sections F and H, while LSEs dominate sections C, E and I. Businesses in the C, E and I sections probably depend heavily on scale economies affecting the minimum efficient scale of production and hence, tend to favor LSEs. These sectors may require huge investments to operate at an efficient scale. Starting a business in the F, G or H sections, on the other hand, requires relatively low levels of capital investment and is better suited for micro and small enterprises.

Industry distribution of employment in the countries can be seen in table VI. A column with section class dominance is added to the table, showing the two largest sections for each country.

Sections D (manufacturing) and G (wholesale and retail trade) are the largest sections, accounting for more than 50 per cent of employment in the whole EU. These sections are also the two largest sections in every country except the Netherlands and the United Kingdom where G and K (real estate, renting and business activities) are the largest. The distribution does not differ to any large extent between countries. Naturally, some differences do exist. Section D, e.g., has a share of 17.7 per cent of total employment in the Netherlands, whereas this share is almost twice as large – 35.3 per cent – in Germany.

Some of the difference in the size distribution of employment may partly be explained by the industry distribution, as mentioned above. However, if the industry distribution in every country is assumed to be the same and equal to the average distribution, the general pattern will not change to any considerable extent, as can be seen from table VII, which shows the size distribution in each country given that the industry distribution is the same in every country. The only noticeable difference is that Sweden and France now have an SME class dominance instead of an LSE class

[15] Note that even if some sections are SME dominated, the distributions in these sections may vary a lot. Sections D and F are both SME dominated, but the share of the smallest and largest size classes differs substantially. In some sections, e.g. section K, the differences between size classes are very small. It can be misleading to identify these sections as dominated by a particular size class.

dominance.[16] But the difference is not really large. Hence, it seems that the general industry distribution cannot be used to explain the main differences in the size distribution between countries.

Table VII
Size distribution of employment given that the industry distribution is the same in each country, 2003 (%)

Country	–9	10–49	50–249	250–	Size class dominance
Austria	25.5	23.8	19.2	31.5	SME
Belgium	29.5	21.8	16.1	32.6	SME
Denmark	*19.8*	**25.2**	21.2	33.8	SME
Finland	23.8	19.4	18.0	38.7	LSE
France	24.3	21.1	16.8	37.9	SME
Germany	21.7	23.1	18.0	37.1	SME
Ireland	21.7	22.0	**21.8**	34.5	SME
Italy	**48.5**	21.0	*11.9*	*18.7*	Micro
The Netherlands	27.5	20.9	19.6	32.0	SME
Portugal	38.7	22.2	17.2	21.9	SME
Spain	36.7	25.0	15.3	23.0	SME
Sweden	26.0	21.3	16.6	36.0	SME
United Kingdom	20.2	*18.0*	15.9	**45.9**	LSE

Source: Own calculations based on SBS, Eurostat.
Note: The figures above are calculated assuming that the section distribution in every country is the same and equal to the average distribution in EU-13.
Section C is excluded in the analyses of Austria, Denmark, the Netherlands, Portugal, Finland and Sweden. Sections C and E are excluded in the analyses of Austria. Sections E and F are excluded in the analysis of Ireland.

The differences between northern and southern Europe may instead mainly be a result of differences within sections. The Mediterranean countries may, e.g., have a tradition of managing family-run businesses and sole proprietorships, which will often take the form of running micro and small enterprises. Many sections in these countries will, in this case, have a higher share of micro and small enterprises than the rest of the EU.[17] As an example, table VIII shows the size distribution of employment within a section (section D, manufacturing).[18] This section can also be interesting to examine

[16] An interesting result of this comparison of data is that Sweden and France can be said to have a micro class dominance (if analyzing non-primary private enterprises), an SME class dominance (if one analyzing the private and public non-financial business sections using the EU average industry distribution) or an LSE class dominance (if analyzing the private and public non-financial business sections using the national industry distribution).
[17] The institutional environment and economic policy may also differ between countries and can influence their business structure (see e.g. Davis and Henrekson, 1999 or Henrekson and Johansson, 1999).
[18] A table showing size distribution in every country and every section will be some pages long and is not included in this paper.

separately as it is part of what has traditionally been seen as the core of the private sector.

Table VIII
The size distribution of employment in section D, 2003 (%)

Country	–9	10–49	50–249	250–	Size class dominance
Austria	10.7	18.8	26.9	43.6	SME
Belgium	11.1	19.6	24.2	45.1	LSE
Denmark	7.5	19.0	26.4	47.0	LSE
Finland	7.9	15.9	22.8	53.4	LSE
France	12.1	18.9	22.1	46.9	LSE
Germany	6.7	15.8	23.4	**54.1**	LSE
Ireland	*4.5*	19.9	**32.0**	43.6	SME
Italy	**25.3**	31.5	21.0	22.2	SME
The Netherlands	15.0	21.4	28.2	35.5	SME
Portugal	21.6	28.5	29.1	*20.7*	SME
Spain	18.7	**31.9**	23.2	26.1	SME
Sweden	11.2	*15.0*	*20.5*	53.3	LSE
United Kingdom	10.5	19.6	26.0	43.9	SME
EU–13	13.5	21.9	23.6	41.0	SME

Source: SBS database, Eurostat.

As can be seen from table VIII, the differences between the countries in the manufacturing section are as large as in the economy as a whole. In particular, it can be seen that the Mediterranean countries have a much higher share of micro enterprises. This is actually true for most of the other sections as well.[19] Hence, according to this brief analysis, it seems that the difference within sections may help explain some or most of the differences between countries.[20] The reason that Italy has a higher share of micro enterprises is not that it has focused on sections that can, in general, be seen as micro dominated but because Italy has a larger share of micro enterprises within most sections, as compared to the other countries.[21]

[19] This is not shown in any table. An interesting exception is section E where Denmark has a very high share among 1–9 workers (almost 40 per cent), whereas all other countries have a share below ten per cent.

[20] However, even within a section, the countries can specialize in special divisions. Germany's largest division within section D is motor vehicles, whereas, e.g., Spain and Italy have a large share of textile, leather and clothing.

[21] *The Observatory of European SMEs* reports also conclude that the industry distribution cannot explain the differences between the countries, see e.g. *The European Observatory for SMEs*, *first report* (European Commission, 1993).

4. A panel data comparison of the size distribution of firms and employment

This subsection will try to analyze the change of the distribution of firms and employment between countries and across time. Is it possible to find reliable panel data to examine this issue? We will also briefly analyze the changes at the section level.

4.1. The General Results

The data from SBS is not sufficiently long to be used to analyze changes over time as data for enough countries and sections can, at best, only be found from 1999 and onwards. As already concluded, the statistics from *Enterprise in Europe* and *The Observatory of European SMEs* are not directly comparable over time and cannot be used either. The data from these sources from 1990 is, in any case, not sufficiently complete and specific to use for this purpose. The EIM database mentioned in section 2 does, however, allow for such a comparison. The dataset contains estimated and rounded figures covering the non-primary private enterprises (covering NACE sections C–K and N–O) between 1990 and 2001. These figures are supposed to be harmonized and comparable over time. This seems to be the only present source that can be used to examine the change in the size distribution over time.

Analyzing the change in the size distribution of firms between 1990 and 2001, it can be concluded that no major changes in the size distribution of firms have occurred according to the data from EIM. On average, the smallest size class (–9) has increased its share slightly and the small firm size class (10–49) has decreased slightly (approximately less than a 0.5 percentage unit increase and decrease in each class). The largest change among the particular countries can be found in Germany and Ireland with about a 1 percentage unit increase in the smallest size class and a corresponding decrease in the small enterprise class (10–49).[22]

[22] This result is not shown in any table.

One may try to update these figures, which end in 2001, with the data from 2003 taken from *The Observatory of European SMEs*. This is problematic, however. The change between 2001 and 2003 will be larger than the whole change between 1990 and 2001. Particularly Sweden and UK will have large changes in their size distributions. These changes are probably a result of different measurement methods in the EIM 2001 data and *The Observatory* 2003 data. The size classes are, e.g., based on employee in EIM 2001 but on the number of persons employed in *The Observatory* 2003.[23] A closer look at the data behind these figures also reveals that the total number of enterprises changes dramatically and the results are not reliable, at least not for these two countries. This result underlines the problem when trying to compare different datasets over time. It is problematic and should be avoided.[24] If the EIM dataset gives some indication of the change during the 1990s, it can be concluded that no dramatic changes have occurred at all.

A similar analysis can be applied to the size distribution of employment. The changes in size distribution between 1990 and 2001 based on the dataset from EIM can be seen in table IX.

As can be seen from the table, some changes have occurred during the 1990s. On average, the share of the smallest size group has increased by about 1.4 percentage units, while the share of the large and medium sized class group has decreased. At the country level, in particular Germany and Greece, but also Belgium, Italy, Portugal and UK, have had an increasing share of employment among the smallest enterprises and a decreasing share among the largest enterprises. In Finland and France, the trend is the opposite; more employment in the larger enterprises and less in the smaller. Austria, Denmark and Ireland have a decreasing share of small and medium sized enterprises (10–249) and an increase in both the smallest and the largest size classes.

[23] Cf. the discussion in section 2.

[24] The total number of enterprises in the private non-primary economy in Sweden is about 275 000 according to the EIM. In *The Observatory* data, the number is almost 500 000. According to national data, the number of non-primary private enterprises in Sweden was about 650 000 in 2002 (including about 125 000 enterprises which do not belong to any NACE section, due to missing information or because the firms are very small or maybe inactive). The EIM estimations have reduced the number of enterprises by more than 50 per cent as compared to national data. In the UK data material, the number of enterprises is about 50 per cent higher in the EIM dataset than in *The Observatory of European SMEs*. These changes cannot represent any true change between 2001 and 2003.

Table IX
The change in the size distribution of employment between 1990 and 2001
(percentage units)

Country	–9	10–49	50–249	250–
Austria	0.3	–0.1	–0.4	0.2
Belgium	1.8	–0.4	–1.1	–0.4
Denmark	0.3	–0.3	–0.4	0.4
Finland	*–0.6*	–0.6	**–0.1**	**1.3**
France	0.0	–0.4	–0.5	0.9
Germany	2.1	**0.7**	–0.4	*–2.3*
Greece	**4.6**	*–1.4*	*–1.6*	–1.5
Ireland	0.9	–0.7	–0.8	0.5
Italy	1.4	–0.3	–0.7	–0.4
The Netherlands	0.5	0.3	–0.2	–0.6
Portugal	1.3	–0.6	–0.9	0.2
Spain	0.1	–0.2	–0.3	0.4
Sweden	0.3	–0.1	**–0.1**	–0.1
UK	1.6	0.1	–0.2	–1.6
EU–14	1.4	0.1	–0.4	–1.1

Source: EIM.
Note: Luxembourg is excluded.

If one tries to compare the EIM data from 1990–2001 with *The Observatory* data from 2003, the result will once more be problematic. The change between 2001 and 2003 will be unlikely large. The result cannot be updated with *The Observatory* data from the year 2003, due to different measurement methods, as previously.[25] It is not possible to use and compare these datasets with each other in this way.

Even if the changes in the size distribution of enterprises are very small according to the EIM dataset, the changes in employment are somewhat larger, though no dramatical changes can be seen in table IX. This result is based on data that seems to differ substantially from other reports and datasets presenting statistics about size distributions. It seems that many changes and estimations have been done to make the dataset comparable over time and between countries. The Swedish data seems to have been largely reduced (at least the number of firms though not the number of persons employed), only keeping what is possible to compare over time

[25] The data from Sweden can once more be used to show the discrepancy between the datasets. Total employment in the private non-primary economy in Sweden is about 2.3 million according to the EIM. In *The Observatory* data, the number is about 3.2 million. According to national data, an estimation of the employment in the non-primary private economy in Sweden is 2.7 million (including 300 000 employers working in enterprises without any connection to a specific NACE section).

and between countries.[26] The data that is left and possible to compare may, even if it is comparable, not show the whole picture and give a biased view of the actual change over time. As shown by the analysis in section 3, only analyzing a subset of all sections and enterprises may substantially alter the result.[27]

4.2. The Industry Distribution

Even if the changes seen in table IX may be spurious, it can be followed up by an analysis at the section level. Can the difference be explained by changes in the industry distribution, maybe towards sections characterized by smaller enterprises, or is the change mainly caused by a larger share of smaller enterprises within each section?

The change in industry distribution between 1990 and 2001 according to EIM is presented in table X. It also includes the share of total employment and size class dominance for each section at the end of the period.[28] As can be seen from the table, the employment share has mainly decreased in section D (manufacturing). In relative terms, it has only increased in Finland.[29] Section D is an LSE dominated section and this may be an explanation for the increasing share of employment in small enterprises. Sections F (construction) and G (wholesale and retail trade), which are dominated by micro enterprises, have, however, only increased slightly, and sections H (hotels and restaurants), N (health and social work) and O (other community, social and personal service activities), which are also dominated by micro enterprises, have decreased. The LSE dominated sections C+E (mining, quarrying, electricity, gas and water supply), I (transport, storage and communication) and J+K (financial intermediation, real estate, renting and business activities) have, furthermore, increased.

[26] Cf. footnotes 23 and 24.
[27] Note, however, that the EIM dataset is based on private non-primary enterprises, including the same sections as in *The Observatory of European SMEs* reports (i.e. NACE sections C–K and N–O).
[28] Some sections cannot be derived separately from the EIM dataset. Note that the size class dominance may differ from table VI, which is based on figures from 2003 and the SBS database.
[29] In absolute terms it has, however, increased in Ireland and Spain but decreased in all other countries including Finland.

Table X
The change in the distribution of sections between 1990 and 2001 (percentage units)

Country	C+E	D	F	G	I	J+K	H+N+O
Austria	**0.5**	–5.3	–0.2	2.5	0.9	1.6	0.0
Belgium	*0.1*	–1.5	–0.9	–0.1	*0.2*	2.1	0.0
Denmark	0.2	–1.7	–1.1	0.3	*0.2*	2.0	0.1
Finland	*0.1*	**1.8**	*–2.6*	–0.6	0.9	*–0.1*	0.4
France	**0.5**	–4.4	0.2	–1.0	1.2	3.8	–0.3
Germany	**0.5**	–7.3	0.6	1.6	1.4	3.2	–0.1
Greece	0.3	*–8.0*	**3.1**	**2.9**	0.4	1.0	0.2
Ireland	0.3	–3.4	–0.1	*–3.3*	0.3	**7.1**	–0.9
Italy	0.3	–2.5	–1.0	0.8	0.6	1.4	**0.5**
The Netherlands	0.3	–4.2	–1.0	0.7	**3.2**	3.8	*–2.8*
Portugal	0.4	–6.9	1.5	1.7	0.7	2.2	0.4
Spain	0.2	–0.6	0.1	–1.3	0.5	1.4	–0.4
Sweden	0.4	–0.1	–2.0	–0.6	1.1	1.2	0.0
UK	0.3	–1.9	0.3	–0.9	0.4	3.3	–1.5
EU–14	0.4	–4.1	0.2	0.4	1.0	2.7	–0.5
Share of total employment 2001	1.5	25.2	9.0	20.8	7.9	19.5	16.2
Size class dominance	LSE	LSE	Micro	Micro	LSE	LSE	Micro

Source: EIM.

Unfortunately, it is not possible to do a *country* analysis between 1990 and 2001 assuming that the industry distribution was the same and see how the result would change. Nevertheless, it is possible to calculate how large the change in the distribution would have been in *aggregate*, if the industry distribution had not changed between 1990 and 2001. The increase among the micro enterprises would have been somewhat lower (1.0 percentage units instead of 1.4 percentage units), the increase among small enterprises somewhat higher (0.3 instead of 0.1) and the decrease among medium-sized enterprises somewhat lower (-0.1 instead of -0.4). The change among the LSE would have been about the same. Hence, it seems that the change in the distribution of the sections cannot be the only or main explanation. Nevertheless, there seems to be a small shift from an industrial economy dominated by manufacturing towards a more service-based economy which has influenced the total size distribution. Note, however, that according to this data, the personal services sections (H+N+O) have *decreased* slightly in relative importance.

As the change in the industry distribution cannot explain the whole change, the size distribution within each section must also have influenced the outcome.

Analyzing the change over time in each section, a small increase in the share of micro enterprises will be found in all sections except sections C+E and J+K. The largest change can be seen in parts of section G (retail distribution) with about a three percentage unit increase among the micro enterprises. Section F and sections H+N+O show an increase by about one and a half percentage unit.[30] The proportion of micro enterprises may have increased within each section, due to, e.g. downsizing and outsourcing or increasing establishment of new small enterprises.

5. Conclusion

This paper has examined the availability and reliability of European data concerning the size distribution of firms and employment. On the basis of existing data, we have also analyzed differences in the size distribution of firms and employment between countries and across time.

We have shown that enterprises employing less than 250 people account for about 2/3 of total employment. Countries in the southern part of the EU in general have a higher share of micro enterprises as well as a higher share of individuals employed in the micro enterprises, compared to the other countries in the EU. This difference might be explained by a higher share of micro enterprises within most NACE sections. Some of the differences might also be explained by the industry distribution of employment. The available data also shows a small increase in employment among micro enterprises since 1990. This may be explained by a change towards sections characterized by smaller enterprises and an increasing share of micro enterprises within each section, which could be the result of e.g. outsourcing. These trends are, however, not very pronounced.

The data and statistics that we have employed have some limitations. When making cross-sectional comparisons, it seems that there must be a choice between analyzing precise, but incomplete and fragmentary, data or analyzing estimated data covering the whole economy. Even if the latter data is more complete and comparable, it must be kept in mind that in many cases these are rough estimates. The result must therefore be treated carefully, and should only be seen as indicative of the

[30] This is not shown in a table.

structure. In particular, the data on small firms and the service sector must be interpreted with caution. Analyzing changes over time is even more difficult, and most available data cannot be used to this end, due to the fact that the registration methods have changed during the period of data collection.

Finally, it is encouraging to note that the quality of the statistics on employment and firm size structure has improved over time. In the future, the structures that the EU has recently built up concerning business statistics will allow for greatly improved possibilities for comparisons both across countries and over time.

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Appendix

Tables AI and AII show the number of persons employed in MSMEs, defined as enterprises employing less than 250 individuals, and LSEs in two periods, *t* and *t+1*. If only analyzing the aggregate statistics in table AI, the number of persons employed in MSMEs has increased by 100 individuals between the periods while the number of persons employed in LSEs has decreased by 150 individuals. However, if analyzing firms A, B and C separately, it is easily seen that only firm C, which is an LSE, has increased the number of persons employed. Firm A, an MSME, and firm B, which becomes an MSME, decrease their employment. If only looking at the aggregate data, it may erroneously be concluded that more people have been employed among the MSMEs. In the same way, it will be concluded that more people have been employed among the LSEs in table AII, whereas a closer look at the firm level reveals that the increase in employment comes from the MSMEs.

Table AI
Changes in the number of persons employed

Period	*MSME*	*LSE*	*Total*	*Firm A*	*Firm B*	*Firm C*
t	200	550	750	200	300	250
t + 1	300	400	700	100	200	400
Change	+100	–150	–50	–100	–100	+150

Table AII
Changes in the number of persons employed

Period	*MSME*	*LSE*	*Total*	*Firm A*	*Firm B*	*Firm C*
t	300	400	700	100	200	400
t + 1	200	550	750	200	300	250
Change	−100	+150	+50	+100	+100	−150

NACE

(Nomenclature statistique des Activités économiques dans la Communauté Européenne)

The following list shows the NACE activity 1–letter codes.

Section:

A – Agriculture, hunting and forestry
B – Fishing
C – Mining and quarrying (extractive industries)
D – Manufacturing
E – Electricity, gas and water supply
F – Construction
G – Wholesale and retail trade
H – Hotels and restaurants
I – Transport, storage and communication
J – Financial intermediation
K – Real estate, renting and business activities
L – Public administration and defence; compulsory social security
M – Education
N – Health and social work
O – Other community, social and personal service activities
P – Private households with employed persons
Q – Extra-territorial organizations and bodies

The following, non-official, aggregates are occasionally used:
Sections C to E are called the industry sections.
Sections C to I and K are called the (non–financial) business sections.
Sections G to K (or G to Q) are called the services sections.
Sections G to I and K are called the non-financial services sections.
Sections J and K are called the producer services sections.
Sections H, N and O are called the personal services sections.