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## **ISTAT - MICRO.3**

**A new integrated system of business micro-data  
1989-04**

*M. Grazzi, R. Sanzo, A. Secchi e A. Zeli*



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# DOCUMENTI ISTAT

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## ISTAT - MICRO.3

### The building process of a new integrated system of business micro-data 1989–04

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**Summary:** This technical document describes the process of building Micro.3 and the various sources of data that has been linked to it. Micro.3 is an integrated database containing microdata on business firms from different sources for the period 1989-2004. Micro.3 represents the temporal extension of the previous panel called Micro.1, which covered the period 1989-1997.

**Key words:** integrated sources, business micro-data, consistency checks.

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## 1. Introduction

Micro.3 is the outcome of a joint collaboration ISTAT-LEM. The development of MICRO.3 took a considerable amount of time and involved the work of researchers at several units at ISTAT together with collaboration of LEM members during the various phases of the project. What made the project even more demanding was the necessity to bridge together data coming from different sources. Of course, since Micro.3 and the related database contain census data collected by ISTAT it can only be accessed at ISTAT facilities in Rome on the basis of a research agreement.

More technically, Micro.3 is an integrated system of data as it embeds information coming from different sources (as described in the following). As a first rough picture, consider that Micro.3 is built on the backbone of the already existing census of Italian firms operated by ISTAT. On this backbone we “insert” observations coming from other sources to limit possible missing values. In particular, ISTAT resorts, after careful cleaning and controls, to financial statements to fill in the missing values in its census (Biffignandi, Nascia, and Zeli, 2009). In addition, it has also been possible to enrich the database linking to the existing observations other variables concerning export behavior, patenting and innovation activity.

As such Micro.3 offers the researcher a powerful instrument to investigate the dynamics of the Italian industry in the period, 1989-2004. In particular, Micro.3 combines the features of rich cross-sectional information together with the availability of long enough time series. Given the criteria that led the collection of data, the very nature of Micro.3 is a series of cross-sections bound together. However, the careful work of this joint group ISTAT-LEM also allowed to overcome the difficulties that could have prevented to recover the time-series feature of the database. One of the aims of this technical report is to document the work that has been done in order to accomplish this result.

In the following we first present the sources of data we could rely on to build Micro.3 (Section 2). The availability of more than one source also allowed us to verify the extent to which differences sources keep track of the same phenomenon. This is shown in Section 3. Then we focus on the procedures that have led to the creation of Micro.3 from different sources (Section 4). Section 5 reports the list of variables that receive the widest coverage in the database. We also illustrate the routines that can be used to query the database in Section 6. Finally, once that Micro.3 is brought to its final format, we check once again its consistency with the older database for the overlapping years (Section 7) and we present some descriptive statistics for the whole period 1989-2004 (Section 8).

## 2. Sources

Micro.3 resorts to three different sources of data: the census of Italian firms, (in Italian “Sistema dei Conti delle Imprese”, SCI), SCI, the survey that covers small and medium enterprises, PMI, and annual reports of incorporated firms. These database are described in the following.

### 2.1 SCI census

The main source of data is the census of Italian firms, also known as SCI census. This questionnaire was sent to all firms bigger than 20 employees. We could access to data starting from 1989. As it will become clearer in the following, from 1998 onwards there has been a change, and now the census is sent only to firms with more than 100 employees. Also consider that the structure of the census as well as some of its questions did change over time in order to provide a constantly updated picture. An important piece of work in the building of Micro.3 has been done to recover common definition for some variables. In this respect we gratefully acknowledge the skillful collaboration and support of ISTAT researchers to help us recovering a unique definition of variables over all the time span covered by Micro.3. In synthesis:

- 1989-1997 The structure of the Income Statement followed the Value-Added method.

- 1998-2001 The structure of the Income Statement has the present form of the standard annual report, according to the Fourth Council Directive.
- 2002-2004 The newer census includes only the “Assets” (“attivo”) among the variables of the balance sheet. There are no information on the debt structure (“passivo”).

## 2.2 PMI survey

Up until 1997 the old SCI census was sent to all firms with employment figures bigger than 20. Starting with 1998, SCI is only sent to firms bigger than 100. The way ISTAT has chosen to monitor the firms with employment in the range 20-100 is with a “rotating” survey. Further, the PMI (small and medium enterprises) questionnaire only contains a subsample of the variables appearing in the income statement; and it does not contains variables from the balance sheet.

## 2.3 Ce.Bi. annual reports

The third source of data is made up by the annual reports collected by Ce.Bi. Indeed, Italian law prescribes that all limited liability firms have to hand in a copy of their annual report to the local Chamber of Commerce. Then Ce.Bi (“Centrale dei Bilanci”) collects and performs some controls on the annual report of Italian incorporated firms. This source has become relatively more important for its weight in the number of observations in Micro.3 after that small and medium firms (PMI) are monitored only by means of a rotating survey.

### 2.3.1 Three flags for the source of variables

From 1998 onward it is possible to resort to annual reports data for Italian incorporated firms. Thus in any year after 1998, the data might come from the SCI or PMI census and/or, it might also happen that both sources are available, from the annual report. We keep track of this, respectively, with the flag variable “scipmi” and “bil”, which take value 1 when the source is available and is a “missing” otherwise. It is important to remember - as this has created some problems in sas - that both “scipmi” and “bil” are character variables even if they take only the values 0,1.

One of ISTAT’s institutional duty is to provide EUROSTAT, on at least an annual basis, with the data for the Structural Business Statistics. As such it also ISTAT’s responsibility to fill in the missing answers both for the SCI and for the PMI groups. To this end, ISTAT employs a number of methods to integrate the data for those firms which do not answer to the SCI census (or OMI survey). The variable “ril” keeps tracks of all the specific cases. In particular “ril” takes the following values:

- ril= missing for observations before 1998 and after 1998 when only the annual report data is available.
- ril=0 data come from PMI survey.
- ril=1 data come from SCI census.
- ril=2 data come from a “donor”. The SCI variables have been filled with data coming from a firm that is similar in terms of size, sector of activity, etc. Then, at later point in time, some years later, it might happen - it might - that the annual report data become available so that it is used to fill these entries. The reason why a “donor” is used to fill in a missing value, thus giving rise to ril=2, is the high priority assigned to recover information for the whole population of SCI.
- ril=3 Firms not responding to the SCI census. Data have been recovered directly from annual reports when there is perfect correspondence between the definition. For those variables with no perfect match or for whom the annual report only report the aggregated variable, we have taken the following procedure. The annual report data of the aggregate variable have been used and splitted into sub-variables employing the corresponding ratio taken from a SCI respondent that is similar in size, sector of activity, etc. Consider the following clarifying example. Take the variable “ACQUISTI” (purchases) from the annual report. Its perfect correspondent from SCI is

“v12100”. So the first step is to plug the data of “ACQUISTI” into v12100. Then in the SCI census, this variable is disaggregated to a finer detail. This greater precision is not accessible through annual reports. Then in the second step we disaggregate the variable “ACQUISTI” from Ce.Bi into three entries (in this case v12101 v12102 and v12103) according to a proportion estimated on SCI respondents similar for size, ateco, etc.

- ril=5 Firms not responding to the PMI survey. Similar procedure as in ril3=.

Clearly the case when ril=2 raises some concerns, because we want to avoid to use a variable that comes from a “donor”, and we have removed these occurrence from the final database, Section 4 describes this and other cases.

## 2.4 Other database linked to Micro.3

After the aforementioned sources have been merged together we proceed to link Micro.3 to some database developed at ISTAT and to a novel patent database.

### COE data

We link Micro.3 to information on exports (and we also plan to include import) thanks to the COE database. All incoming (imports) and outgoing (exports) invoices are registered in the COE so that it is possible to keep track of all transactions. Notice that, due to way COE is built and updated - that is by registering new transactions - it is not necessarily true that it covers a sample of firms completely overlapping with Micro.3. In COE we find indeed also firms with commercial transactions with other countries but lying below the 20 employee threshold set by ISTAT for their census. Given such a situation the link of Micro.3 to export data in COE does not introduce any “selection” bias in the database. On the contrary, we will exploit at best the feature of COE of registering all transactions, in order to be able to properly study the phenomena of firms starting to export.

### Patents data

We exploit a patent database that contains the number of registered patents (both USPTO and EPO), and in this respect we gratefully acknowledge skillful research assistantship by Rekha Rao for linking the two database. The patent database contains information on patents granted to Italian firms starting in 1949 for the USPTO and 1978 for the EPO, thus even before the beginning of the period considered for Micro.3. The data coming from the two patent offices were linked to Micro.3 firms as follows. Patent files only report the full name of the company and its address. Asia, another database managed by Istat, contains the full name, the address and the fiscal code of the firms, with no threshold on employment. As a result there are firms in Asia that are not in Micro.3. The two patent databases were first linked to Asia and then, matching the fiscal code, to Micro.3. Since not all firms appearing in Asia are in Micro.3 after the link of patent data to Micro.3 we go from around 68,000 patents relative to 3,858 firms, down to 31,000 patents that got linked to 1,883 firms of Micro.3.

This might look like a dramatically small number of patents and of firms. But let us refer to other studies on similar database. Malerba and Orsenigo (1999) investigates the dynamics of Italian innovating firms. The database they employ for the empirical analysis contains 15175 patents application by 3805 firms (Malerba and Orsenigo, 1999, p. 646). On the contrary we consider here only granted patents, as we consider this a more meaningful proxy for innovation activity. Similar works that still employ as a proxy for innovation patents application has often to rely even on a smaller number of observations (Cefis and Orsenigo, 2001).

Even more difficult is the process of linking data on granted patents to other database, such as Micro.3. This is because the classification used by the patent office and that implemented by the national office for structural business statistics are different. Thus the matching between the two database requires the implementation of some pattern recognition techniques, which not always lead to the successful matching of all the relevant cases.

Indeed, when we refer to empirical works that match patent data to other sources of information the numbers get even smaller (Scellato, 2007).

In the following, as far as the matching of patents granted to Micro.3 is concerned, we will consider the total number of registered patents without distinguishing from the source (EPO or USPTO). This pursues our objective of having the most unbiased proxy of the innovation activity of the firm as possible and at the same time it maximizes the number of links between the two database. In particular, in the following, we are going to employ the cumulative sum of patents over the year, thus assuming that patents are not bearing any depreciation in their value.

### 3. Consistency checks

As said Micro.3 is the resulting of merging together information coming from different sources. Sometimes difference sources, i.e. SCI and financial statements contain information on the same variable. In those cases it is possible to investigate if the differences between the values of the same variables are large and if they do exhibit some regularity. Fortunately, the answer to both questions is negative. Differences are relatively small and they do not display a clear path, i.e. one of the source providing values constantly bigger (smaller) than the other.

In Table 1 we report the differences (in absolute value) of the values of a variable when this is available both in the ISTAT sources of data (sci and pmi) and in the data from Ce.Bi. with information from the financial statements. For the sake of brevity, data of the sample years 1998-2004 are pooled together, and Table 1 reports the total number of observation falling in ever bin. Seven bins have been built taking differences in the two sources in absolute value. The differences are computed as follows:

The first bin contains observations that display less than 2% of differences between the ISTAT and Ce.Bi. data. The last bin contains those observations reporting a difference that in absolute value is bigger than 100%. Also consider that, although not displayed in the Table (because we report statistics on the pooled sample), the distance between the sources is narrowing over time.

In looking at Table 1 bear in mind that the last line reports the total number of cases when both sources are present, and as such it has nothing to do with the total number of observations available in Micro.3.

Also notice that those variables that appear with the same definition ISTAT (SCI and PMI) and Ce.Bi. (financial statement) report smaller differences. A typical example is the value of Turnover “n11100”. This variable looks exactly the same in the sci/pmi scheme and in the annual reports scheme. Thus, the substantial overlapping between the two sources. On the contrary, since the annual report scheme is not containing a variable for value added, this variable has to be recomputed both in sci/ pmi and in Ce.Bi. Thus, the resulting relatively bigger differences for this variable.

Anyhow, the bottom line is, as we will explain in the following section, to use the data from the sci census or pmi survey when available, and to resort to Ce.Bi only when none of the first two is present.

**Table 1:** Differences between *sci-pmi (ISTAT) data and balance sheet information (Ce.Bi). Occurrences and frequencies*

	Turnover	Production Value	Purchases	Change in stocks of raw materials	Personnel costs	Value added	Employees	Assets
	n11100	n12000	n12100	n12600	n12400	n14000	n31000	n2200
0-2	106710 87.67	100155 82.21	78919 66.60	61404 67.37	100421 82.58	45143 37.25	43648 46.9	39720 70.49
2-5	2431 2.00	6457 5.30	11106 9.37	6064 6.65	5934 4.88	23571 19.45	23453 25.20	958 1.70
5-10	1608 1.32	3105 2.55	7072 5.97	3483 3.82	4233 3.48	18778 15.49	12112 13.01	960 1.70
10-20	1899 1.56	2679 2.20	5782 4.88	2394 2.63	3728 3.07	14793 12.21	7615 8.18	1396 2.48
20-50	3728 3.06	4049 3.32	6637 5.60	2712 2.98	4749 3.91	11615 9.58	4818 5.18	3820 6.78
50-100	3555 2.92	3587 2.94	5853 4.94	2498 2.74	1969 1.62	4158 3.43	1113 1.20	4914 8.72
>100	1789 1.47	1801 1.48	3133 2.64	12591 13.81	564 0.46	3137 2.59	309 0.33	4584 8.13
Total	121720 100	121833 100	118502 100	91146 100	121598 100	121195 100	93068 100	56352 100

#### 4. Procedures implemented to build Micro.3

We collect and report here the steps that have been performed to bring Micro.3 to its final form.

##### 4.1 Census data first. If missing then integrate with annual report

As a first rule, we employ census data as a “first best”, and only if not available we then resort to financial statement. Indeed, from 1998 onward data from annual reports are also available. However, many reasons - also explained to us by ISTAT researchers - suggest to prefer census data over annual reports. First, it is ISTAT institutional duty to prepare, distribute, collect and carefully verify the data. The capabilities developed there strongly suggest to favour this source over financial statement, if both are available. Then, since annual reports are available only after 1998 - and not for 1989-1997 - it makes sense to prefer census data by ISTAT, when available, to enhance data source homogeneity.

##### 4.2 Getting homogenous definition for variables

Second, it is generally the case that the definitions of variables coincides for SCI-PMI and annual reports; yet, sometimes the definitions in the two documents differ. When this is the case, it is necessary re-define the variable in order to recover a common definition for all sources. In the following we report the definition of those variables that had to be re-computed.

#### 4.2.1 Re-definition of sci-pmi variables

The structure of the SCI census and PMI survey do not perfectly match for all variables. In those cases with differences, variables have been re-defined according to the following expressions.

salari e stipendi (wages and salary):

$v4111x = \text{sum}(v41110, s42110)$ ; if (s42110=.) then  $v4111x = \text{sum}(v41110, p42111, p42112, p42113)$ ;

oneri sociali

$v4112x = \text{sum}(s41120, s42120)$ ; if  $v4112x = .$  then  $v4112x = p42121$ ;

TFR

$v4113x = \text{sum}(s41130, s42130)$ ; if  $v4113x = .$  then  $v4113x = p42131$ ;

#### 4.2.2 Re-definition of Ce.Bi. variables

Ce.Bi. data from the annual reports (collected at the Chamber of Commerce) face a similar issue. The definition of some variables, especially those not appearing in the financial statement, do not perfectly match with the corresponding variable computed with SMI-PMI data. Thus the following expressions have used to recover the highest precision as possible for making comparisons.

TFRQ=FINERAPPORTO+QUIESCENZA	TFRQ=SEVERANCE PAY AND RETIREMENT PACKAGE
valore aggiunto $v14000b = \text{sum}(\text{RICAVIVENDPREST}, \text{VARIAZRIMPROD}, \text{VARIAZLAV}, \text{INCREMIMMOB}, \text{ALTRIRIC}, -\text{ACQUISTI}, -\text{SERVIZI}, -\text{GODIMBENI3}, -\text{VARIAZMATPRIME}, -\text{ONERIDIVERSI})$ ;	value added $v14000b = \text{sum}(\text{TURNOVER}, \text{CHANGE IN STOCK OF FINISHED GOODS}, \text{CHANGE IN STOCK OF WORK IN PROGRESS}, \text{CAPITALISED PRODUCTION}, \text{OTHER OPERATING INCOME}, -\text{PURCHASES}, -\text{SERVICES}, -\text{CHANGE IN STOCK OF RAW MATERIALS}, -\text{OTHER OPERATING COSTS})$ ;
marginale operativo lordo $molb = \text{sum}(v14000b, -\text{PERSONALE})$ ;	gross operating surplus $molb = \text{sum}(v14000b, -\text{PERSONNEL COSTS})$ ;
marginale operativo netto $monb = \text{sum}(molb, -\text{AMMORTAMENTISVALUTAZ}, -\text{ACCANTONAMENTIRISCHI}, -\text{ACCANTONAMENTIALTRI})$ ;	net operating surplus $monb = \text{sum}(molb, -\text{DEPRECIATION}, -\text{OTHER AMORTIZATION})$ ;
risultato d'esercizio $risesercb = \text{sum}(monb, -\text{PROVONEFINANZ})$ ;	profits from ordinary business activity $risesercb = \text{sum}(monb, -\text{FINANCIAL INCOME AND EXPENDITURE})$ ;

#### 4.2.3 Re-definition of SCI only variables

In order to determine the value for the aggregates “rettifiche di valori di attivita' finanziarie” (rectification of financial assets values) e “proventi e oneri straordinari” (non-current income and expenses) the following expressions are computed.

$v16000x = s15100 - s15200$ ;

$v17000x = s16100 - s16200$ ;

### 4.3 Source flag

Since there are different possible sources, we associate to those variables which might come from different sources - SCI-PMI or Ce.Bi. -, an identification flag, “flfv” as follows:

- flfv = 1 variable is coming from SCI-PMI;
- flfv = 2 variable is coming from Ce.Bi.;
- flfv = 0 variable is missing.

### 4.4 Categorical Variables

Micro.3 contains a lot quantitative variables with economic and financial information. Besides these, it also contains categorical and qualitative variables, as for instance “forma giuridica”, “stato attività”, “regione”, etc.

#### 4.4.1 Regional dummies

All three sources of Micro.3 (SCI, PMI, and financial statement) also contain information on the geographical location of the firm, so that the coverage of this variable is adequate. Of course one has to bear in mind that the regional dummies only identifies the location of the headquarter; that would perfectly overlap with the firm only in the case of single unit or single plant firms.

The classification goes as follows:

1	Piemonte	11	Marche
2	Valle d'Aosta	12	Lazio
3	Lombardia	13	Abruzzo
4	Trentino Alto Adige	14	Molise
5	Veneto	15	Campania
6	Friuli Venezia-Giulia	16	Puglia
7	Liguria	17	Basilicata
8	Emilia-Romagna	18	Calabria
9	Toscana	19	Sicilia
10	Umbria	20	Sardegna

Further we group together regions belonging to the same geographical area. This is done in accordance with the classification provided by Istat in the document “Codici e denominazioni di ripartizioni geografiche, province e regioni” (ISTAT, 2009) available at [www.istat.it](http://www.istat.it). The classification goes as follows:

```
IF reg = 1 or reg = 2 or reg = 3 or reg = 7 then nord west =1;
ELSE nord west =0;
IF reg = 4 or reg = 5 or reg = 6 or reg = 8 then nord east =1;
ELSE nord east =0;
IF reg =13 or reg =14 or reg =15 or reg =16 or reg =17 or reg =18 then meridione (south) =1;
ELSE meridione =0;
IF regione = 19 or regione = 20 then insulare (islands) =1;
ELSE insulare =0;
```

Note that we do not create the dummy variable for “centro” (center) thus all results from, for instance, regressions will have to be compared against the benchmark case “centro”.

#### 4.4.2 Other dummy variables

In order to ease the phase of economic analysis, we also build other dummy variables for exporting and patenting activity. The dummy variable for export, “dummyexp” takes value 1 if the firm exports in that year and zero otherwise. While the variable “dummybrev” takes values 1 if the firm has at least one registered patent up to the year of analysis.

#### 4.4.3 “Forma Giuridica” (Legal Form)

The Micro.3 database also provides information on the legal entity of the firms. The classification is that provided by ISTAT in the document “Classificazione delle forme giuridiche delle unità legali” (ISTAT, 2004).

### 4.5 Removing observations

Notwithstanding all the cleaning described above it is still necessary to remove some observations from the final database that we employ for statistical and economic analysis.

#### 4.5.1 Removing “fake” census data

From 1998, there are also Ce.Bi data in addition to SCI-PMI sources. Section 2.3.1 describes how some flags, namely “bil”, “scipmi” and “ril” keep track of the source of the data and of how they have been integrated.

Since Micro.3 has been built in order to use microdata for economic analysis, we make all the efforts to get a database that is as close as possible to the original sources; and in particular we want to get rid of any homogenizing treatment on the variables resulting from intervention after data collection, for instance to fill in some blanks due to missing respondents. In this respect the goal of a National Statistical Office and that of an economist might, although marginally, diverge. The main interest of any statistical office is to provide a complete picture of a sector, accepting the loss of precision due to integrating missing answers with as much similar as possible “donor”. On the contrary a (micro)economist is mostly concerned to identify and possibly provide an account of the observed heterogeneity in a sector; and to this end, having “donors” is only harmful, as it - by definition - reduces the variance of the observations.

Clearly the case when ril=2 raises some concerns, because we want to avoid using a variable that comes from a “donor”. Then we solve this problem, removing those observations that satisfy the condition:

if ril=2 and bil=‘ ’ then delete;

This operation deletes 4572 observations, see Table 2.

And for the case: if ril=2 and bil=‘1’ we clean the SCI entries for these observations and only consider the data coming from the Ce.Bi source.

#### 4.5.2 Length period of the annual report

The standard period for an annual report is, of course, twelve months, and this happens in the overwhelming majority of our cases, but not always. To improve comparability between firms we restrict our database to those observations with a length period for the annual report of twelve months.

if periodofattbil ne . and periodofattbil ne ‘12’ then delete;

This operation deletes 4845 observations, see Table 2. Table 2 provides a succinct picture of this steps and how we get to the final number of observations employed for empirical analysis.



**Table 2: Number of firms in each year of the sample 1989-2004.**

Year	ril						Observations in each year
	.	0	1	2	3	5	
1989		31639					31639
1990		34329					34329
1991		32029					32029
1992		35357					35357
1993		36872					36872
1994		40322					40322
1995		34347					34347
1996		30289					30289
1997		27691					27691
1998	40005	8663	3835	4652	0	0	57155
1999	42581	7848	3775	4946	0	0	59150
2000	42731	7409	3845	5356	0	0	59341
2001	38525	9513	4346	961	4247	2534	60126
2002	36512	9688	4377	5361	0	4790	60728
2003	35826	8923	4510	1187	4271	5650	60367
2004	39066	8061	4554	813	4870	6041	63405
Total Obs.							723147
Total Firms							136003
Remove Obs. (see Section 4)							
Donor tout court						4851	
Length annual report $\square$ 12						4845	
After Removing Obs. as in Section 4 fourth case							
Total Obs.						713451	
Total Firms						134625	

## 4.6 Industry classification standards over time

Micro.3 spans from 1989 to 2004. Many things have changed in the economy over almost two decades. Some economic activities, for instance the recycling industry, NACE 37, did not even exist as an industry of its own according to the industrial classification adopted back in 1989. During the time interval covered by Micro.3 the standards for industry classification have changed many times. Back in 1989 the classification adopted by ISTAT was the NACE-Clio and the ATECO 1981. In 1991 the standard was set to ATECO 1991, then it was changed again to get to ATECO 2002, the last classification that is relevant for Micro.3. Istat, following Eurostat requirement has just released ATECO 2007 that implements quite a radical change with respect to ATECO 2002. Luckily enough, we do not have to take into consideration yet another change in standards.

The change from ATECO 1981 was particularly cumbersome as it completely reshaped the standard of classification.

Thanks to the fruitful collaboration with Istat it was possible to overcome most of the difficulties related to the change in the classification of economic activities, so that the assignment of firms to the different sectors is done, for all years in the sample, accordingly to ATECO 2002 classification (ISTAT,

2002). Quite obviously, having an industry classification that is invariant throughout all the sample period greatly enhances the possibility of making sensible comparison over the years.

The other issue that one is facing in making inter-temporal comparisons is deflating monetary variables. In 1992, for instance, there was a period of severe speculative pressure, also motivated by high inflation rates in Italy, that caused the devaluation of the Lira, the Italian currency, with the consequent exit from the monetary union. Those years, indeed, reported inflation rates which were remarkably higher than those to which we are accustomed nowadays, especially after the Euro introduction. It is then particularly important to appropriately deflate the monetary variables if one wants to be able to make inter-temporal comparisons.

In order to be able to do so, we deflate our data on monetary variables making use of the 2 or 3 digit sectoral production price index provided by ISTAT and taking 2000 as the reference year. Note that ISTAT provides online many time series of the Italian economy at: <http://con.istat.it/default.asp>. Unfortunately, at the moment, it was not possible to get the appropriate deflator for 1989 and 1990. Indeed, as we recalled above, in 1991 there was quite a radical change in industrial classification, shifting from ATECO 1981 and NACE-Clio to ATECO 1991. It was not possible to get for 1989 and 1990 a production price index that is comparable to the later ATECO 1991 classification. Thus, in what follows we are going to present results on 1989 and 1990 only when this is not going to cause any misrepresentation of the analyses.

## 5 The list of variables

As explained in the Section **Errore. L'origine riferimento non è stata trovata.** there are three sources of data available, SCI census, PMI survey and the annual reports accessed through the Ce.Bi. database.

As said in the previous section we exploit the richness of the sources and also their partial overlapping to fill in possible missing values. Of course, the process of integrating different sources to limit the number of missing only works for those variables whose definitions coincide in both dataset. This happens only for a limited subset of all available variables. For this subset of variables we thus observe a wider coverage and correspondingly, longer time series are generally available. This group of variables is denoted as “nxxxxx”. Bear in mind that what enables to get a long time series is also the accordance of the definition of a given variable in the two periods (1989-97 and 1998-04). Thus also the changing definitions over time limits the length of the time series.

In addition to the group of “nxxxxx” variables, the final version of Micro.3 also contains information on variables that present a more sparse coverage in the database. This is in accordance to the more general criteria that has inspired the preparation of Micro.3 and that suggest to leave as many degrees of freedom as possible on the final user of the database.

In synthesis, these are the group of variables that one can identify on the basis of their origin and, relatedly, their coverage in Micro.3 They are reported in decreasing order of completeness of the series:

- nxxxxx; variables whose definitions perfectly match in the three sources (balance sheet, PMI and SCI) so that it is possible to reconstruct the ‘continuity’ independently by the source available in every year. In addition for most of these variables there is perfect correspondence between the definition of Micro.1 and Micro.3 so that it is possible to recover a longer time series, starting in 1989. This is more true for the Profit and Loss statement. This does not happen so often with the Balance Sheet because Micro.1 had a different definitions of variables (this appears immediately when comparing the Balance Sheet of the old SCI (before 1998) and the new one (after 1998));
- vxxxxx; variables whose definitions perfectly matches in SCI and PMI but of course not in the balance sheet, otherwise they would be nxxxxx. They also start back in 1989, because they have a coherent definition in the new (1998 onward) and old (up to 1997) sci questionnaire;
- sxxxxx; variables from the SCI census. These are the variables from the SCI census that do not match with any of the other database.
- pxxxxx; variables from the PMI survey. These are the variables from the PMI census that do not match with any of the other database.

These variables are reported in the following tables distinguishing between those appearing in the Profit and Loss Statement, Table 3, and for the balance sheet, Table 4. For the reader's convenience, we also report a column displaying the old code for Micro.1; so that it is possible to recover how the 'continuity' of the variables as been recovered in those cases where the definition of the variables in Micro.1 and Micro.3 differed.

**Table 3:** *List of variables from the Profit & Loss statement that is available for all the three sources.*

Codice Civile	Variable definition	Code Micro.3		Code Micro.1
A.	VALORE DELLA PRODUZIONE	n12000	PRODUCTION VALUE	A15
A.1	Ricavi delle vendite e delle prestaz.	n11100	TURNOVER	A9-A8
A.2	Variazione rimanenze prodotti	n11200	CHANGE IN STOCK OF FINISHED GOODS	A12+A13
A.3	Variazione dei lavori in corso	n11300	CHANGE IN STOCK OF WORK IN PROGRESS	NONE
A.4	Incrementi delle immobilizzazioni	n11400	CAPITALISED PRODUCTION	A10
A.5	Altri ricavi	n11500	OTHER INCOME	A8
B.	COSTI DELLA PRODUZIONE	n13000	COSTS OF THE PRODUCTION	NONE
B.6	Acquisti	n12100	PURCHASES	A16+A17
B.7	Servizi	n12200	SERVICES	SUM(A20:A34) senza 22,30,32
B.8	Godimento beni di terzi	n12300	OTHER OPERATING COSTS	A22+A30
B.9	Personale	n12400	PERSONNEL COSTS	A37
B.9.a	Salari e stipendi	n4111x	WAGES AND SALARY	A175
B.9.b	Oneri sociali	n4112x	SOCIAL SECURITY	A176
B.9.c	Trattamento di fine rapporto	n4113x	SEVERANCE PAY	A177
B.9.d	Quiescenza		RETIREMENT PACKAGE	
B.9.e	Altri costi	n43000	OTHER COSTS	A181
B.10	Ammortamenti e svalutazioni	n12500	AMORTIZATION	A40+A41+A42 +A43+A45
B.10.d	Svalutazione dei crediti		DEPRECIATION	

B.11	Variazione delle materie prime	n12600	CHANGE IN STOCK OF RAW MATERIALS	A18+A19
B.12	Accantonamenti per rischi	n12700	ALLOWANCES	NONE
B.13	Altri accantonamenti	n12800	OTHER ALLOWANCES	NONE
B.14	Oneri diversi di gestione	n12900	OTHER OPERATING CHARGES	A35+A32+38
C.	PROVENTI E ONERI FINANZIARI	n15000	FINANCIAL INCOME AND EXPENDITURE	SUM(A47:A56)
C.15	Proventi da partecipazioni	n14100	CORPORATE DIVIDENDS	A47
C.16	Altri proventi	n14200	OTHER INCOME	A48+A49+A55
C.17	Oneri finanziari	n14300	OTHER CHARGE	SUM(A50:A56)
D.	RETTIFICHE ATTIVITA' FINANZ.	n16000x	RECTIFICATION OF FINANCIAL ASSETS VALUES	NONE
D.18	Rivalutazioni (immobilizz. e titoli)	n15100	REVALUATIONS	NONE
D.19	Svalutazioni (immobilizz. e titoli)	n15200	DEVALUATIONS	NONE
E.	PROVENTI E ONERI STRAORDINARI	n17000x	NON-CURRENT INCOME AND EXPENSES	NONE
E.20	Proventi straordinari(*)	n16100	NON-CURRENT INCOME	NONE
E.21	Oneri straordinari(*)	n16200	NON-CURRENT EXPENSES	NONE
	RISULTATO ANTE IMPOSTE	n17999	PROFITS BEFORE TAXES	A60
22	Imposte d'esercizio	n18100	TAXES	A61
23	Utile/Perdita d'esercizio	n19000	PROFITS	A62
Others:				
	valore aggiunto	n14000	VALUE ADDED	A36
	marg operativo lordo	nmolx	GROSS OPERATING SURPLUS	A39
	marg operativo netto	nmonx	NET OPERATING SURPLUS	A46
	risultato d'esercizio	nrisesercb	PROFITS FROM ORDINARY BUSINESS ACTIVITY	A57

**Table 4:** *List of variables from the Balance Sheet that is available for all the three sources. (\*)Only from 1998 onward.*

Variable definition		CODE	CODE
		Micro.3	Micro.1
IMMOBILIZZAZIONI	FIXED ASSETS	n22000	A77
IMMOBILIZZAZIONI IMMATERIALI	INTANGIBLE FIXED ASSETS	n22100	A70
Impianti di ampliamento	Formation and expansion expenses	x	
Ricerca e sviluppo	Research, development	n22101(*)	NONE
Brevetti	Patents	n22102(*)	NONE
Avviamento/Differenza	Godwill	x	
Immobilizzazioni in corso e acconti	Fixed assets in the course of realization and payments on account	x	
Fondo Ammortamento	AMORTIZATION	x	
IMMOBILIZZAZIONI MATERIALI	TANGIBLE FIXED ASSETS	n22200	SUM (A63:A69)
Terreni e fabbricati	Land and buildings	n22210(*)	
Impianti	Plants	n22220(*)	NONE
Attrezzature industriali e commerciali	Industrial and commercial equipment	n22230(*)	
Altri beni	Others assets	n22240(*)	
Immobilizzazioni in corso e acconti	Fixed assets in the course of construction and payments on account	n22250(*)	
Fondo Ammortamento	AMORTIZATION	x	
IMMOBILIZZAZIONI FINANZIARIE	FINANCIAL FIXED ASSETS	n22300(*)	
Partecipazioni	Holdings in	x	
Crediti	Receivables from	x	
Altri titoli	Other securities	x	
CIRCOLANTE	CURRENT ASSETS		
Rimanenze	STOCKS	x	

Crediti	RECEIVABLES	x	
Attività finanziarie	FINANCIAL ASSETS	x	
Altri titoli	Other securities	x	
Disponibilità liquide	CASH FUNDS	n23400	SUM (A112:A1 15)
TOTALE ATTIVO	TOTAL ASSETS	n24990	A117
PASSIVO	LIABILITIES		
PATRIMONIO NETTO		n25000	A124
	Equity capital		+A143
Capitale sociale	Share capital	x	
Riserva rivalutazione	Revaluation reserve	x	
Utili/Perdite a nuovo	Retained profits	x	
Utili/Perdite d'esercizio	PROFITS	x	
T.F.R.	SEVERANCE PAY	x	
DEBITI	DEBTS	n28000	A136+A1 37
Debiti per obbligazioni	Bond debts	n28010	A128
Debiti per obbligazioni convertibili	CONVERTIBLE BONDS DEBTS	x	
Debiti verso banche	BANK DEBTS	n28030	A129
Debiti verso altri finanziatori	OTHER DEBTS	x	
NOTA INTEGRATIVA	ADDITIONAL NOTE		
DIPENDENTI	EMPLOYEES	n31000	A160

As said the nxxxxx variables only represent the intersection of the three sources of data so that they are a small subsample of the variables available in Micro.3. The complete - and up to date - list of variables is contained in the list file queryNetCDF.py

### Other variables with “broad” coverage

The following variables have been linked to Micro.3 from other sources. So their coverage does not fit into the categories SCI-PMI-BalanceSheet that we have used so far.

They include:  
 defl2dgt deflattore prezzi alla produzione a 2 digit;  
 exptot totale esportazioni, fonte COE;  
 regione codice regione;  
 cumsumbrev Cumulative sum of patents.

## 5.1 Variables for Capital and Investment Measurement

### Capital

The only three variables for which it is possible to have the long time series, 1989-2004, are n22000, “Immobilizzazioni”, n22100 “Immobilizzazioni Immateriali” and n22200 “Immobilizzazioni Materiali”. The other variables were not in the older SCI questionnaire (or they were present under different aggregation). These variables, as written in the SCI questionnaire (and conforming to existing civil requirements) are all net of their relative “fondo ammortamento”. As such they are comparable over all the sample length, 1989-2004. The remaining nxxxxx variables of the “Immobilizzazioni” are only available from the 1998 onward since it was not possible to recover a common definition between Micro.1 and Micro.3. Also remember that in the PMI there are no variables from the Balance Sheet. Here is a summary of the situation, for clarity we stick to the SCI questionnaire that closely match the accounting requirements of firms (also remember the definition of nxxxxx, vxxxxx, sxxxxx, pxxxxx recalled at the beginning of the section):

**Table 5:** *List of variables for Capital Measurement*

	Nome	Name	code	coverage
	totale B (I+II+III)	total B (I+II+III)	n22000	1989-2004
		<b>B - Fixed assets</b>		
B-I	Immobilizzazioni Immateriali	I intangible fixed assets	n22100	1989-2004
	di cui costi di ricerca, svil., pubb.	of which costs of research and development	n22101	1998-2004
	di cui brevetti	of which rights of industrial patents	n22102	1998-2004
	di cui diritti di utilizzaz. opere ing.	of which rights of utilization of the original works)	s22103	1998-2004
	di cui concessioni, licenze e marchi (escluso software)	of which rights of utilization of the original works (original artistic, original literary, etc.)	s22104	1998-2004
	di cui software	of which concessions, licences and marks (excepted software)	s22105	1998-2004
B-II	Immobilizzazioni Materiali	II tangible fixed assets	n22200	1989-2004
	1) Terreni e Fabbricati	1) land and buildings	n22210	1998-2004
	- terreni	- land	s22211	1998-2004
	- fabbricati strumentali	- inconsumable building	s22212	1998-2004
	- fabbricati non strumentali	-consumable building	s22213	1998-2004
	2) Impianti e Macchinari	2) plants and machineries	n22220	1998-

	di cui mezzi di trasporto strumentali	of which inconsumable means of transport	s22221	1998-2004
3)	Attrezzature Ind. e Commerc.	3) industrial and commercial equipment	n22230	1998-2004
4)	Altri beni	4) other assets	n22240	1998-2004
	di cui attrezz. per trattamento e trasmiss dati	of which equipment for data processing and transmission	s22241	1998-2004
	di cui mobili e altre attrezz	of which furniture and equipment	s22242	1998-2004
	di cui mezzi di trasp non strumentali	of which consumable means of transport	s22243	1998-2004
	di cui beni di valore	of which valuable assets	s22244	1998-2004
5)	Immobilizzazioni in corso ed acconti	5) fixed assets in the course of construction and payments on account	n22250	1998-2004
B-III	Immobilizzazioni Finanziarie	Financial fixed assets	n22300	1998-2004
1)	partecipazioni in	1) holdings in:		
	a) imprese controllate	a) controlled enterprises	s22310	xxxx
	b) imprese collegate	b) related enterprises	s22320	1998-2004
	c) altre imprese	c) other enterprises	s22330	1998-2004
2)	crediti	2) receivables:		
	a) verso imprese controllate	a) to controlled enterprises	s22340	1998-2004
	di cui esigibili entro l'ese.	of which becoming within the subsequent financial	s22341	1998-2004
	b) verso imprese collegate	b) to related enterprises	s22350	1998-2004
	di cui esigibili entro l'ese.	of which becoming within the subsequent financial	s22351	1998-2004
	c) verso controllanti	c) to controlling enterprises	s22360	1998-2004
	di cui esigibili entro l'ese.	of which becoming within the subsequent financial	s22361	1998-2004
	d) verso altri	d) to other	s22370	1998-2004
	di cui esigibili entro l'ese.	of which becoming within the subsequent financial	s22371	1998-2004
3)	altri titoli	3) other securities	s22380	1998-2004
4)	azioni proprie	4) own shares	s22390	1998-2004

## Investment

The variables concerning investment are not in the Balance Sheet, so for these variables it is possible to have only the data coming from census (SCI and PMI). Further, questions on investments in the SCI



and PMI questionnaires are different, thus, most of the time it is not possible to recover a common definition even between SCI-PMI. In addition, also the old and the new SCI questionnaires differ. We present a summary table with the “flow” variables of investment and the corresponding “stock” variables.

**Table 6:** *Acquisizioni di immobilizzazioni nell'esercizio.*

Nome	Name	codice flow var	coverage	codice stock var
Totale (nuovi + usati)	Tangible (new+used) fixed assets	s51900	1989-2004	n22200
Immob. materiali				
Immob. materiali: Nuovi	Tangible new fixed assets	s51901	1989-2004	n22200
Immob. materiali: Usati	Tangible used fixed assets	s51902	1989-2004	n22200
Impianti e macchinari (totale)	Plants and machineries	v51200	1989-2004	n22220
Impianti e macchinari (nuovi)	Plants and machineries (new)	v51201	1989-2004	n22220
Impianti e macchinari (usati)	Plants and machineries (used)	v51202	1989-2004	n22220
di cui mezzi di trasporto strumentali ( <i>continue</i> )	of which inconsumable means of transport	xxxxxxx	xxxxxxx	xxxxxxx
Attrezzature Industriali e commerc. (totale)	industrial and commercial equipment	s51300	1998-2004	n22230
Attrezzature Industriali e commerc. (nuovi)	industrial and commercial equipment (new)	v51411	s51301	1998- 2004
Attrezzature Industriali e commerc. (usati)	industrial and commercial equipment (used)	v51412	s51302	1998- 2004
Altri beni (totale)	Other assetss (total)	s51400	1998-2004	n22240
Altri beni (nuovi)	Other assetss (new)	s51401	1998-2004	n22240
Altri beni (usati)	Other assetss (used)	s51402	1998-2004	n22240
di cui attrezz per tratt. e trasmis dati (nuovi)	of which equipment for data processing and transmission (new)	v51411	1989-2004	s22241
di cui attrezz per tratt. e trasmis dati (usati)	of which equipment for data processing and transmission (used)	v51412	1989-2004	s22241
Totale (nuovi + usati)	Total Intangible (new+used)	s52900	1998-2004	n22200
Immob. Immateriali	fixed assests			
Diritti di brevetto industriale (totale)	rights of industrial patents (total)	s52100	1998-2004	n22102
Diritti utilizz opere ingegno (totale)	rights of utilization of the original works (total)	s52200	1998-2004	s22103
Concessioni, licenze e marchi (totale)	concessions, licences and markes (excepted software) (total)	s52300	1998-2004	s22104
Software (totale)	Software (total)	s52400	1998-2004	s22105
Altre Immobilizz. Immat. (totale)	Other Intangible fixed assests	s52500	1998-2004	xxxxxxx
Totale immobilizz (mat + immat) (usati)	Total fixed assets (Tang. and Intang) (used)	v53000	1998-2004	n22000

Totale immobilizz (mat + immat) (totale)	Total fixed assets (Tang. and Intang) (total)	v53001	1998-2004	n22000
Totale immobilizz (mat + immat) (nuovi)	Total fixed assets (Tang. and Intang) (new)	v53002	1998-2004	n22000

Thus, the only three variables for which we get a perfect matching between SCI and PMI are:

- v51200, v51201 and v51202 that refer respectively to the total, new and second hand investment in “Impianti e Macchinari” (n22220).
- v51411 and v51411 that refer respectively to investment in new and second hand “attrezzature per trattamento e trasmissione dati” (s22241).
- v53000, v53001 and v53002 that reports the total investment in “Immobilizzazioni”

It is not possible to recover perfect correspondence for the other variables related to investment in PMI, because they are group in categories that do not match those of SCI. Here is the list of these PMI variables for investments.

p51421	Acquisiz immob nell exerc (pmi): Mobili e attrezzature nuovi	Acquisition of fixed assets on the financial year (investment) (pmi): industrial and commercial equipment (new)
p51431	Acquisiz immob nell exerc (pmi): Mezzi di trasporto nuovi	Acquisition of fixed assets on the financial year (investment) (pmi): means of transport (new)
p51441	Acquisiz immob nell exerc (pmi): beni di valore nuovi	Acquisition of fixed assets on the financial year (investment) (pmi): valuable assets (new)
p51422	Acquisiz immob nell exerc (pmi): Mobili e attrezzature usati	Acquisition of fixed assets on the financial year (investment) (pmi): industrial and commercial equipment (used)
p51432	Acquisiz immob nell exerc (pmi): Mezzi di trasporto usati	Acquisition of fixed assets on the financial year (investment) (pmi): means of transport (used)
p51442	Acquisiz immob nell exerc (pmi): beni di valore usati	Acquisition of fixed assets on the financial year (investment) (pmi): valuable assets (used)
p51410	Acquisiz immob nell exerc (pmi): attrezzature per trattamento e trasmissione dati	Acquisition of fixed assets on the financial year (investment) (pmi): equipment for data processing and transmission
p51420	Acquisiz immob nell exerc (pmi): Mobili e attrezzature	Acquisition of fixed assets on the financial year (investment) (pmi): industrial and commercial equipment
p51430	Acquisiz immob nell exerc (pmi): Mezzi di trasporto	Acquisition of fixed assets on the financial year (investment) (pmi): means of transport
p51440	Acquisiz immob nell exerc (pmi): beni di valore	Acquisition of fixed assets on the financial year (investment) (pmi): valuable assets
p52220	Acquisiz immob nell exerc (pmi): originali artistici letterali e brevetti	Acquisition of fixed assets on the financial year (investment) (pmi): Right to use of the originals works and patent

## 6. Routines for querying the database

The previous section described how to get to the final Micro.3 database. The main criteria that have informed the process of building the database is to leave as many as possible degrees of freedom on the final user of the database. As a result, the attempt was to keep the highest level of generality, trying to hold back from taking any choice that one might regret at a later stage of the work. To provide an example of this, consider that Micro.3, in its final format, also contains variables that are available only for a subset of firms, for instance information on white/ blue collar are only available for firms in the sci census (bigger than 100 employees). These variables are still in the Micro.3 even with the consequence of having a more sparse database. And the problem of sparse database is surely an issue for the future. Once that Micro.3 is built according to these criteria it contains 354 variables. We do not provide a complete account or list of them just because some of them have a very limited coverage in the database. Anyway a complete list is contained in the script for querying the database that we describe in the following.

In this section we explain how sectoral files are build (and extracted) from the whole database.

### 6.1 Storing the database in NetCDF format

To enhance data portability (most of statistical and econometric analysis is indeed performed under unix-like operating system) we store the dataset in a netcdf format. This task is performed by the file `makeNetCDF.py`

### 6.2 Querying Micro.3 and assigning ateco codes

It is then possible to query the database with the python file `queryNetCDF.py`, whose main features are illustrated by its 'help'. This is its output:

Query the NetCVS database for specified sectors and variables. Print compressed (zlib) results to standard output.

Usage: `./queryNetCDF.py` [options]

options

- a choose the sectors through ATECO code. Comma separated list of codes (like 151) or ranges (like 150:160) [all sector]
- A select how ateco is assigned to firms [04]; or: at least one year; and: all year; yy: specify the years
- c print a 'fake' firm identification code
- f choose the fields to extract, comma separated list of index (like 2) or ranges (like 2:10). Possible indices range from 1 to 354. [no variables]
- F Select the input file [pan8904.nc]
- G create one file for each specified sector. The filenames are obtained appending the sector ATECO code to the basename given as option argument.
- p print the firm's ATECO code; the parameter set the length of the code, min1, max 3 (don't work with -G)
- v produce verbose output
- h this help message

Probably the only options that deserve little comment upon is "-A" which specifies the procedures assignment of ateco codes. With this option is possible to tell the query file how to build the sectoral files. It is indeed possible to select all firms with a given ateco in a given year.

## 7. Consistency check between Micro.1 and Micro.3

As explained Micro.3 represents the temporal expansion of the former Micro.1; of course, with the due differences, in terms of census threshold, sources, etc. (see Section **Errore. L'origine riferimento non è stata trovata.**).

As such, the first part of Micro.3 is perfectly overlapping with the 'old' Micro.1. Yet, we now proceed to verify this overlapping. It could indeed, happen that some troubles have emerged during the process, i.e. in assembling the database, converting lira into euro. A special mention is due for the criterium to assign atecos to firms. We have to be aware, indeed, that in a 16 years time span it gets quite likely that a firm is changing its principal sector of activity. In this respect, refer to the various criteria that one can choose from to assign an ateco to a firm. The default method, if not otherwise stated, is the ateco of the last year, i.e. 2004.

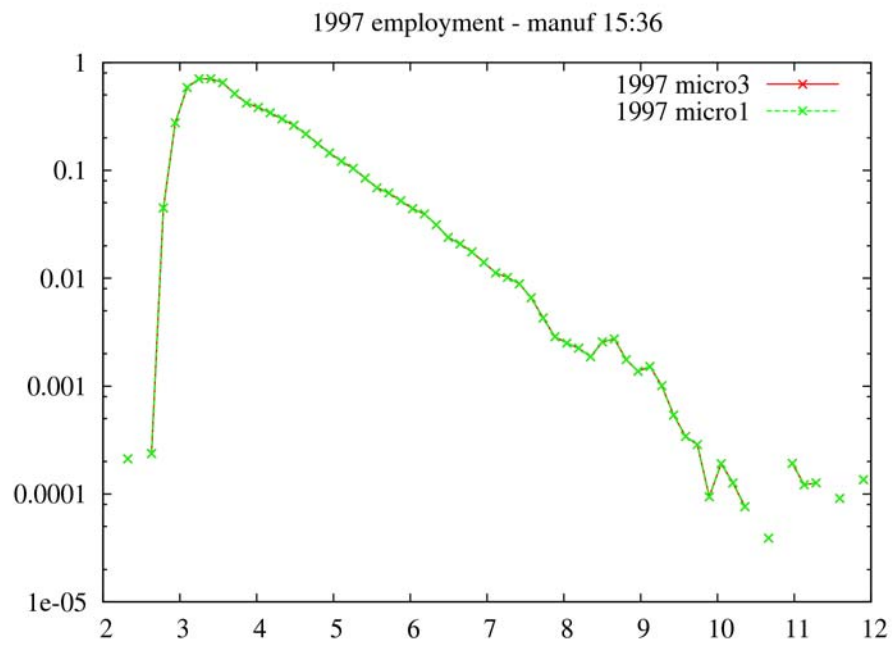
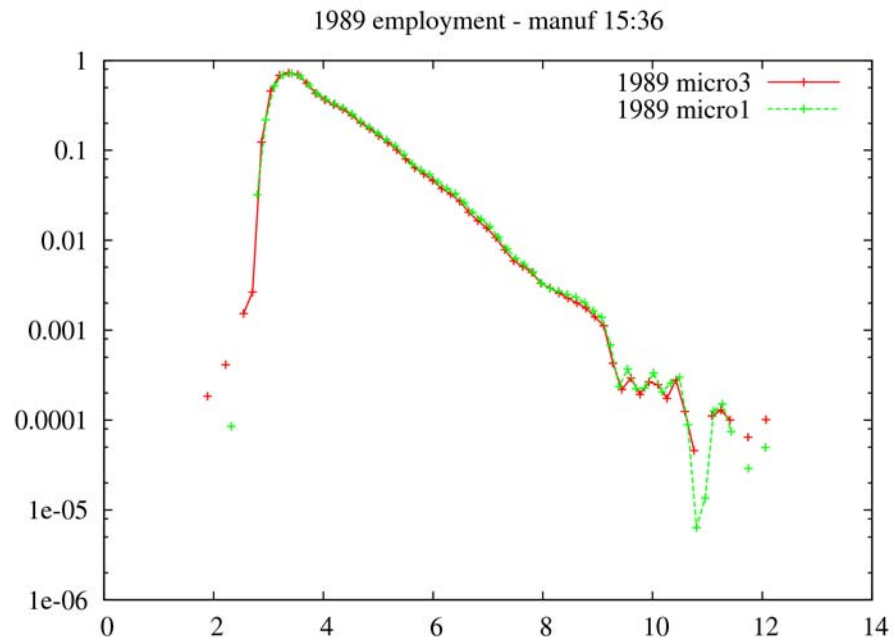
We now proceed to verify this overlapping between Micro.1 and Micro.3 considering different levels of aggregation in terms of industrial activity classification. To this end, when comparing firms in Micro.1 with those in Micro.3, we extract firms from Micro.3 database assigning them the ateco they had in 1997. This enables for the highest level of overlapping of the two database.

We now compare, by means of tables and plots, the overlapping for the period 1989-97 of Micro.1 and Micro.3.

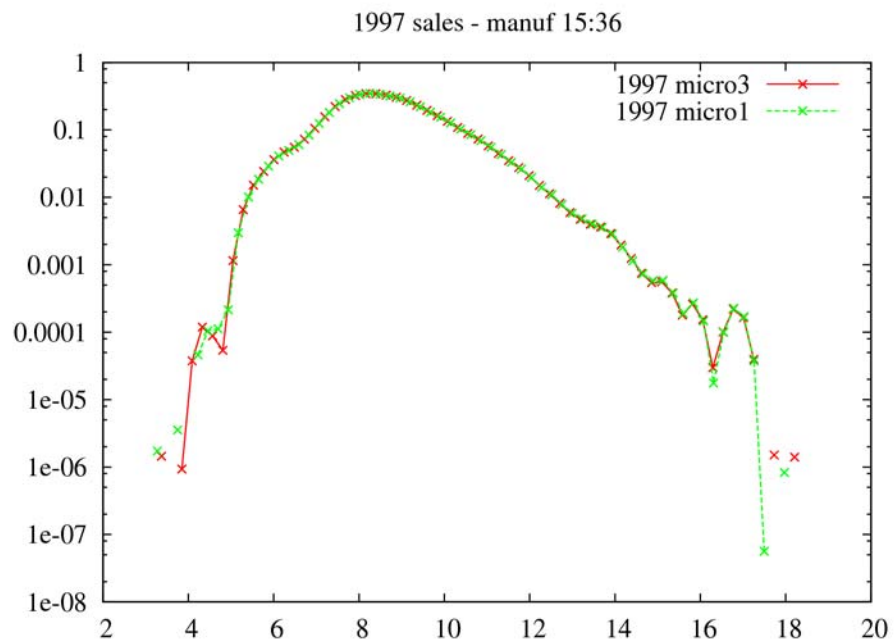
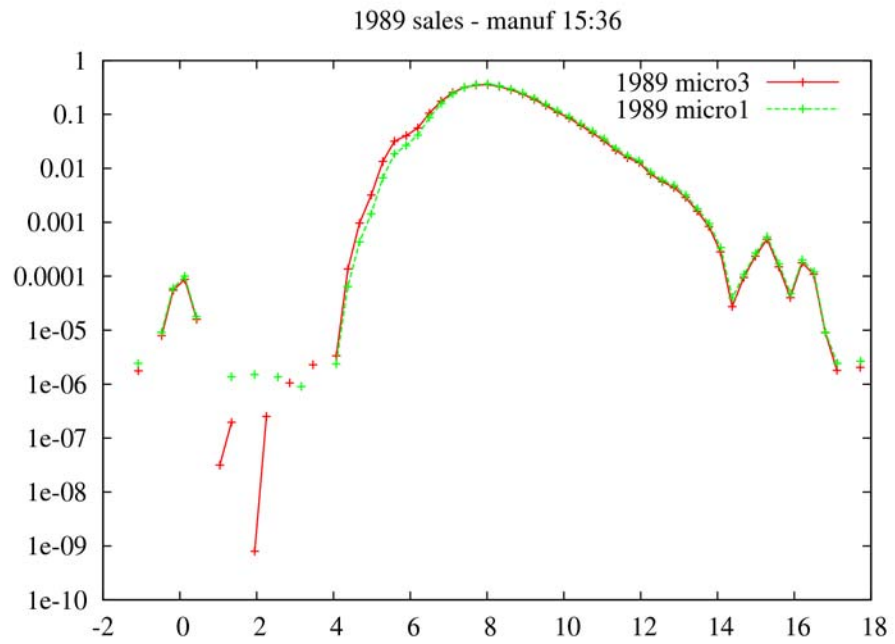
Plots 2 shows the empirical distribution of (log) employment of firms in the aggregate manufacturing (ateco 15-36). Notice that the two plots are perfectly overlapping in 1997, whether the tails are - very marginally - differing in 1989. This is due to way we assign ateco codes when extracting firms from Micro.1 and Micro.3. Even if, in extracting firms from Micro.3 we 'assign' them the ateco they had in 1997, some differences remain in the 'fields' from which we pick to 'assign' ateco in Micro.1 and Micro.3. The discrepancies in these fields, explains the very small differences we observe in 1989. Note however that the two distribution are remarkably overlapping in 1997, the last year of Micro.3.

The same comments holds true when we consider the distribution of sales, Fig. 2; value added, Fig. 3 and cost of labor, Fig. 4

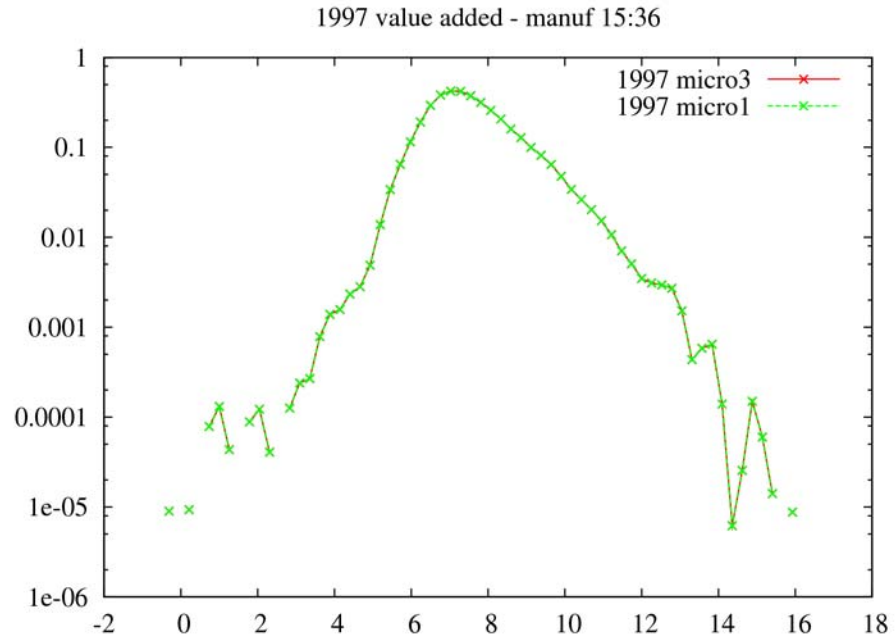
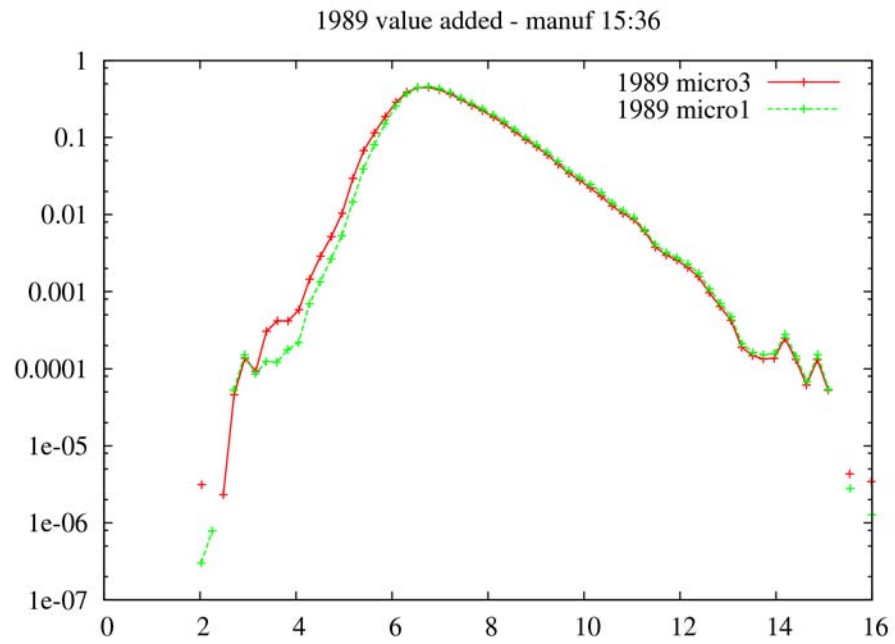
**Figure 1:** Kernel density estimate of (log) employment in the aggregate manufacturing (ateco 15-36).



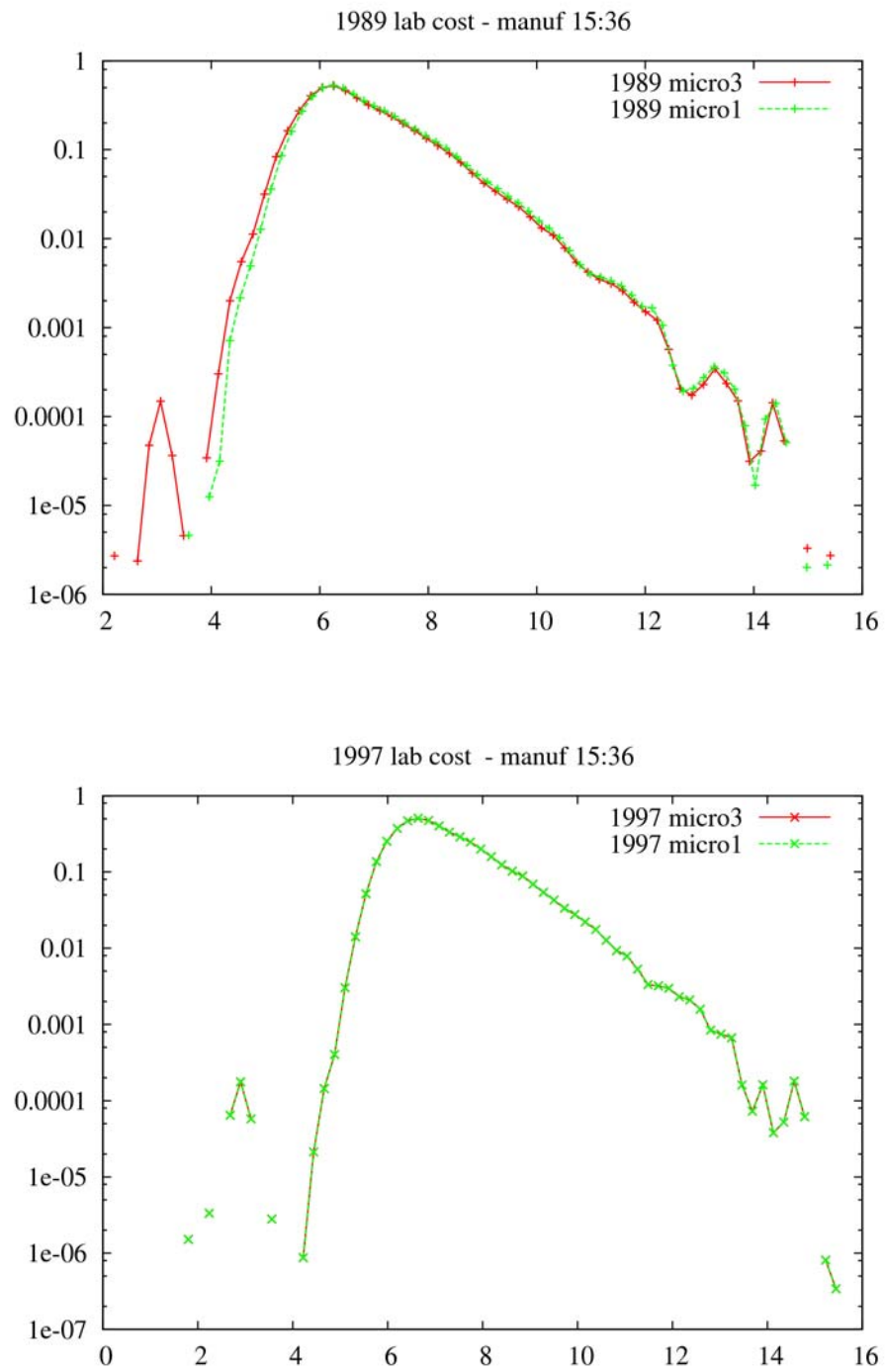
**Figure 2:** Kernel density estimate of (log) sales (thousands of euro); in the aggregate manufacturing (ateco 15-36).



**Figure 3:** Kernel density estimate of (log) value added (thousands of euro) in the aggregate manufacturing (ateco 15-36).



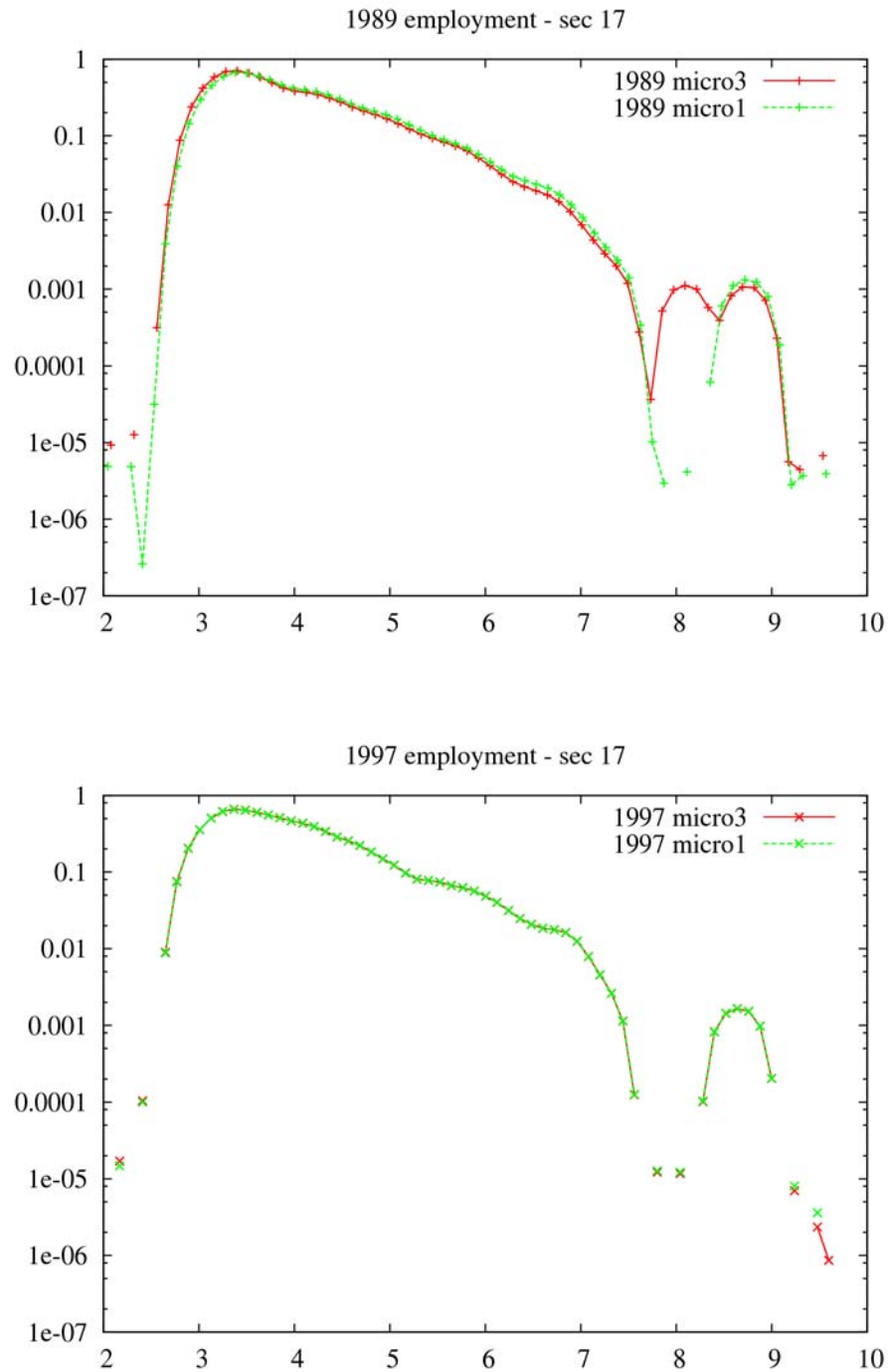
**Figure 4:** Kernel density estimate of (log) cost of labor (thousands of euro) in the aggregate manufacturing (ateco 15-36).



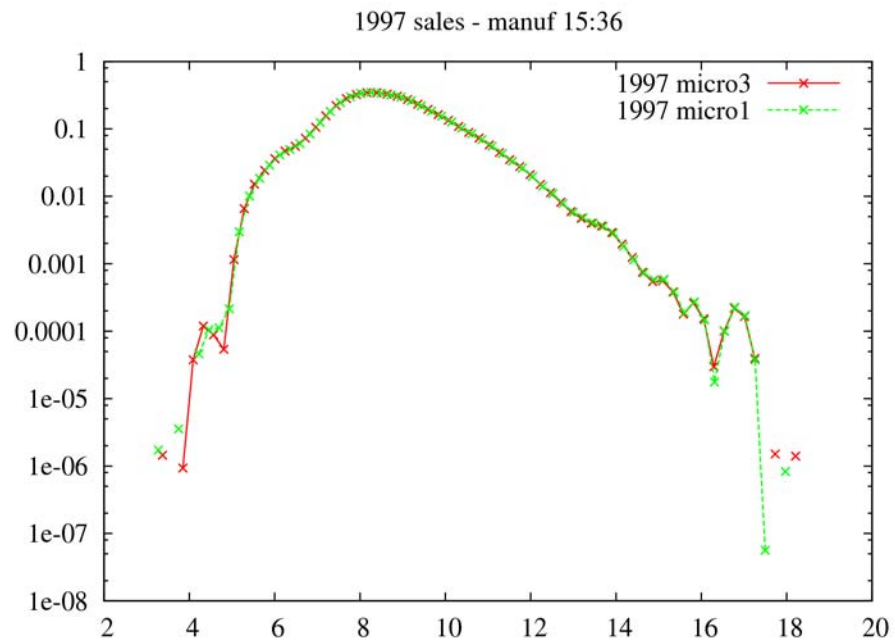
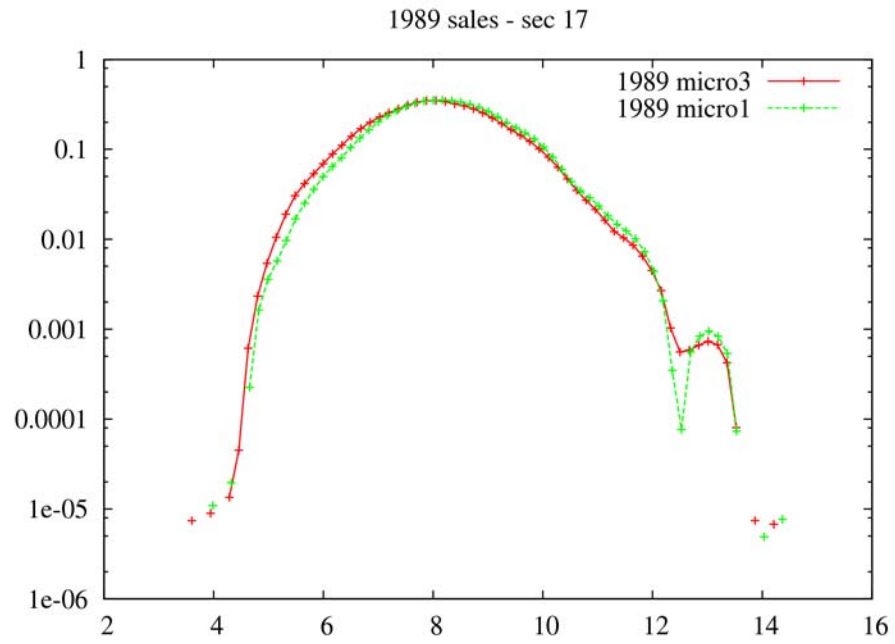


We then repeat the same exercise with data disaggregated at the two digit level. Plots are reported in Figures 5 to 8.

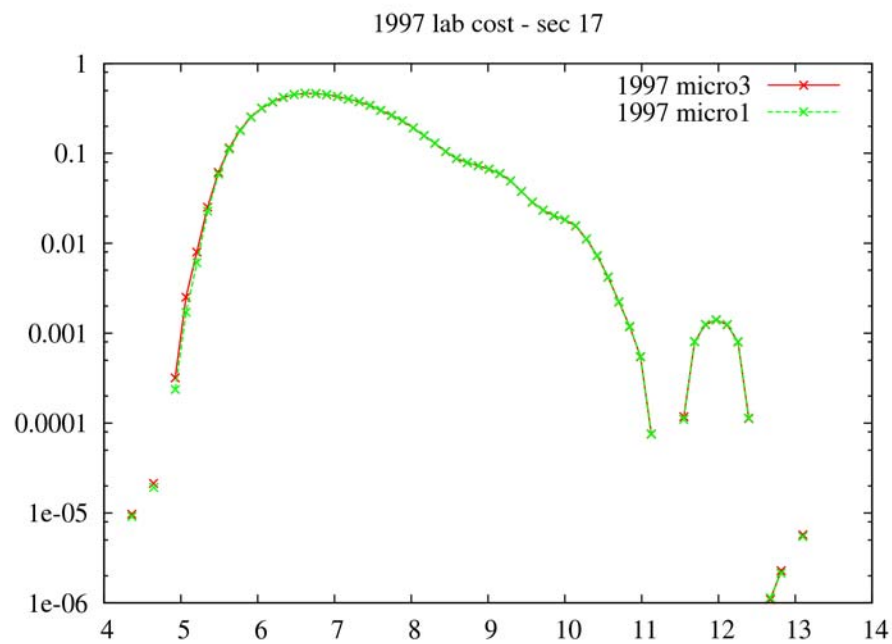
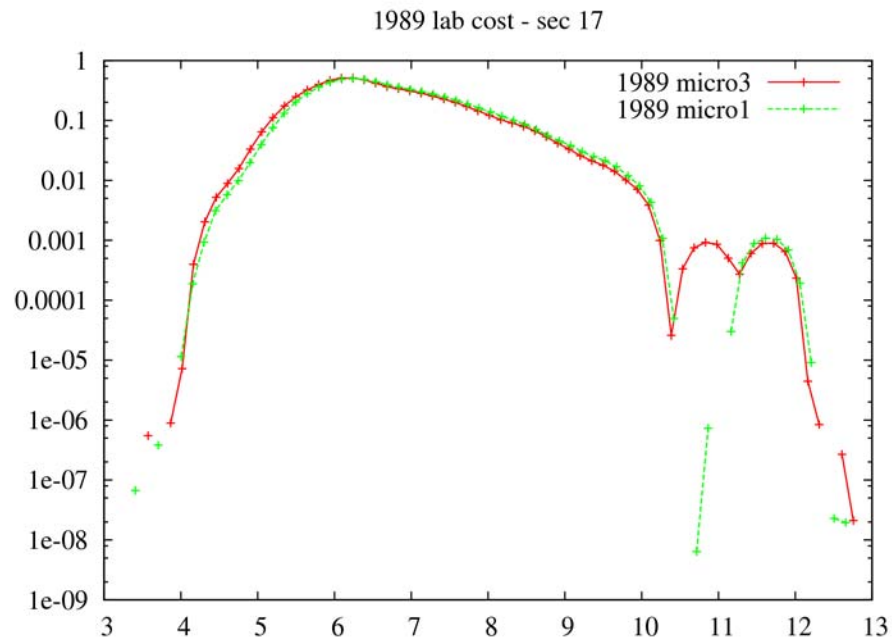
**Figure 5:** Kernel density estimate of (log) employment for the textile sector (NACE 17).



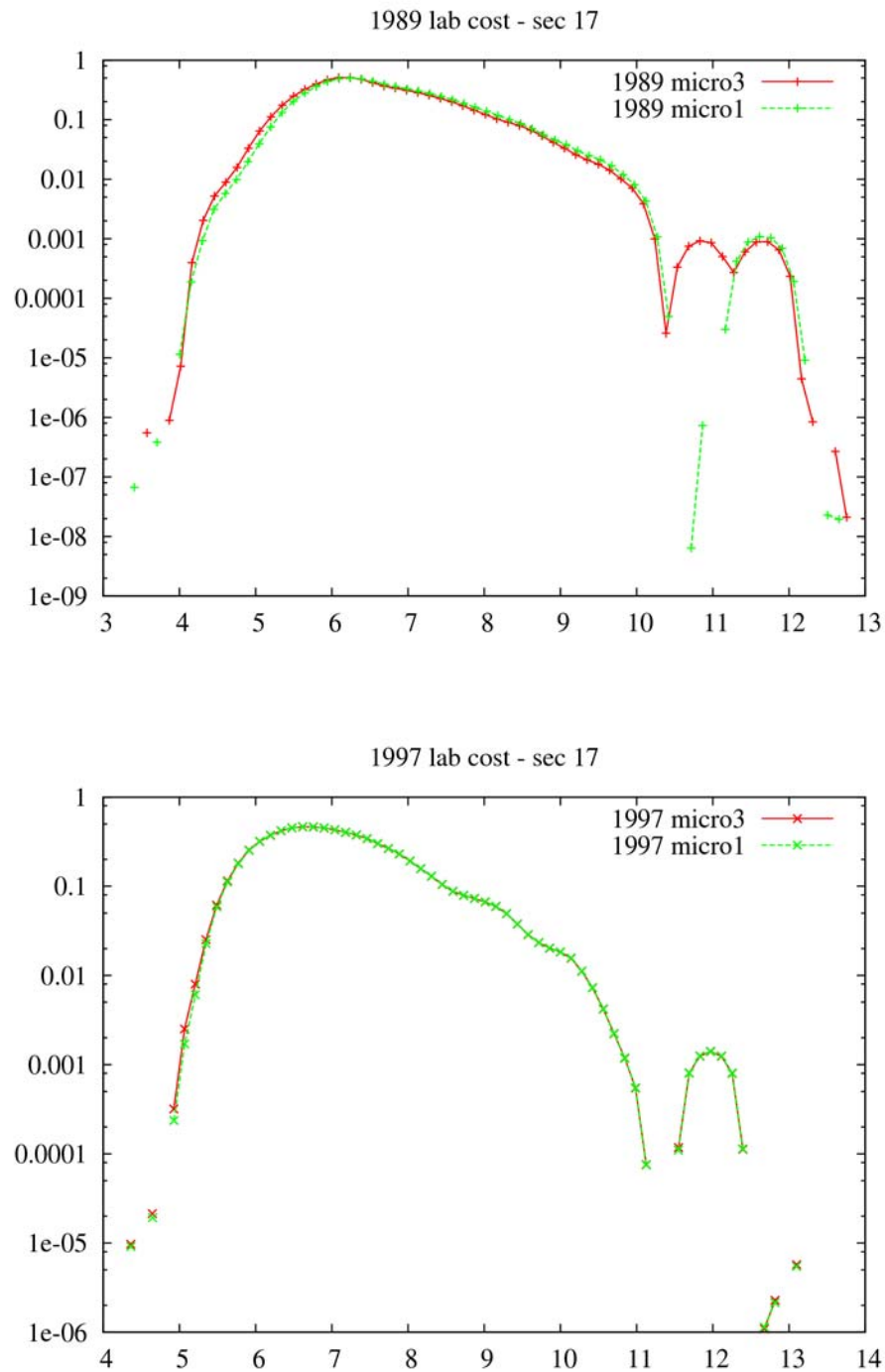
**Figure 6:** Kernel density estimate of (log) sales for the textile sector (NACE 17).



**Figure 7:** Kernel density estimate of (log) value added for the textile sector (NACE 17).



**Figure 8:** Kernel density estimate of (log) labor cost for the textile sector (NACE 17).



Finally, as a last set of exercise to validate the overlapping of the outcome of the assigning criteria of firms to sector in MICRO.1 and MICRO.3 we report, as already done for in Bottazzi et al. (2007) and Grazzi (2006), some statistics relative to the number of firms in some relevant 3-digit sectors and to their distributions. As already remarked, note the overlapping of this assignment is almost perfect for the last year of MICRO.1, 1997, and worse in the beginning of the period.

Refer to Tables 7 and 8 for the trend over time of the number of observations in Micro.1 and Micro.3 for each 3 digit sector, for the years 1989-97 that are common to both sources.

**Table 7:** Trend over time of the number of observations in Micro.1 and Micro.3 for each 3 digit sector. Source Grażzi (2006) and our elaboration on MICRO.3 - Micro.1

		MICRO.1								
ISIC	SECTOR	'89	'90	'91	'92	'93	'94	'95	'96	'97
151	Production, process & preserv. of meat	235	257	257	295	326	316	287	235	207
155	Dairy products	150	161	166	192	206	207	189	171	141
158	Prod. of other food (bread, sugar, etc)	295	322	334	390	421	413	382	332	307
159	Beverages (alcoholic & not)	188	202	196	213	230	214	194	169	144
171	Preparation and spinning of textiles	282	306	305	341	359	355	309	282	229
172	Textiles weaving	307	338	330	366	369	374	326	282	280
173	Finishing of textiles	297	321	315	365	386	387	350	314	287
175	Carpets, rugs and other textiles	167	185	179	224	224	216	200	175	129
177	Knitted and crocheted articles	358	407	395	489	524	518	435	375	236
182	Wearing apparel	911	1156	1150	1626	1653	1655	1355	1104	892
191	Tanning and dressing of leather	146	156	159	188	201	197	189	166	96
193	Footwear	508	628	637	826	869	864	777	733	458
202	Production of plywood and panels	80	90	98	105	95	98	92	84	71
203	Wood products for construction	132	148	140	158	179	174	161	144	125
205	Other wood prod. (cork, straw, etc)	107	122	112	141	148	143	137	122	105
211	Pulp, paper and paperboard	72	78	75	85	84	76	78	67	68
212	Articles of paper and paperboard	310	343	359	401	399	422	421	358	330
221	Publishing	148	158	161	171	187	181	165	147	145
222	Printing	434	484	493	586	588	599	533	431	387
241	Production of basic chemicals	158	169	165	182	186	189	181	173	152
243	Paints, varnishes, inks & mastics	180	173	141	125	122	121	120	110	99
244	Pharma., med. chemicals, botanical prod	173	178	183	205	211	205	181	169	149
245	Soap & detergents, clean & toilet prep	133	127	117	96	102	108	103	91	91
246	Other chemical products	117	128	125	135	140	147	139	106	114
251	Rubber products	189	187	168	179	174	180	166	151	138
252	Plastic products	654	733	706	842	940	942	876	788	788
261	Glass and glass products	160	174	176	188	194	175	173	149	129
262	Ceramic goods not for construction	112	119	115	133	139	144	126	115	100
263	Ceramic goods for construction	174	179	180	209	210	198	190	154	141

264	Bricks, tiles & construction prod.	150	161	157	174	176	160	139	117	96
266	Concrete, plaster and cement	302	350	351	428	424	404	343	304	280
267	Cutting, shaping and finishing of stone	140	160	149	186	203	201	180	157	131
273	First processing of iron and steel	122	129	132	156	154	151	154	140	113
275	Casting of metals	216	215	240	259	249	242	241	201	197
281	Structural metal products	389	464	471	650	658	652	561	475	439
284	Forging, pressing, stamping, of metal	261	267	281	314	318	307	312	254	259
285	Treatment and coating of metals	401	429	477	628	656	671	639	538	542
286	Cutlery, tools and general hardware	259	289	276	307	312	306	307	275	247
287	Other fabricated metal products	443	474	483	573	617	591	617	564	502
291	Machinery for prod. & use of mech. power	396	406	422	471	489	487	470	386	400
292	Other general purpose machinery	448	493	520	641	682	676	621	501	514
293	Agricultural and forestry machinery	122	131	126	143	128	116	112	93	93
294	Machine tools	243	264	264	292	291	282	266	227	210
295	Other special purpose machinery	828	886	940	1065	1055	1033	941	826	800
297	Domestic appliances not e/where class	118	122	124	135	156	145	150	118	123
311	Electric motors, generators and transform	186	209	193	204	228	222	210	172	172
312	Manuf. of electricity distrib, control equip	188	197	189	210	213	196	189	169	168
316	Electrical equipment not e/where class	333	316	283	301	313	327	287	238	227
322	TV, radio transmit., lines for teleph.	183	169	131	102	121	121	126	113	106
332	Measure, control and navigation instr	104	110	119	141	149	145	131	121	110
342	Prod. of bodies for cars, trailers	152	156	132	128	115	110	99	85	85
343	Production of spare parts for cars	267	279	278	313	313	299	291	269	240
361	Furniture	892	1010	976	1157	1229	1165	1063	872	860
362	Jewelry and related articles	186	206	197	267	270	262	229	179	181
366	Miscellaneous manufact. not e/where class	115	135	128	157	171	158	158	132	119

**Table 8:** Trend over time of the number of observation in Micro.1 and Micro.3 for each 3 digit sector. Source *Grażzi (2006)* and our elaboration on MICRO.3 - Micro.3

		MICRO.3								
ISIC	SECTOR	'89	'90	'91	'92	'93	'94	'95	'96	'97
151	Production, process & preserv. of meat	293	305	282	292	320	313	285	236	207
155	Dairy products	180	185	180	193	207	208	189	170	140
158	Prod. of other food (bread, sugar, etc)	347	367	354	388	422	414	383	332	307
159	Beverages (alcoholic & not)	226	233	212	210	228	211	194	169	145
171	Preparation and spinning of textiles	368	368	337	334	353	352	307	281	229
172	Textiles weaving	371	396	358	372	375	374	327	279	279
173	Finishing of textiles	347	363	328	362	378	380	350	315	288
175	Carpets, rugs and other textiles	209	220	198	228	232	222	204	176	129
177	Knitted and crocheted articles	496	526	462	486	521	514	433	379	237
182	Wearing apparel	1337	1588	1407	1625	1652	1654	1351	1100	888
191	Tanning and dressing of leather	194	197	180	187	201	197	189	166	96
193	Footwear	758	876	761	821	868	862	776	736	461
202	Production of plywood and panels	96	108	110	103	93	98	91	84	71
203	Wood products for construction	163	171	162	165	184	178	163	146	126
205	Other wood prod. (cork, straw, etc)	130	151	124	144	148	144	137	121	103
211	Pulp, paper and paperboard	80	87	81	85	84	75	77	67	67
212	Articles of paper and paperboard	356	381	377	398	394	422	418	358	331
221	Publishing	144	160	164	172	186	180	164	146	144
222	Printing	519	567	540	582	588	601	537	432	387
241	Production of basic chemicals	191	192	177	184	186	191	182	172	153
243	Paints, varnishes, inks & mastics	123	131	119	126	119	117	118	109	98
244	Pharma., med. chemicals, botanical prod	201	194	191	203	211	203	182	170	150
245	Soap & detergents, clean & toilet prep	101	104	100	100	105	109	104	91	91
246	Other chemical products	133	138	132	134	144	150	140	107	114
251	Rubber products	187	176	163	179	175	182	170	153	139
252	Plastic products	838	879	796	849	928	935	867	785	785
261	Glass and glass products	196	202	187	187	193	174	172	149	128
262	Ceramic goods not for construction	158	158	139	132	138	143	127	116	101
263	Ceramic goods for	212	206	196	208	210	199	192	154	142

	construction									
264	Bricks, tiles & construction prod.	168	181	169	176	178	162	138	117	96
266	Concrete, plaster and cement	382	416	385	427	420	400	342	303	278
267	Cutting, shaping and finishing of stone	186	199	172	182	200	197	178	157	132
273	First processing of iron and steel	143	142	140	154	152	150	154	139	113
275	Casting of metals	254	249	266	267	256	243	236	198	195
281	Structural metal products	537	612	563	652	657	651	561	470	435
284	Forging, pressing, stamping, of metal	294	295	296	312	313	302	312	252	257
285	Treatment and coating of metals	515	533	548	645	661	670	640	537	542
286	Cutlery, tools and general hardware	321	345	305	303	314	314	308	274	248
287	Other fabricated metal products	541	552	522	579	631	603	628	571	508
291	Machinery for prod. & use of mech. power	450	453	449	464	484	484	466	387	398
292	Other general purpose machinery	543	562	562	634	686	678	616	504	516
293	Agricultural and forestry machinery	171	177	149	146	128	115	111	93	93
294	Machine tools	290	304	282	291	284	275	261	230	212
295	Other special purpose machinery	986	1022	1010	1066	1065	1039	947	815	793
297	Domestic appliances not e/where class	141	144	136	139	156	146	151	120	124
311	Electric motors, generators and transform	193	216	191	200	222	221	213	172	173
312	Manuf. of electricity distrib, control equip	149	160	162	201	206	195	190	172	168
316	Electrical equipment not e/where class	301	311	288	311	320	330	288	238	229
322	TV, radio transmit., lines for teleph.	92	91	90	99	125	124	128	115	108
332	Measure, control and navigation instr	128	136	136	139	148	143	130	122	111
342	Prod. of bodies for cars, trailers	125	128	117	127	112	110	99	85	85
343	Production of spare parts for cars	279	297	290	316	323	307	297	269	243
361	Furniture	1082	1154	1047	1143	1215	1155	1058	871	860
362	Jewelry and related articles	197	220	209	266	268	259	226	179	181
366	Miscellaneous manufact. not e/where class	125	146	136	154	169	155	155	132	119

Tables 9 and 10 report the distributions of number of firms per size class for 1989 and 1997, for the two database, Micro.1 and Micro.3.



**Table 9:** *Distribution of number of firms per size class for 1989 and 1997. Micro.1 vs. Micro.3. Source Grażzi (2006) and our elaboration on MICRO.3. - Micro.1*

		MICRO.1							
ISIC	SECTOR	1989				1997			
		20-49	50-99	100-249	250	20-49	50-99	100-249	250+
151	Production, process & preserv. of meat	60	20.43	14.47	5.11	60.87	16.43	14.98	7.73
155	Dairy products	51.33	22.67	17.33	8.67	43.97	34.04	16.31	5.67
158	Prod. of other food (bread, sugar, etc)	57.63	17.97	14.24	10.17	54.72	21.5	14.98	8.79
159	Beverages (alcoholic & not)	53.19	22.34	14.89	9.57	58.33	18.75	13.19	9.72
171	Preparation and spinning of textiles	51.42	22.7	17.02	8.87	53.28	26.2	13.97	6.55
172	Textiles weaving	43.32	24.76	19.22	12.7	50	23.93	13.93	12.1
173	Finishing of textiles	49.83	30.98	17.51	1.68	54.7	32.06	12.2	1.05
175	Carpets, rugs and other textiles	55.09	25.75	14.37	4.79	58.91	27.13	7.75	6.2
177	Knitted and crocheted articles	59.22	24.58	11.45	4.75	59.75	26.69	8.47	5.08
182	Wearing apparel	59.6	22.83	12.29	5.27	67.26	20.52	8.52	3.7
191	Tanning and dressing of leather	66.44	24.66	8.9	0	70.83	20.83	6.25	2.08
193	Footwear	62.99	23.23	11.02	2.76	70.09	19.87	8.08	1.97
202	Production of plywood and panels	51.25	32.5	11.25	5	42.25	33.8	19.72	4.23
203	Wood products for construction	76.52	17.42	5.3	0.76	75.2	16	8	0.8
205	Other wood prod. (cork, straw, etc)	71.96	20.56	6.54	0.93	74.29	16.19	9.52	0
211	Pulp, paper and paperboard	45.83	31.94	11.11	11.11	42.65	30.88	16.18	10.2
212	Articles of paper and paperboard	56.13	24.19	14.84	4.84	60.91	21.21	12.73	5.15
221	Publishing	31.76	19.59	25.68	22.97	33.1	31.03	20.69	15.1
222	Printing	68.43	19.35	8.99	3.23	69.77	20.16	6.72	3.36
241	Production of basic chemicals	41.14	19.62	20.89	18.35	36.84	23.03	23.68	16.4
243	Paints, varnishes, inks & mastics	58.33	23.33	15	3.33	47.47	31.31	12.12	9.09
244	Pharma., med. chemicals, botanical prod	23.7	18.5	27.75	30.06	18.79	24.16	28.19	28.8

245	Soap & detergents, clean & toilet prep	55.64	21.05	12.78	10.53	43.96	21.98	18.68	15.3
246	Other chemical products	53.85	20.51	20.51	5.13	53.51	21.93	17.54	7.02
251	Rubber products	52.91	23.81	13.76	9.52	53.62	26.81	10.87	8.7
252	Plastic products	58.26	25.84	12.23	3.67	59.39	25.25	12.18	3.17
261	Glass and glass products	52.5	22.5	14.38	10.62	53.49	24.81	14.73	6.98
262	Ceramic goods not for construction	51.79	21.43	16.96	9.82	55	15	19	11
263	Ceramic goods for construction	35.63	28.74	27.01	8.62	30.5	27.66	25.53	16.3
264	Bricks, tiles & construction prod.	74.67	15.33	7.33	2.67	72.92	15.62	8.33	3.12
266	Concrete, plaster and cement	62.58	23.84	10.93	2.65	68.93	19.64	10	1.43
267	Cutting, shaping and finishing of stone	82.86	12.14	4.29	0.71	82.44	13.74	2.29	1.53
273	First processing of iron and steel	50	35.25	13.11	1.64	56.64	27.43	12.39	3.54
275	Casting of metals	51.85	28.7	12.04	7.41	54.31	25.38	16.75	3.55
281	Structural metal products	68.38	21.34	7.71	2.57	70.62	23.23	5.24	0.91
284	Forging, pressing, stamping, of metal	56.7	29.5	12.64	1.15	51.74	32.82	12.36	3.09
285	Treatment and coating of metals	74.06	19.95	5.74	0.25	73.8	19.93	6.27	0
286	Cutlery, tools and general hardware	61.78	21.24	12.74	4.25	63.56	20.24	12.15	4.05
287	Other fabricated metal products	60.95	22.8	12.64	3.61	64.54	21.71	9.96	3.78
291	Machinery for prod. & use of mech. power	48.48	25	17.93	8.59	46.5	26	18.5	9
292	Other general purpose machinery	52.01	26.12	15.62	6.25	57.39	22.96	13.62	6.03
293	Agricultural and forestry machinery	57.38	19.67	16.39	6.56	60.22	24.73	6.45	8.6
294	Machine tools	55.14	23.05	17.7	4.12	54.76	25.24	15.71	4.29
295	Other special purpose machinery	53.99	25.85	15.1	5.07	54.88	23.12	16.12	5.88
297	Domestic appliances not e/where class	35.59	24.58	20.34	19.49	27.64	26.02	23.58	22.7
311	Electric motors, generators and transform	53.76	22.04	15.05	9.14	58.14	24.42	9.3	8.14
312	Manuf. of electricity distrib, control equip	52.66	22.34	14.89	10.11	54.17	19.64	14.29	11.9

316	Electrical equipment not e/where class	61.56	16.52	13.81	8.11	60.79	20.7	7.93	10.57
322	TV, radio transmit., lines for teleph.	50.82	22.95	13.66	12.57	50	17.92	19.81	12.2
332	Measure, control and navigation instruments	53.85	19.23	16.35	10.58	52.73	20	17.27	10
342	Prod. of bodies for cars, trailers	61.18	17.76	15.13	5.92	58.82	22.35	16.47	2.35
343	Production of spare parts for cars	42.32	23.97	19.48	14.23	34.58	25	24.17	16.2
361	Furniture	66.93	22.09	8.74	2.24	69.42	20.93	6.86	2.79
362	Jewelry and related articles	72.58	20.97	4.3	2.15	77.35	14.92	7.18	0.55
366	Miscellaneous manufact. not e/where class	58.26	24.35	13.91	3.48	54.62	26.89	13.45	5.04

**Table 10:** *Distribution of number of firms per size class for 1989 and 1997. Micro.1 vs. Micro.3. Source Grażzi (2006) and our elaboration on MICRO.3. - Micro.3*

		MICRO.3							
ISIC	SECTOR	1989				1997			
		20-49	50-99	100-249	250	20-49	50-99	100-249	250
151	Production, process & preserv. of meat	62.46	18.43	13.65	5.46	60.87	16.43	14.98	7.73
155	Dairy products	53.33	22.22	15.56	8.89	43.57	34.29	16.43	5.71
158	Prod. of other food (bread, sugar, etc)	59.08	17.58	13.83	9.51	54.72	21.5	14.98	8.79
159	Beverages (alcoholic & not)	55.75	22.12	14.16	7.96	57.93	19.31	13.1	9.66
171	Preparation and spinning of textiles	52.72	21.74	17.93	7.61	52.84	26.2	14.41	6.55
172	Textiles weaving	47.44	23.45	17.52	11.59	50.18	24.01	13.62	12.1
173	Finishing of textiles	53.31	29.39	15.56	1.73	54.86	31.94	12.15	1.04
175	Carpets, rugs and other textiles	60.29	22.49	12.92	4.31	58.91	27.13	7.75	6.2
177	Knitted and crocheted articles	64.52	20.97	10.48	4.03	59.92	26.58	8.44	5.06
182	Wearing apparel	64.17	20.72	10.77	4.34	67.12	20.61	8.56	3.72
191	Tanning and dressing of leather	70.62	20.1	9.28	0	70.83	20.83	6.25	2.08
193	Footwear	67.28	20.98	9.76	0.98	69.85	20.17	8.03	1.95
202	Production of plywood and panels	53.12	31.25	11.46	4.17	42.25	33.8	19.72	4.23
203	Wood products for construction	77.91	15.95	5.52	0.61	75.4	15.87	7.94	0.79
205	Other wood prod. (cork,	75.38	17.69	6.15	0.77	73.79	16.5	9.71	0

	straw, etc)								
211	Pulp, paper and paperboard	48.75	28.75	10	12.5	41.79	31.34	16.42	10.4
212	Articles of paper and paperboard	58.43	22.75	14.61	4.21	61.03	21.15	12.69	5.14
221	Publishing	31.94	18.75	29.17	20.14	33.33	30.56	20.83	15.2
222	Printing	70.13	18.88	8.48	2 0.5	69.77	20.16	6.72	3.36
241	Production of basic chemicals	40.31	21.99	19.9	17.8	36.6	22.88	24.18	16.3
243	Paints, varnishes, inks & mastics	51.22	26.83	17.07	4.88	47.96	30.61	12.24	9.18
244	Pharma., med. chemicals, botanical prod	24.88	19.4	25.87	29.85	19.33	24	28	28.6
245	Soap & detergents, clean & toilet prep	39.6	25.74	19.8	14.85	43.96	21.98	18.68	15.3
246	Other chemical products	51.88	24.81	18.8	4.51	53.51	21.93	17.54	7.02
251	Rubber products	56.68	20.32	13.37	9.63	53.96	26.62	10.79	8.63
252	Plastic products	61.46	23.75	11.34	3.46	59.24	25.35	12.23	3.18
261	Glass and glass products	54.59	20.92	13.27	11.22	53.12	25	14.84	7.03
262	Ceramic goods not for construction	57.59	19.62	15.19	7.59	54.46	15.84	18.81	10.8
263	Ceramic goods for construction	36.32	27.36	27.83	8.49	30.99	27.46	25.35	16.2
264	Bricks, tiles & construction prod.	75	16.07	6.55	2 0.38	72.92	15.62	8.33	3.12
266	Concrete, plaster and cement	64.92	22.51	10.47	2.09	69.06	19.42	10.07	1.44
267	Cutting, shaping and finishing of stone	85.48	10.75	3.23	0 0.54	82.58	13.64	2.27	1.52
273	First processing of iron and steel	53.15	30.77	14.69	1.4	56.64	27.43	12.39	3.54
275	Casting of metals	53.94	27.17	11.42	7.48	53.85	25.64	16.92	3.59
281	Structural metal products	70.95	19.18	7.64	2 0.23	71.49	22.3	5.29	0.92
284	Forging, pressing, stamping, of metal	58.16	27.55	12.93	1.36	51.36	33.07	12.45	3.11
285	Treatment and coating of metals	77.09	17.28	5.44	0 0.19	73.8	19.93	6.27	0
286	Cutlery, tools and general hardware	63.24	21.5	11.53	3.74	63.31	20.16	12.5	4.03
287	Other fabricated metal products	63.22	21.63	11.83	3.33	64.96	21.46	9.84	3.74
291	Machinery for prod. & use of mech. power	48.22	26	17.11	8.67	46.23	26.13	18.59	9.05
292	Other general purpose machinery	57.09	23.39	14.18	5.34	57.36	23.06	13.57	6.01
293	Agricultural and forestry machinery	63.16	16.96	14.62	5.26	60.22	24.73	6.45	8.6
294	Machine tools	54.14	25.17	16.21	4.48	54.72	25.47	15.57	4.25
295	Other special purpose machinery	55.58	24.14	15.11	5.17	54.98	23.08	16.14	5.8
297	Domestic appliances not	38.3	25.53	18.44	17.73	27.42	26.61	23.39	22.5

311	e/where class Electric motors, generators and transform	54.4	20.73	16.06	8.81	58.38	24.28	9.25	8.09
312	Manuf. of electricity distrib, control equip	48.32	23.49	16.11	12.08	55.36	19.64	14.29	10.7
316	Electrical equipment not e/where class	57.14	17.94	13.29	11.63	60.7	20.52	7.86	10.92
322	TV, radio transmit., lines for teleph.	38.04	22.83	19.57	19.57	50	18.52	19.44	12
332	Measure, control and navigation instruments	60.16	16.41	14.06	9.38	52.25	19.82	18.02	9.91
342	Prod. of bodies for cars, trailers	59.2	20	16	4.8	58.82	22.35	16.47	2.35
343	Production of spare parts for cars	40.5	25.45	21.15	12.9	34.98	25.1	23.87	16
361	Furniture	69.59	19.96	8.50	0.94	69.42	20.93	6.86	2.79
362	Jewelry and related articles	76.65	19.29	3.55	0.51	77.35	14.92	7.18	0.55
366	Miscellaneous manufact. not e/where class	60	23.2	12.8	4	54.62	26.89	13.45	5.04

Tables 11 and 12 display, in percentage, the employment share per size cohort, 1989 and 1997, for both Micro.1 and Micro.3.

**Table 11:** *Employment share per size cohort, 1989 and 1997, percentages. Micro.1 vs. Micro.3. Source Grażzi (2006) and our elaboration on MICRO.3. - Micro.1*

		MICRO.1							
ISIC	SECTOR	1989				1997			
		20-49	50-99	100-249	250	20-49	50-99	100-249	250
151	Production, process & preserv. of meat	20.42	14.56	26.27	38.76	15.57	9.11	19.29	56.02
155	Dairy products	10.63	9.36	17.21	62.81	7.94	12.66	13.07	66.33
158	Prod. of other food (bread, sugar, etc)	13.5	9.61	15.88	61.01	11.46	10.65	15.41	62.48
159	Beverages (alcoholic & not)	15.19	14.23	21.67	48.9	16.77	11.18	17.58	54.46
171	Preparation and spinning of textiles	16.21	15.38	25.1	43.31	19.63	20.42	22.54	37.41
172	Textiles weaving	10.15	12.22	21.5	56.13	12.9	12.47	16.59	58.05
173	Finishing of textiles	22.61	30.93	36.71	9.75	27.7	35.45	25.71	11.14
175	Carpets, rugs and other textiles	24.7	24.87	27.52	22.9	24.46	26.7	15.18	33.66
177	Knitted and crocheted articles	25.19	22.48	22.33	29.99	24.36	24.72	19.07	31.85
182	Wearing apparel	21.89	18.65	22.72	36.74	28.66	20.49	18.18	32.66
191	Tanning and dressing of leather	40.89	33.29	25.82	0	42.1	28.4	14.41	15.08
193	Footwear	30.85	24.2	23.97	20.97	34.58	22.13	19.31	23.98

202	Production of plywood and panels	21.36	28.57	22.51	27.56	14.54	25.88	33.13	26.45
203	Wood products for construction	50.19	27.06	18.34	4.42	47.89	23.19	24.37	4.55
205	Other wood prod. (cork, straw, etc)	46.43	31.54	17.01	5.02	48.44	24.28	27.29	0
211	Pulp, paper and paperboard	8.76	12.54	10.71	67.99	7.38	11.55	15.33	65.74
212	Articles of paper and paperboard	21.28	19.8	26.31	32.6	23.55	18.47	23.3	34.69
221	Publishing	3.21	4.81	14.81	77.17	5.83	12.05	18.36	63.76
222	Printing	27.84	17.13	18.15	36.88	29.51	18.47	13.69	38.33
241	Production of basic chemicals	4.78	4.96	12.09	78.16	4.69	6.46	13.85	75
243	Paints, varnishes, inks & mastics	23.17	20.58	29.24	27	14.81	20.71	17.67	46.8
244	Pharma., med. chemicals, botanical prod	2.55	4.1	14.06	79.29	1.94	5.31	13.96	78.78
245	Soap & detergents, clean & toilet prep	12.32	10.68	14.34	62.66	6.71	6.88	13.4	73.01
246	Other chemical products	16.98	13.88	31.01	38.13	17.25	15.27	25.72	41.76
251	Rubber products	7.9	7.67	9.05	75.38	9.29	9.86	8.27	72.58
252	Plastic products	26.93	25.78	26.63	20.65	27.84	25.81	26.1	20.26
261	Glass and glass products	12.72	11.69	16.94	58.64	15.01	14.08	20.56	50.34
262	Ceramic goods not for construction	12.21	11.19	19.86	56.74	14.11	9.35	25.03	51.51
263	Ceramic goods for construction	10.21	16.63	31.59	41.57	6.61	11.77	25.75	55.87
264	Bricks, tiles & construction prod.	39.13	17.38	16.4	27.1	32.76	16.22	18.09	32.93
266	Concrete, plaster and cement	29.9	24.78	24.59	20.72	38.66	24.57	25.84	10.93
267	Cutting, shaping and finishing of stone	60	20.41	14.71	4.88	59.65	21.71	6.89	11.75
273	First processing of iron and steel	21.43	34.61	28.43	15.53	24.13	25.51	27.03	23.33
275	Casting of metals	15.24	17.02	16.23	51.5	16.79	16.72	26.23	40.26
281	Structural metal products	37.3	24.9	21.41	16.38	44.51	33.93	15.27	6.29
284	Forging, pressing, stamping, of metal	29.58	31.06	30.73	8.63	23.16	33.29	26.01	17.53
285	Treatment and coating of metals	50.67	30.2	17.45	1.69	49.68	30.84	19.49	0
286	Cutlery, tools and general hardware	27.32	20.1	25.78	26.79	27.14	19.28	26.32	27.26
287	Other fabricated metal products	27.5	22.26	27.04	23.2	30.95	23.77	22.44	22.83
291	Machinery for prod. & use of mech. power	11.03	12.4	18.62	57.94	9.76	12.14	18.74	59.36
292	Other general purpose machinery	18.28	19.12	23.78	38.83	18.94	16.96	21.76	42.34
293	Agricultural and forestry machinery	11.51	8.32	15.75	64.42	13.52	13.16	7.12	66.2

294	Machine tools	20.47	17.43	30.44	31.66	19.95	19.61	26.85	33.59
295	Other special purpose machinery	20.09	20.9	27.23	31.79	19	17.72	26.71	36.57
297	Domestic appliances not e/where class	3.56	5.53	9.49	81.42	2.13	4.64	9.27	83.95
311	Electric motors, generators and transform	13.67	12.13	18.6	55.6	17.75	16.89	15.38	49.99
312	Manuf. of electricity distrib, control equip	14.2	14.44	20.1	51.26	12.45	9.7	16.51	61.34
316	Electrical equipment not e/where class	12.12	7.29	13.63	66.96	12.79	9.54	7.41	70.26
322	TV, radio transmit., lines for teleph.	5.71	6	7.19	81.1	4.1	3.21	7.93	84.77
332	Measure, control and navigation instruments	12.01	8.86	17.02	62.11	14.06	11.33	22.79	51.82
342	Prod. of bodies for cars, trailers	20.61	13.46	23.93	41.99	28.68	24.26	36.67	10.39
343	Production of spare parts for cars	6.93	8.57	15.92	68.58	5.91	9.29	18.85	65.95
361	Furniture	37.31	26.68	22.82	13.2	35.17	25.21	17.25	22.38
362	Jewelry and related articles	38.41	26.49	11.02	24.07	50.34	21.2	20.83	7.63
366	Miscellaneous manufact. not e/where class	28.24	25	28.1	18.65	22.06	23.36	22.26	32.32

**Table 12:** *Employment share per size cohort, 1989 and 1997, percentages. Micro.1 vs. Micro.3. Source Grazioplene (2006) and our elaboration on MICRO.3. - Micro.3*

		MICRO.3							
ISIC	SECTOR	1989				1997			
		20-49	50-99	100-249	250	20-49	50-99	100-249	250
151	Production, process & preserv. of meat	21.14	13.56	24.46	40.84	15.57	9.11	19.29	56.02
155	Dairy products	9.99	8.42	14.42	67.17	7.79	12.68	13.1	66.44
158	Prod. of other food (bread, sugar, etc)	13.27	9.21	14.9	62.62	11.46	10.65	15.41	62.48
159	Beverages (alcoholic & not)	17.21	16.04	21.9	44.85	16.69	11.63	17.49	54.18
171	Preparation and spinning of textiles	17.42	15.52	28.28	38.78	19.4	20.33	23.04	37.23
172	Textiles weaving	11.22	12.12	19.84	56.82	12.94	12.51	16.3	58.25
173	Finishing of textiles	24.95	30.84	34.21	9.99	27.81	35.39	25.67	11.12
175	Carpets, rugs and other textiles	28.09	23.12	27.07	21.72	24.5	26.68	15.17	33.64
177	Knitted and crocheted articles	28.98	21.31	22.74	26.96	24.48	24.68	19.04	31.8
182	Wearing apparel	26.09	19.08	22.5	32.33	28.53	20.53	18.22	32.72
191	Tanning and dressing of leather	43.67	28.35	27.99	0	42.1	28.4	14.41	15.08
193	Footwear	35.34	24.09	24.23	16.35	34.48	22.45	19.21	23.86
202	Production of plywood and panels	22.92	29.19	23.61	24.28	14.54	25.88	33.13	26.45
203	Wood products for	51.28	24.56	20.55	3.61	48.16	23.07	24.24	4.53

	construction								
205	Other wood prod. (cork, straw, etc)	50.47	28.58	16.59	4.36	47.88	24.54	27.58	0
211	Pulp, paper and paperboard	8.84	10.79	9.21	71.16	7.21	11.57	15.36	65.86
212	Articles of paper and paperboard	22.66	19.99	27.31	30.04	23.61	18.45	23.28	34.66
221	Publishing	4.22	5.77	20.97	69.04	5.84	11.84	18.41	63.92
222	Printing	30.35	18.29	18.44	32.92	29.51	18.47	13.69	38.33
241	Production of basic chemicals	4.85	5.65	11.74	77.77	4.66	6.43	14.29	74.62
243	Paints, varnishes, inks & mastics	17.68	20.15	29.23	32.94	14.96	19.95	17.85	47.25
244	Pharma., med. chemicals, botanical prod	2.81	4.62	14.26	78.31	2.02	5.31	13.95	78.72
245	Soap & detergents, clean & toilet prep	6.98	9.59	16.72	66.7	6.71	6.88	13.4	73.01
246	Other chemical products	17.38	18.24	30.99	33.39	17.25	15.27	25.72	41.76
251	Rubber products	9.17	7.21	9.73	73.89	9.38	9.85	8.26	72.51
252	Plastic products	28.75	24.73	25.4	21.12	27.69	25.86	26.15	20.3
261	Glass and glass products	13.46	11.25	16.13	59.16	14.89	14.1	20.59	50.41
262	Ceramic goods not for construction	15.66	12.18	21.1	51.06	14	10.09	24.83	51.09
263	Ceramic goods for construction	10.28	15.93	33.51	40.28	6.71	11.76	25.72	55.81
264	Bricks, tiles & construction prod.	40.68	18.93	15.23	25.17	32.76	16.22	18.09	32.93
266	Concrete, plaster and cement	32.51	24.96	24.95	17.59	38.69	24.36	25.97	10.98
267	Cutting, shaping and finishing of stone	64.85	19.45	11.79	3.91	59.86	21.6	6.86	11.69
273	First processing of iron and steel	23.56	30.76	32.25	13.44	24.13	25.51	27.03	23.33
275	Casting of metals	15.89	16.47	15.82	51.82	16.6	16.76	26.29	40.35
281	Structural metal products	39.59	23.76	22.03	14.62	45.36	32.72	15.52	6.4
284	Forging, pressing, stamping, of metal	30.26	29.23	31.29	9.21	22.96	33.38	26.08	17.58
285	Treatment and coating of metals	53.15	27.5	17.98	1.38	49.66	30.84	19.49	0
286	Cutlery, tools and general hardware	29.09	21.96	24.53	24.42	26.98	19.16	26.76	27.09
287	Other fabricated metal products	29.1	22.08	26.25	22.57	31.3	23.65	22.33	22.72
291	Machinery for prod. & use of mech. power	11.16	13.02	18.11	57.72	9.65	12.16	18.76	59.43
292	Other general purpose machinery	21.79	18.76	23.69	35.76	19.03	17.07	21.7	42.2
293	Agricultural and forestry machinery	15.08	8.88	17.28	58.76	13.52	13.16	7.12	66.2
294	Machine tools	20.35	19.78	27.69	32.18	19.49	19.27	25.86	35.38
295	Other special purpose machinery	21.02	20.09	27.55	31.34	19.14	17.84	27.03	35.99
297	Domestic appliances not e/where class	4.26	6.39	9.82	79.53	2.13	4.76	9.26	83.85



311	Electric motors, generators and transform	13.88	11.73	20.01	54.38	17.87	16.87	15.35	49.91
312	Manuf. of electricity distrib, control equip	11.81	13.71	20.08	54.4	13.34	10.15	17.27	59.24
316	Electrical equipment not e/where class	9.55	6.23	11.02	73.2	12.65	9.35	7.26	70.74
322	TV, radio transmit., lines for teleph.	2.42	3.31	5.77	88.5	4.19	3.36	7.9	84.54
332	Measure, control and navigation instruments	14.89	8.22	15.92	60.97	13.95	11.25	23.36	51.44
342	Prod. of bodies for cars, trailers	21.45	16.23	26.58	35.74	28.68	24.26	36.67	10.39
343	Production of spare parts for cars	6.92	9.5	18.59	64.99	6.01	9.39	18.81	65.8
361	Furniture	39.62	25.43	22.75	12.2	35.17	25.21	17.25	22.38
362	Jewelry and related articles	50.26	30.54	10.53	8.67	50.34	21.2	20.83	7.63
366	Miscellaneous manufact. not e/where class	28.37	24.81	26.02	20.81	22.06	23.36	22.26	32.32

## 8 MICRO.3. Descriptive statistics

The descriptive statistics we report here refer to the Micro.3 databank that has been jointly developed with the Italian Statistical Office (ISTAT). The database contains information appearing in firms' financial statements together with the additional variables contained in the annual census conducted by ISTAT. Micro.3 represents a development of the former Micro.1 (see, among other works on this database, Bottazzi et al., 2002; Bottazzi and Secchi, 2003; Bottazzi et al., 2005a, 2005b; Dosi and Grazzi, 2006; Bottazzi and Secchi, 2006; Dosi, 2007; Bottazzi et al., 2007; Dosi et al., 2008; Serti and Tomasi, 2009; Zeli and Mariani, 2009).

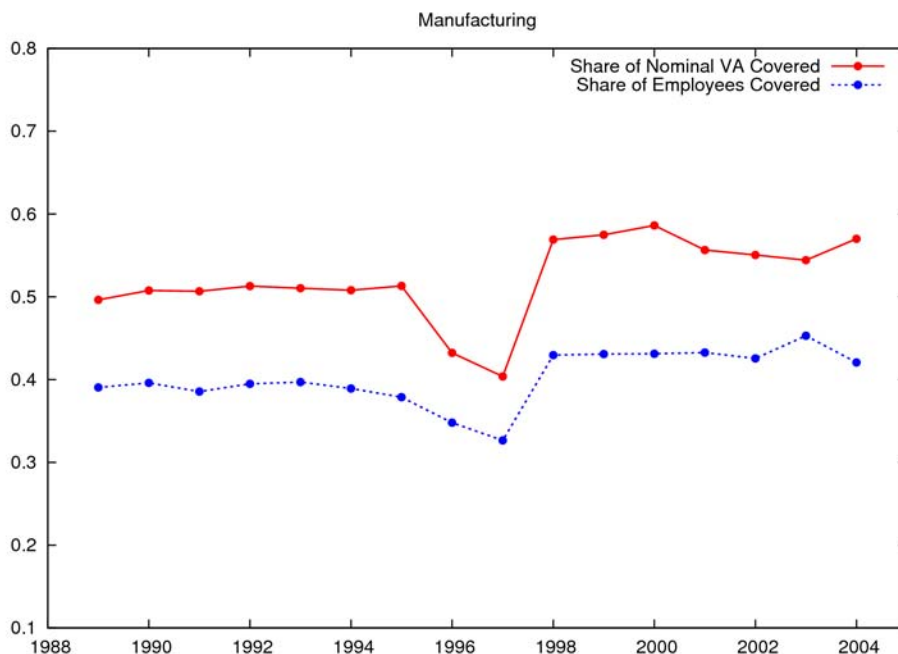
Micro.3 is indeed based on the census of Italian firms with more than 20 employees and covers the period 1989-2004. In particular, starting from 1998 the census of the population of firms concerns only companies with more than 100 employees. As far as firms in the range of employment 20-99 are concerned, ISTAT directly monitors only a "rotating sample" which varies every five years. Further, ISTAT also collects data on those firms not included in this "rotating sample" and on those firms not answering the census. In order to do this ISTAT resort to financial statements.

Very briefly, then, we merged information on firms coming from three distinct sources: SCI for firms bigger than 100 employees, PMI for firms in the range of employment 20-100, and financial statements to fill in as many missing values as possible (an extended explanation of the procedure is in Section 4). Having more than one source of data enabled us to accomplish, in a former and preparatory phase of our work, two objectives. On one side, quite obviously, resorting to financial statement information when data from the National Statistical Office are not available enhance the completeness of the database. On the other, when data from both sources are available, it is possible to check for the reliability of the balance sheet data. Results of this consistency checks, which also had to take into account slight difference in definitions, were positive. In particular, and as explained extensively in Section 4 when for a certain variables, both sources are available (from one of the two census and from financial statements), we employ the one coming from the ISTAT census, as it is considered more reliable.

After linking of the two database, Micro.3 contains data for 134625 Italian firms, of whom 60084 are active in the Manufacturing sectors. The possibility to resort to a second source of data from 1998 onward also resulted in an increased representativity of our sample of firms as compared to all firms active in the Manufacturing sectors. As shown in Figure 9, Micro.3 covers more than 50% of value added generated by all Italian Manufacturing firms, as reported by Eurostat; and more than 40% of

employment. It is possible to observe a fall in the coverage ratio in the years 1996 and 1997. That is due changes in the practice of Statistical office that took place in 1997.

**Figure 9:** Coverage of Micro.3 in terms of employment and value added. Our elaboration on Micro.3 and Eurostat data



As far as the classification of industrial activity is concerned, in the present document, as well as in the analysis of Micro.3, we refer to the international classification NACE rev 1.1, as it perfectly matches with Italian industrial classification ATECO 2002 (see also Section 4.6 above).

Finally, to ease the interpretation of results, we also report all variables in Euro, even though, at the time, these reports were filled in Lira currency. Bear in mind that during the period under investigation the Italian currency with legal tender status was the Italian Lira whose exchange rate with the Euro was later fixed at 1 euro per 1366.27 Lira.

## 8.1 Descriptive Statistics on 2 Digit Sectors

In the following we report some tables that depict the evolution over time of some relevant variables of Micro.3. Table 13 reports the number of firms in each 2 digit sector for the whole economy. In the following we are going to focus on manufacturing sectors only, but for time being we are interested to appreciate the evolution of Italian Economy as recorded by Micro.3.

As far as the number of observations per year is concerned, MICRO.3 reports information on more than 31.000 in 1989 and more 61000 firms in 2004. In general, as already apparent in Table 2 the increase in the number of observations is mostly due to the availability of financial statements starting from 1998 onward. Also notice that the number of observations displays a drop in the years 1996 and 1997. Indeed, the last two years of the old census reported a decrease in the number of available observations, yet after the restructuring of the census procedures and also thanks to the integration with annual reports data, the number of observations registered a steady increase up to more than 61000 firms in 2004.

The trend in the number of observations (firms) in each 2 Digit sector is reported in Table 13 It also enables to appreciate the emergence and development of some sectors among the manufacturing industries. That also tells us that, to some extent, some important changes in the structure and composition of the manufacturing industry are already visible in the descriptive statistics. Take for

instance, the recycling sector (NACE 37), it only had four firms bigger than 20 employees active in 1989, whether in 2004 there were 125 companies in this sector.

**Table 13:** *Yearly number of observations in each 2 digit sector. Source: Our elaboration on Micro.3.*

	'89	'90	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04
14	194	196	192	201	215	193	164	153	113	243	260	262	270	290	276	276
15	1390	1452	1357	1433	1536	1513	1378	1197	1051	2089	2113	2033	1983	2036	2019	2060
17	1929	2016	1814	1918	2000	1985	1731	1511	1221	2499	2424	2310	2231	2128	2009	1904
18	1441	1695	1494	1705	1738	1735	1416	1160	930	1762	1732	1585	1539	1549	1396	1403
19	1079	1206	1055	1141	1197	1175	1072	992	619	1570	1483	1466	1478	1416	1332	1283
20	553	603	559	568	601	600	555	506	445	742	783	791	766	777	757	794
21	420	451	442	463	460	478	476	405	390	659	668	673	654	657	661	674
22	675	747	714	766	793	802	717	588	544	1011	1025	1014	983	996	949	963
23	80	87	82	88	91	80	75	62	59	95	96	99	92	92	93	91
24	773	770	736	764	781	801	746	673	622	1120	1124	1142	1146	1180	1131	1174
25	1012	1042	945	1015	1111	1120	1045	941	920	1829	1838	1866	1843	1840	1810	1825
26	1430	1494	1378	1446	1475	1412	1285	1108	987	1777	1731	1727	1678	1708	1683	1692
27	640	631	643	657	648	637	607	520	491	884	886	867	878	867	845	848
28	2381	2519	2419	2701	2780	2766	2681	2297	2176	4547	4705	4756	4736	4691	4673	4930
29	2606	2699	2610	2773	2834	2786	2608	2192	2152	4405	4436	4426	4325	4280	4185	4235
30	37	47	36	46	56	56	53	43	44	99	107	121	122	124	104	112
31	777	841	802	870	921	908	843	731	712	1356	1359	1378	1362	1306	1293	1329
32	213	220	222	227	267	265	256	236	222	458	448	466	452	439	410	406
33	385	419	380	407	436	416	405	360	326	669	679	658	662	683	659	668
34	399	427	398	436	422	407	392	342	328	612	631	633	603	602	555	574
35	262	277	242	276	281	259	239	196	172	395	387	392	376	378	378	395
36	1456	1590	1449	1614	1698	1611	1483	1215	1188	2049	2071	2093	2073	2066	1981	2027
37	4	10	9	14	22	27	25	14	19	59	74	81	91	107	109	123
40	124	135	136	140	150	156	149	140	96	167	170	192	202	222	213	228
41	38	43	44	48	49	59	57	59	48	77	87	89	104	102	109	125
45	3239	3587	3404	3854	3998	3680	3022	2607	2203	3964	4297	4455	4378	4466	4918	5525
50	780	864	811	964	899	860	751	686	666	1228	1355	1443	1394	1453	1532	1676
51	2318	2407	2251	2533	2691	2737	2480	2236	1978	3596	3785	3706	3685	3814	3794	3975
52	935	1099	1016	1248	1419	1506	1355	1151	1066	2427	2615	2613	2570	2701	2727	2884
55	790	881	816	940	1127	1254	1077	994	899	1696	1819	1941	1904	2041	2133	2277
60	735	768	745	816	851	907	847	793	750	1424	1544	1605	1604	1632	1674	1827
61	62	58	63	64	82	84	78	52	62	141	135	124	128	123	124	136
63	570	611	577	653	733	736	699	608	667	1581	1719	1910	1912	1998	1896	2001
64	35	37	33	37	43	35	36	35	31	73	84	101	117	105	96	102
70	125	168	145	151	131	195	139	117	125	248	239	164	140	138	133	145
71	43	44	36	47	30	66	24	13	6	71	70	80	98	101	97	94
72	404	624	584	853	611	1300	509	462	437	1177	1341	1469	1543	1593	1441	1511
73	4	6	7	5	9	12	8	29	39	84	92	89	93	107	109	105
74	1176	1412	1248	1337	1517	3355	1602	1559	1552	3554	3770	3931	4119	4226	4222	4606
80	3	5	7	3	3	173	116	76	97	293	321	266	281	282	298	360
85	5	12	16	20	33	592	595	634	697	1655	1819	1999	2082	2092	2078	2398
90	26	22	26	30	30	157	162	176	168	363	378	420	464	508	541	603
92	15	18	18	10	16	162	138	132	148	558	637	620	626	666	717	791
93	29	33	26	20	29	207	200	193	186	311	310	355	374	392	392	455
Tot	31616	34303	32006	35323	36834	40281	34315	30209	27668	55664	57689	58442	58185	59039	58594	61656

There is, of course, also a more direct way to assess the changes in the composition of the Italian industrial structure; and this is achieved analyzing the shares of turnover and value added in the different manufacturing sectors during the period of observation, 1989-2004. Let us focus on the share of turnover of each 2 Digit sector in the manufacturing industry as reported in Table 14. In 1989 the “number one” sector was Food and Beverage (NACE 15) and the second was that of machinery (NACE 29), in 2004 the top 2 sectors are just inverted and as far as the other sectors are concerned most is left unchanged. Analogously, Table 16 reports the share of value added of every industry in the manufacturing sector. Quite interestingly we notice that the ranking on value added displays many differences with respect to the share in total sales (Table 14). In 1989 the machinery sector (NACE 29) is the one with the highest share of value added, and the sector of Motor vehicles and trailers (NACE 34) ranks second. The sector of Food and Beverages ranks only fourth, after that of chemical products (NACE 24). Again, the ranking is almost unchanged in 2004. Most notably, in the last year of our sample, the share of value added accounted for by firms in the machinery sector (NACE 29) has steadily reached the 15%.

A legitimate question concerning the properties of the database Micro.3 is its representativeness of the Italian economy. More precisely, and limiting for the time being to the manufacturing industry, how representative is Micro.3 of the actual Italian sectoral composition? We have already seen (cf. Figure 9) that the coverage provided by Micro.3 for the whole Italian economy is fairly large, around 40% percent for employment and 50% when considering value added. We now want to know if there is any bias in the sectoral composition of this sample so that an industry is over/under-represented. Table 14 shows the share of turnover (as total sales) for each 2 digit sector in the manufacturing industry. Figures in Table 14 can be compared to that in Table 15 which reports the same statistics, now computed on aggregate Eurostat data. Comparison of the two tables witnesses the very good representativity of our database in terms of the composition of sectors, both with respect to turnover, Tables 14 and 15, and value added, Table 16 and 17.

As a side remark notice that the top five sectors in terms of value added share (that is NACE 15, 24, 26, 29 and 34) accounted for 45.18% of the total valued added produced by the manufacturing industry. And the same five sectors still represented 45.02% of value added in 2004. That, again, tells of the relative invariance in the core of the Italian industrial structure.

**Table 14:** *Contribution (percentage) of each sector to the turnover (as total sales) of manufacturing. Source: Our elaboration on Micro.3*

	'89	'90	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04
15	11.54	11.54	12.43	12.91	13.19	12.43	11.26	11.43	10.68	11.21	10.76	10.3	10.83	11.31	12.13	11.5
17	5.28	5.33	4.8	4.84	5.12	5.14	4.58	4.51	3.98	5.19	4.62	4.54	4.55	4.5	4.1	3.75
18	2.78	2.92	2.77	2.78	2.89	2.68	2.37	2.38	2.02	3	2.8	2.44	2.73	2.87	2.68	2.8
19	1.92	2.01	1.93	1.86	2.21	2.4	2.23	2.37	1.45	2.6	2.49	2.57	2.77	2.81	2.65	2.42
20	0.92	0.97	0.95	0.98	1.01	1.05	0.99	0.92	0.97	1.07	1.11	1.07	1.12	1.2	1.16	1.23
21	2.08	2.13	2.16	2.07	2.27	2.38	2.81	2.41	2.31	2.47	2.46	2.62	2.15	2.56	2.74	2.59
22	2.71	2.7	2.77	2.81	2.92	2.75	2.51	2.61	2.71	2.68	2.56	2.52	2.6	2.75	2.68	2.81
23	8.9	9.41	11.2	10.69	10.53	9.29	10.14	11.52	12.04	7.82	8.75	10.68	9.44	4.58	5.21	5.21
24	9.48	9.57	9.92	9.86	10.58	10.47	10.56	10.69	9.84	9.34	9.22	9.65	9.84	10.54	10.56	10.62
25	3.23	3.17	3.15	3.18	3.4	3.53	3.56	3.6	3.53	4.09	4.17	4.07	4.06	4.47	4.36	4.38
26	4.31	4.55	4.55	4.73	4.51	4.11	3.88	3.72	3.52	3.96	4.07	3.92	4.09	4.7	4.75	4.79
27	8.03	6.46	5.92	5.82	5.16	6.52	7.02	5.43	6.35	5.67	5.07	5.52	5.17	5.61	5.76	6.92
28	4.49	4.42	4.3	4.53	4.61	4.7	4.82	4.59	4.56	6.31	6.37	6.19	6.39	6.85	6.94	7.33
29	10.52	10.68	10.7	11.08	10.93	11.15	11.5	11.67	11.97	12.76	13.62	12.14	12.27	13.12	13.11	12.71
30	1.63	2.24	2.26	1.79	1.75	1.61	1.47	1.45	1.53	0.44	0.37	0.61	0.71	0.62	0.47	0.49
31	3.67	3.57	3.71	3.95	3.81	3.67	3.66	3.3	3.88	3.76	3.67	3.48	3.51	3.66	3.62	3.56
32	2.23	2.2	2.41	2.29	2.31	2.13	1.95	2.21	2.53	2.21	2.07	2.15	2.34	1.86	1.66	1.72
33	1.29	1.39	1.34	1.29	1.34	1.37	1.38	1.62	1.05	1.43	1.56	1.48	1.65	1.85	1.83	1.82
34	10.19	9.69	7.81	7.27	5.97	7.06	8.05	8.66	10.11	8.18	8.28	8.01	8.07	8.16	7.74	7.55
35	2.12	2.16	2.08	2.21	2.19	2.28	2.1	1.86	1.89	2.17	2.35	2.45	2.03	2.12	2.11	2.26
36	2.68	2.91	2.84	3.07	3.28	3.29	3.15	3.05	3.07	3.64	3.62	3.57	3.69	3.88	3.74	3.57

**Table 15:** Contribution (percentage) of each sector to the turnover (as total sales) of some EU countries. GDP as total firm turnover. Source: Our elaboration on Eurostat data

NACE	SECTOR	IT '95	IT '02	ES '02	FR '02	DE '02
15	Food products and beverages	12.13	11.7	17.96	14.84	9.86
17	Manufacture of textiles	5.83	4.69	2.33	1.56	1.06
18	Wearing apparel; dyeing of fur	4.05	3.83	1.86	1.35	0.76
19	Tanning & dressing of leather etc	3.58	3.24	1.34	0.47	0.28
20	Manuf. of wood &cork products	1.94	2.07	2.37	1.3	1.44
21	Manuf. of pulp & paper products	2.68	2.44	2.74	2.08	2.26
22	Recorded media	2.95	3.16	3.9	3.51	3.42
23	Manuf. of coke, petroleum prod.s	5.84	4.9	5.46	5.43	6.84
24	Manuf. of chemicals products	8.78	8.86	9.27	11.44	9.54
25	Rubber and plastic products	3.92	4.23	4.26	3.8	4
26	Other non-metallic mineral prod.	4.12	4.73	6.71	2.59	2.71
27	Basic metals	5.14	4.64	4.93	3.25	4.39
28	Fabricated metal products	7.85	8.89	7.75	5.53	6.17
29	Machinery and equipment n.e.c.	11.11	12.16	5.84	5.98	11.63
30	Office machinery and computers	1.44	0.51	0.24	1.37	1.04
31	Electrical machinery n.e.c.	3.7	3.71	3.47	2.79	6.17
32	Radio, tv & communication equip	1.93	1.86	1.54	3.7	2.94
33	Medical, precision, optical inst	1.6	1.99	0.81	2.5	2.61
34	Motor vehicles, trailers	5.19	5.91	12.06	19.74	18.9
35	Other transport equipment	1.82	1.82	1.97	4.67	1.93
36	Manufacturing n.e.c.	4.4	4.64	3.19	2.1	2.06

**Table 16:** Contribution (percentage) of each sector to the value added of manufacturing. Source: Our elaboration on *Micro.3*

	'89	'90	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04
15	8.1	8.43	9.12	9.73	9.91	9.08	8.19	8.58	8.43	8.52	8.65	8.25	8.54	8.77	9.27	8.7
17	5.92	6.12	5.53	5.75	6.07	6.03	5.49	5.59	4.98	5.94	5.56	5.42	5.42	5.12	4.71	4.29
18	2.92	3	2.84	2.99	3.07	2.87	2.63	2.67	2.2	2.92	2.76	2.54	2.77	2.81	2.62	2.61
19	1.68	1.79	1.77	1.74	2.04	2.07	1.97	2.14	1.29	2.17	2.21	2.24	2.38	2.35	2.26	2.07
20	0.96	1.04	1.01	1.08	1.12	1.09	1.06	1.08	1.05	1.13	1.18	1.18	1.26	1.26	1.24	1.28
21	2.05	2.16	2.36	2.17	2.49	2.48	2.92	2.8	2.63	2.76	2.76	2.68	2.28	2.58	2.71	2.69
22	3.8	3.68	3.83	4.05	4.03	3.82	3.37	3.58	3.69	3.61	3.66	3.71	3.56	3.74	3.74	4.14
23	1.98	2.29	3.09	2.46	2.85	2.51	2.43	2.8	2.9	2.34	1.99	2.8	2.59	1.14	1.44	1.7
24	9.22	9.31	9.48	9.68	10.2	10.3	11.4	11.4	10.5	9.93	9.82	9.95	9.86	10.4	10.1	10.2
25	3.87	3.83	3.88	4	4.3	4.39	4.33	4.78	4.57	4.94	5.28	4.97	4.96	5.2	5.05	4.82
26	6.22	6.33	6.35	6.65	6.36	5.93	5.62	5.43	5.1	5.48	5.82	5.62	5.86	6.53	6.61	6.53
27	7.45	6.36	5.69	5.14	4.28	6.05	7.2	5.49	6.11	5.12	4.81	4.98	4.48	4.5	4.7	5.81
28	5.81	5.77	5.85	6.11	6.34	6.28	6.46	6.68	6.58	8.26	8.58	8.41	8.74	8.98	9.12	9.23
29	12.3	12.6	12.6	13.1	13.7	13.7	13.5	14.4	14.8	15	15.2	15.1	15.4	15.6	15.6	14.9
30	2.23	2.67	2.61	2.23	1.81	1.57	1.16	0.99	1.26	0.36	0.3	0.35	0.58	0.31	0.25	0.37
31	4.99	4.73	5.05	5.14	5.16	4.82	4.57	4.23	5.03	4.74	4.64	4.43	4.34	4.44	4.45	4.29
32	3.32	3.33	3.72	3.4	3.31	2.99	2.68	2.95	3.14	2.82	2.64	2.91	2.93	2.31	2.41	2.36
33	1.93	2.08	2.03	2.01	2.1	2	2.1	2.11	1.66	2.03	2.26	2.21	2.43	2.69	2.66	2.72
34	9.34	8.1	7.11	6.45	4.78	5.9	7.09	6.82	8.89	6.24	5.93	5.82	5.09	4.77	4.81	4.74
35	3.15	3.39	3.11	3.04	2.88	2.99	2.88	2.42	2.19	2.27	2.33	2.81	2.72	2.82	2.56	3.05
36	2.74	2.95	2.93	3.06	3.27	3.13	3.02	3.03	3.03	3.43	3.58	3.57	3.76	3.79	3.67	3.55

**Table 17:** *Contribution (percentage) of each sector to the value added of manufacturing sector for some EU countries.*  
*Source: Our elaboration on Eurostat data*

NACE	SECTOR	IT '02	ES '02	FR '02	DE '02
15	Food products and beverages	9.29	14.23	13.9	8.22
17	Manufacture of textiles	5.19	2.7	1.94	1.22
18	Wearing apparel; dyeing of fur	3.92	2.23	1.59	0.64
19	Tanning & dressing of leather etc	2.95	1.25	0.75	0.26
20	Manuf. of wood &cork products	2.43	2.52	1.75	1.56
21	Manuf. of pulp & paper products	2.34	2.99	2.53	2.44
22	Recorded media	4.31	5.62	5.36	4.77
23	Manuf. of coke, petroleum prod.s	1.06	3.6	1.82	1.1
24	Manuf. of chemicals products	7.88	9.07	11.8	10.19
25	Rubber and plastic products	4.82	4.95	5.39	4.96
26	Other non-metallic mineral prod.	6.1	8.74	3.87	3.4
27	Basic metals	3.48	4.27	3.05	4.07
28	Fabricated metal products	12.6	10.63	9.51	9.07
29	Machinery and equipment n.e.c.	14.1	7.34	7.85	15.36
30	Office machinery and computers	0.24	0.17	1.3	0.86
31	Electrical machinery n.e.c.	4.25	3.76	4	7.02
32	Radio, tv & communication equip	2.19	1.11	3.84	2.14
33	Medical, precision, optical inst	2.8	1.1	3.76	3.98
34	Motor vehicles, trailers	3.06	7.34	8.96	13.8
35	Other transport equipment	2.31	2.38	4.08	2.39
36	Manufacturing n.e.c.	4.65	4.01	2.85	2.55

Table 18 and 19 reports the distribution of the number of firms per size classes, where size is proxied by employment. We report the figures for 1989, 1997, 2000, 2004, and for the manufacturing sector only. Let us focus on the class of biggest firms (more than 250 employees). It is, once more, apparent the disproportionate share accounted for by small and medium firms. Nonetheless, let us focus, as we did before, on the five largest sectors in terms of value added (NACE 15, 24, 26, 29 and 34). When we restrict our analysis to these sectors, we observe that three out of five (26, 29 and 34) did increase the share of firms in the size class “more than 250 employees”. For a detailed discussion of the impact of the new techno-economic paradigm on the industrial structure, see also Dosi et al. (2008).

This trend is somehow inverted when considering the share of employment per size class, Table 20 and 21. Among the top five sectors for value added (NACE 15, 24, 26, 29 and 34) only that of other non-metallic mineral product (NACE 26) increased the share of employment in firms bigger than 250 employees. Nonetheless, the top five sectors still report very high shares of employment in the class of biggest firms, when compared to the other manufacturing industries.

**Table 18:** *Distribution of number of firms per size class, percentages. Source: Our elaboration on Micro.3.*

SECTOR	1989				1997			
	20-49	50-99	100-249	250	20-49	50-99	100-249	250
14 Other mining and quarrying	80.41	12.37	4.64	2.58	80.53	13.27	6.19	0
15 Food products and beverages	58.63	19.64	13.9	7.84	55.95	22.07	14.84	7.14
17 Manufacture of textiles	57.75	22.86	14.1	5.34	55.86	26.95	11.3	5.9
18 Wearing apparel; dyeing of fur	65.37	19.99	10.3	4.3	67.63	20.54	8.6	3.23
19 Tanning & dressing of leather manuf. of luggage, footwear	69.14	20.11	9.18	1.58	70.44	19.87	7.43	2.26
20 Manuf. of wood &cork products	73.96	18.26	6.33	1.45	70.11	19.78	8.99	1.12
21 Manuf. of pulp & paper products	56.19	24.05	14.1	5.71	58.72	22.56	12.82	5.9
22 Recorded media	61.93	19.11	12.7	6.22	61.21	22.43	10.48	5.88
23 Manuf. of coke, petroleum prod.s	51.25	15	8.75	25	40.68	15.25	22.03	22.03
24 Manuf. of chemicals products	41.01	22.64	20.3	16	39.55	24.44	19.61	16.4
25 Rubber and plastic products	60.08	23.62	11.7	4.64	59.13	24.78	11.85	4.24
26 Other non-metallic mineral prod.	60.91	20.91	12.7	5.45	61.2	20.87	12.26	5.67
27 Basic metals	46.56	24.84	16.7	11.9	47.86	22.61	17.92	11.61
28 Fabricated metal products	66.61	21.5	9.41	2.48	66.68	22.7	8.13	2.48
29 Machinery and equipment n.e.c.	53.76	24.21	15.5	6.49	52.04	24.3	16.36	7.3
30 Office machinery and computers	43.24	21.62	18.9	16.2	54.55	25	2.27	18.18
31 Electrical machinery n.e.c.	51.87	22.01	14.5	11.6	55.2	22.61	11.94	10.25
32 Radio, tv & communication equip	43.19	22.54	16.4	17.8	49.55	24.77	13.51	12.16
33 Medical, precision, optical inst	60.52	16.62	13.5	9.35	53.99	23.93	14.42	7.67
34 Motor vehicles, trailers	42.11	25.56	19.3	13	38.41	23.17	22.56	15.85
35 Other transport equipment	45.42	20.23	14.5	19.9	47.09	25	13.37	14.53
36 Manufacturing n.e.c.	69.02	20.12	8.65	2.2	68.69	20.62	7.66	3.03
37 Recycling	50	25	0	25	78.95	0	15.79	5.26
40 Electricity, gas, steam supply	40.32	18.55	19.4	21.8	35.42	19.79	18.75	26.04

41	Collection, distrib. of water	23.68	23.68	34.2	18.4	31.25	18.75	31.25	18.75
45	Construction	67.99	19.17	8.77	4.07	72.99	17.57	6.4	3.04
50	Sale, repair of motor vehicles	85.13	10.26	3.08	1.54	80.18	14.56	3.9	1.35
	retail sale of automotive fuel								
51	Wholesale commission trade	69.97	17.34	9.15	3.54	67.9	21.39	7.38	3.34
52	Retail trade	66.1	17.01	10.7	6.2	61.35	20.83	9.19	8.63
55	Hotel and Restaurants	66.33	19.87	8.48	5.32	70.08	19.24	6.45	4.23
60	Land transport and via pipelines	57.41	16.73	11.8	14	53.87	23.33	11.33	11.47
61	Water transport	27.42	25.81	24.2	22.6	33.87	30.65	14.52	20.97
63	Auxiliary transport activities	50	24.21	17.4	8.42	50.97	21.74	17.84	9.45
	activities of travel agencies								
64	Post and telecommunications	51.43	8.57	8.57	31.4	45.16	9.68	12.9	32.26
70	Real estate activities	70.4	15.2	9.6	4.8	68	22.4	7.2	2.4
71	Renting of machinery	81.4	4.65	4.65	9.3	83.33	16.67	0	0
72	Computer and related activities	70.54	11.63	10.9	6.93	53.78	20.82	15.79	9.61
73	Research and development	50	0	50	0	38.46	20.51	25.64	15.38
74	Other business activities	66.84	14.88	10.4	7.91	47.23	25.52	17.91	9.34
80	Education	66.67	0	0	33.3	79.38	17.53	3.09	0
85	Health and social work	80	20	0	0	36.01	33	23.96	7.03
90	Sewage & refuse disposal, sanit	26.92	34.62	23.1	15.4	33.33	30.36	22.02	14.29
92	Recreational cultural activities	53.33	20	6.67	20	62.16	18.24	11.49	8.11
93	Other service activities	58.62	24.14	13.8	3.45	66.13	22.04	11.29	0.54

**Table 19:** *Distribution of number of firms per size class, percentages. Source: Our elaboration on Micro.3.*

	SECTOR	2000				2004			
		20-	50-	100-	250	20-	50-	100-	250
		49	99	249		49	99	249	
14	Other mining and quarrying	79.01	16	3.87	0.55	74.8	20.72	4.05	0.45
15	Food products and beverages	59.46	21	13.4	6.14	57.8	21.31	14.56	6.08
17	Manufacture of textiles	50.72	28.1	15.08	5.81	51.6	26.21	16.34	5.72



18	Wearing apparel; dyeing of fur	48.13	28.1	17.2	6.27	51.4	27.89	15.02	5.36
19	Tanning & dressing of leather	56.71	26.8	13.42	2.93	57.6	26.82	12.11	3.34
20	Manuf. of wood &cork products	63.3	24	10.86	1.5	62.5	22.49	12.07	2.56
21	Manuf. of pulp & paper products	55.33	24.6	14.15	5.7	53	25.59	14.63	6.58
22	Recorded media	57.06	25	12.62	5.35	55	24.24	14.66	5.52
23	Manuf. of coke, petroleum prod.s	48.91	17.4	17.39	16.3	53.9	17.58	14.29	14.3
24	Manuf. of chemicals products	46.04	23.2	18.92	11.9	43.6	23.79	19.58	12.7
25	Rubber and plastic products	55.15	26.4	14	4.36	52.3	26.9	15.87	4.62
26	Other non-metallic mineral prod.	56.22	24.7	12.6	6.38	55.5	23.46	14.36	6.47
27	Basic metals	46.46	24.8	19.48	9.13	48	23.3	20.29	8.38
28	Fabricated metal products	57.87	26.8	12.24	3.03	57.1	25.94	13.73	3.12
29	Machinery and equipment n.e.c.	50.32	26.3	16.39	6.82	49.3	26.96	16.83	6.86
30	Office machinery and computers	64.71	24.5	4.9	5.88	63.8	26.6	5.32	4.26
31	Electrical machinery n.e.c.	51.99	25.7	13.52	8.7	51.8	26.74	13.92	7.36
32	Radio, tv & communication equip	48.07	23.4	17.8	9.79	47.2	25	16.46	11.1
33	Medical, precision, optical inst	53.94	23.5	15.99	6.61	56	22.18	14.34	7.07
34	Motor vehicles, trailers	34.19	21	26.68	18	37.3	22.92	21.7	17.7
35	Other transport equipment	43.49	28.1	14.73	13.4	51.4	21.18	15.58	10.9
36	Manufacturing n.e.c.	58.48	27.2	10.82	3.56	54.1	28.4	13.73	3.45
37	Recycling	72.73	18.2	6.06	3.03	79.3	14.15	4.72	0.94
40	Electricity, gas, steam supply	45.45	16.6	17.65	19.8	46.9	15.18	16.52	21

41	Collection, distrib. of water	26.51	42.2	16.87	13.3	36.9	30.33	20.49	12.3
45	Construction	66.47	21.1	8.62	3.66	64.4	22.29	10.41	2.74
50	Sale, repair of motor vehicles	78.76	15.5	4.28	1.11	74.3	17.98	6.47	1.16
51	Wholesale commission trade	73.16	16.3	7.73	2.73	70.4	17.06	8.87	3.55
52	Retail trade	58.76	21	11.81	8.22	54.1	23.14	13.91	8.85
55	Hotel and Restaurants	54.73	22.4	14.85	7.78	49.5	24.03	16.51	9.51
60	Land transport and via pipelines	52.26	22.8	14.14	10.5	49.1	24.19	16	10.6
61	Water transport	37.25	26.5	19.61	16.7	37.8	22.69	24.37	15.1
63	Auxiliary transport activities	48.28	21.3	20.15	10.1	45.5	19.45	25.55	9.45
64	Post and telecommunications	46.84	11.4	15.19	26.6	49.5	10.53	13.68	26.3
70	Real estate activities	70.68	15.8	9.02	4.51	63	22.05	10.24	4.72
71	Renting of machinery	56.45	21	9.68	11.3	69.1	11.11	8.64	9.88
72	Computer and related activities	50.75	23.4	15.64	9.97	48.6	24.55	17	9.74
73	Research and development	58.44	18.2	15.58	7.79	53.2	22.34	18.09	6.38
74	Other business activities	41.41	20.4	22.78	15.3	38.9	17.68	27.44	15.9
80	Education	71.56	19.3	9.17	0	68.6	23.04	6.37	1.47
85	Health and social work	27.75	29.6	30.44	12.2	26.5	27.02	34.09	12.3
90	Sewage & refuse disposal, sanit	37.22	28.8	22.98	11	41.4	24.18	22.54	11.5
92	Recreational cultural activities	65.54	22.5	7.08	4.92	59.9	20.36	12.85	6.92
93	Other service activities	45.73	35.4	14.63	3.66	56.4	28.79	12.06	2.72

**Table 20:** *Employment share per size class, percentages. Source: Our elaboration on Micro.3.*

SECTOR	1989				1997			
	20-49	50-99	100-249	250	20-49	50-99	100-249	250
14 Other mining and quarrying	44.78	15.2	12.67	27.35	58.95	19.34	21.71	0
15 Food products and beverages	15.94	12.19	19.03	52.84	13.82	12.15	17.74	56.28
17 Manufacture of textiles	21.51	18.97	25.02	34.49	20.79	21.79	19.47	37.95
18 Wearing apparel; dyeing of fur	27.1	18.72	21.89	32.29	30.31	21.51	19.29	28.9
19 Tanning & dressing of leather	38.12	24.52	24.3	13.07	35.64	22.83	17.63	23.89
20 Manuf. of wood &cork products	44.78	25.17	18.49	11.56	39.49	25.7	24.94	9.87
21 Manuf. of pulp & paper products	17.71	16.97	21.5	43.82	18.88	16.32	20.37	44.43
22 Recorded media	18.24	12.81	19.45	49.5	19.12	15.45	16.34	49.1
23 Manuf. of coke, petroleum prod.s	5.65	3.46	3.88	87.01	3.8	3.22	9.48	83.51
24 Manuf. of chemicals products	6.5	7.74	15.8	69.96	6.59	8.65	15.32	69.44
25 Rubber and plastic products	20.66	18.04	19.17	42.13	21.75	19.64	19.9	38.71
26 Other non-metallic mineral prod.	21.68	16.51	21.94	39.87	21.84	16.41	21.48	40.27
27 Basic metals	6.99	8.02	11.95	73.04	8.67	8.94	15.87	66.53
28 Fabricated metal products	32.65	23.3	22.04	22.01	34.78	26.83	20.25	18.14
29 Machinery and equipment n.e.c.	15.71	15.36	21.31	47.63	13.82	14.28	20.75	51.16
30 Office machinery and computers	2.63	3.24	6.64	87.49	4.31	4.55	1.02	90.12
31 Electrical machinery n.e.c.	10.69	10.27	14.89	64.15	13.44	12.14	14.3	60.12
32 Radio, tv & communication equip	4.11	5.22	7.7	82.97	6.03	6.5	7.89	79.58
33 Medical, precision, optical inst	17.36	9.97	18.11	54.56	18	17.73	24.25	40.02
34 Motor vehicles, trailers	2.66	3.51	6.02	87.81	2.75	3.5	7.17	86.59
35 Other transport equipment	4.38	4.36	6.34	84.92	5.55	6.72	8.91	78.82
36 Manufacturing n.e.c.	38.44	25.14	22.02	14.4	34.01	23.87	18.24	23.88
37 Recycling	2.81	3.31	0	93.87	30.42	0	33.5	36.08
40 Electricity, gas, steam supply	4.4	4.67	9.99	80.93	3.01	3.85	8.1	85.04
41 Collection, distrib. of water	3.42	7.72	21.79	67.07	4.64	7.01	22.35	66
45 Construction	29.03	17.88	18.04	35.05	35.32	19.24	15.36	30.08
50 Sale, repair of motor vehicles	55.77	15.59	11.46	17.19	52.97	21.29	12.02	13.72
51 Wholesale commission trade	30.55	16.96	19.57	32.92	30.8	21.45	16.78	30.97

52	Retail trade	16.27	9.37	13.22	61.14	12.14	9.43	9.51	68.92
55	Hotel and Restaurants	22.29	14.17	13.7	49.84	20.27	12.73	10.08	56.92
60	Land transport and via pipelines	8.29	5.4	9.14	77.18	9.76	9.28	10.23	70.73
61	Water transport	3.56	7.08	15.56	73.81	5.72	12.02	13.88	68.37
63	Auxiliary transport activities	3.15	3.43	5.3	88.12	5.36	4.91	9.15	80.58
64	Post and telecommunications	0.17	0.06	0.18	99.58	0.16	0.07	0.21	99.57
70	Real estate activities	29.74	16.24	20.64	33.38	35.62	27.14	16.81	20.43
71	Renting of machinery	28.45	5.38	8.91	57.26	69.11	30.89	0	0
72	Computer and related activities	17.31	8.93	18.83	54.92	14.68	12.62	19.57	53.13
73	Research and development	9.32	0	90.68	0	6.23	7.49	22.16	64.11
74	Other business activities	7.95	5.38	8.12	78.56	7.32	8.63	13.37	70.68
80	Education	19.82	0	0	80.18	60.5	27.09	12.41	0
85	Health and social work	72.2	27.8	0	0	11.34	22.47	33.63	32.55
90	Sewage & refuse disposal, sanit	3.1	9.01	13.67	74.22	5.72	11.66	17.38	65.24
92	Recreational cultural activities	12.18	9.83	7.99	70	10.46	6.87	8.96	73.71
93	Other service activities	25.58	16.96	25.27	32.19	37.79	28.55	29.41	4.25

**Table 21:** *Employment share per size class, percentages. Source: Our elaboration on Micro.3.*

SECTOR	2000				2004			
	20-49	50-99	100-249	250	20-49	50-99	100-249	250
14 Other mining and quarrying	54.86	23.95	16.27	4.28	51.5	31.14	14.21	3.16
15 Food products and beverages	16.95	13.91	20.21	48.9	17.4	14.43	21.75	46.32
17 Manufacture of textiles	18.08	22.3	25.88	33.58	18.4	20.19	26.31	35.05
18 Wearing apparel; dyeing of fur	15.67	21.05	28.38	34.77	18.1	21.9	25.4	34.45
19 Tanning & dressing of leather	24.79	26.49	27.32	21.33	26	26.27	25.12	22.52
20 Manuf. of wood &cork products	2.93	28.89	28.27	9.6	31.6	25.08	28.49	14.52
21 Manuf. of pulp & paper products	17.26	17.46	23.35	41.83	16.4	17.54	21.12	44.89
22 Recorded media	19.1	19.38	21.3	40.22	18.6	18.16	24.7	38.27
23 Manuf. of coke, petroleum prod.s	5.65	4.72	10.37	79.27	9.91	7.61	14.99	67.49
24 Manuf. of chemicals products	9.41	10.77	19.7	60.12	8.92	10.94	19.99	60.04

25	Rubber and plastic products	19.86	20.79	24.58	34.72	19.2	20.89	28.09	31.67
26	Other non-metallic mineral prod.	18.87	19	21.86	40.23	18.2	16.86	23.01	41.86
27	Basic metals	9.88	11.67	19.81	58.6	10.5	11.33	21.05	57.08
28	Fabricated metal products	26.58	27.46	26.77	19.11	26.3	25.92	29.24	18.49
29	Machinery and equipment n.e.c.	14.91	17.41	23.58	44	14.4	17.43	23.39	44.77
30	Office machinery and computers	20.18	17.68	8.22	53.93	25	24.73	8.72	41.59
31	Electrical machinery n.e.c.	14.34	15.74	18.57	51.3	15.9	18.14	20.52	45.39
32	Radio, tv & communication equip	7.87	9.12	13.95	68.82	8.96	10.21	14.72	66.02
33	Medical, precision, optical inst	14.79	14.57	21.85	48.8	15	13.14	18.22	53.47
34	Motor vehicles, trailers	3.39	4.51	12.03	80.04	4.13	5.5	11.35	78.95
35	Other transport equipment	5.86	8.36	10.22	75.49	7.42	6.7	11.11	74.56
36	Manufacturing n.e.c.	26.17	27.74	22	24.09	23	26.04	26.64	24.09
37	Recycling	38.81	24.69	19.85	16.65	55.3	23.01	13.36	7.3
40	Electricity, gas, steam supply	2.45	2.07	5	90.44	3.72	2.71	6.24	87.28
41	Collection, distrib. of water	5.07	19.44	17.71	57.38	8.08	14.41	23.1	54.41
45	Construction	28.56	20.75	17.81	32.77	29.5	22.68	22.28	25.43
50	Sale, repair of motor vehicles	51.55	24	14.15	9.93	45.4	24.92	18.98	10.58
51	Wholesale commission trade	34.99	18.66	19.54	26.71	32.2	18.12	20.56	29.05
52	Retail trade	12.29	10.02	12.81	64.78	9.56	8.88	11.92	69.63
55	Hotel and Restaurants	11.9	11.33	16.07	60.61	9.33	10.49	14.63	65.41
60	Land transport and via pipelines	7.4	7.32	10.31	74.92	7.54	8.29	11.89	72.26
61	Water transport	8.3	12.27	22.04	57.39	7.03	8.91	22.82	61.25
63	Auxiliary transport activities	5.64	5.78	12.3	76.26	8.77	8.28	24.02	58.9
64	Post and telecommunications	0.37	0.24	0.67	9 8.72	0.55	0.25	0.81	98.38
70	Real estate activities	24.63	17.26	18.79	39.32	24	23.47	24.55	27.96
71	Renting of machinery	15.86	13.39	12.8	57.16	20.3	7.54	17.92	53.65
72	Computer and related activities	12.48	12.99	19.13	55.31	12.4	13.65	20.49	53.46
73	Research and development	15.12	10.92	22.56	51.41	17.4	16.14	29.01	37.45
74	Other business activities	5.57	6.53	16.25	71.62	5.17	5.3	18.24	71.28
80	Education	41.14	28.83	30.03	0	40.9	31.21	17.83	9.52
85	Health and social work	6.31	15.41	33.77	44.51	5.63	12.9	33.54	47.91
90	Sewage & refuse disposal, sanit	6.68	12.48	20.86	59.98	8.58	11.57	23	56.72
92	Recreational cultural activities	15.98	15.04	10.18	58.79	12.8	10.06	14.01	63.17

93	Other service activities	17.31	33.45	28.72	20.12	26.6	29.37	22.58	21.41
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In line with the previous summary statistics, Tables 22 and 23 report the value added produced by firms of different size classes. Again, take as a reference the bin of largest firms and focus on sectors 15, 24, 26, 29 and 34. In line with the evidence on employment reported in Table 20 and 21 these sectors (with exception of NACE 26) display a decreasing share of value added accounted for by biggest firms.

**Table 22:** *Share of value added per size cohort, percentages. Source: Our elaboration on Micro.3.*

SECTOR	1989				1997				
	20-49	50-99	100-249	250	20-49	50-99	100-249	250	
14	Other mining and quarrying	48.83	16.8	12.23	22.13	56.11	19.52	24.36	0
15	Food products and beverages	13.73	11.63	18.48	56.15	11.28	11.27	17.32	60.13
17	Manufacture of textiles	20.55	18.85	25.66	34.94	18.2	21.32	19.32	41.17
18	Wearing apparel; dyeing of fur	19.97	17.13	25	37.9	19.3	18.97	21.09	40.65
19	Tanning & dressing of leather	34.63	25.71	24.77	14.89	30.29	24.4	19.93	25.38
20	Manuf. of wood &cork products	38.41	25.92	22.62	13.06	32.16	24.86	31.02	11.97
21	Manuf. of pulp & paper products	14.8	15.35	20.19	49.65	13.73	14.38	19.62	52.26
22	Recorded media	12.9	11.22	20.11	55.78	13.29	12.86	16.91	56.94
23	Manuf. of coke, petroleum prod.s	4.72	2.48	2.88	89.92	2.49	1.97	-2.49	98.02
24	Manuf. of chemicals products	6.23	7.8	15.92	70.05	5.21	7.64	14.85	72.3
25	Rubber and plastic products	18.67	17.85	19.68	43.8	17.99	18.24	22.25	41.53
26	Other non-metallic mineral prod.	17.33	14.28	22.77	45.62	17.1	14	21.4	47.5
27	Basic metals	6.52	8.36	11.64	73.48	7.24	7.53	14.86	70.36
28	Fabricated metal products	30.8	24.05	22.86	22.29	31.29	26.66	21.66	20.39
29	Machinery and equipment n.e.c.	14.74	15.94	22.17	47.15	11.89	13.76	21.63	52.72
30	Office machinery and computers	1.13	1.28	2.58	95.02	4.13	4.27	0.75	90.85
31	Electrical machinery n.e.c.	9.8	10.69	15.3	64.21	11.59	11.36	14.94	62.11
32	Radio, tv, communication equip	3.66	4.91	7.02	84.41	5.47	5.74	8.23	80.55
33	Medical, precision, optical inst	14.78	8.92	18.39	57.9	15.08	16.87	25.37	42.67
34	Motor vehicles, trailers	2.08	3.14	5.45	89.33	2.14	2.95	6.76	88.15
35	Other transport equipment	3.89	4.08	6.45	85.58	4.32	6.52	8.15	81.01
36	Manufacturing n.e.c.	34.89	25.63	22.86	16.62	29.42	23.24	19.87	27.47
37	Recycling	5.44	4.18	0	90.38	42.03	0	32.11	25.86
40	Electricity, gas, steam supply	3.46	3.01	6.41	87.12	1.5	1.8	3.83	92.88
41	Collection, distrib. of water	2.61	7.67	22.21	67.5	4.66	7.19	25.51	62.64

45	Construction	24.26	17.43	18.45	39.86	32.34	19.7	17.22	30.74
50	Sale, repair of motor vehicles	37.94	12.13	16.3	33.62	43.64	28.01	17.33	11.01
51	Wholesale commission trade	28.91	16.03	20.23	34.83	23.73	20.55	16.62	39.11
52	Retail trade	15.78	9.32	14.41	60.49	12.75	10.45	10.62	66.18
55	Hotel and Restaurants	21.71	13.56	14.03	50.71	21.84	13.98	10.08	54.1
60	Land transport and via pipelines	9.58	5.47	9.61	75.34	10.51	9.97	10.7	68.83
61	Water transport	2.13	8.55	20.36	68.96	7.34	15.25	13.68	63.73
63	Auxiliary transport activities	2.78	2.98	4.58	89.66	5.2	5	9.07	80.73
64	Post and telecommunications	0.12	0.06	0.18	99.64	0.06	0.02	0.21	99.7
70	Real estate activities	56.44	9.94	11.86	21.77	25.24	28.04	26.14	20.58
71	Renting of machinery	59.21	1.31	3.75	35.73	86.63	13.37	0	0
72	Computer and related activities	11.97	7.3	18.94	61.79	11.23	11.67	18.65	58.45
73	Research and development	5.55	0	94.45	0	0.61	6.74	24.68	67.98
74	Other business activities	4.74	3.27	5.23	86.75	3.7	2.83	6.39	87.09
80	Education	7.6	0	0	92.4	40.45	24.68	34.87	0
85	Health and social work	78.61	21.39	0	0	10.84	23.04	37.17	28.95
90	Sewage & refuse disposal, sanit	4.32	9.67	11.16	74.85	5.66	12	16.07	66.28
92	Recreational cultural activities	11.68	11.52	4.89	71.9	2.52	-1.42	4.1	94.81
93	Other service activities	17.63	12.11	20.77	49.49	37.42	27.88	29.54	5.17

**Table 23:** *Share of value added per size cohort, percentages. Source: Our elaboration on Micro.3.*

SECTOR	2000				2004				
	20-49	50-99	100-249	250	20-49	50-99	100-249	250	
14	Other mining and quarrying	46.61	19.69	14.68	2	45.9	29.15	13.78	1.75
15	Food products and beverages	15.4	12.85	18.26	51.22	15.94	13.66	19.76	48.2
17	Manufacture of textiles	17.07	19.77	22.74	32.83	16.73	18.72	23.34	32.6
18	Wearing apparel; dyeing of fur	11.89	15.63	21.81	35.75	13.22	15.96	20.8	40.41
19	Tanning & dressing of leather	20.54	20.36	24.53	19.67	20.97	21.12	20.72	23.95
20	Manuf. of wood &cork products	25.63	22.46	27.26	9.75	24.24	19.21	25.91	17.84
21	Manuf. of pulp & paper products	12.84	14.91	22.27	46.57	12.67	14.07	18.75	50.85
22	Recorded media	12.28	14.17	16	52.13	11.87	12.52	19	50.97
23	Manuf. of coke, petroleum prod.s	2.67	2.77	4.3	89.9	6.28	5.23	8.13	80.36
24	Manuf. of chemicals products	8.07	9.45	18.46	61.8	6.92	10.65	18.85	60.69
25	Rubber and plastic products	17.25	17.69	24.45	31.02	16.71	18.25	25.74	30.82
26	Other non-metallic mineral prod.	14.4	15.25	18.75	45.24	14.35	13.42	20.9	46.72
27	Basic metals	8.73	10.55	19	59.02	8.6	10.38	19.66	60.22
28	Fabricated metal products	21.23	21.6	22.66	16.13	20.73	20.8	24.49	15.15
29	Machinery and equipment n.e.c.	13.33	15.43	22.55	41.82	12.65	16.08	22.06	42.94

30	Office machinery and computers	22.09	19.02	8.06	42.79	18.85	18.59	5.43	53.36
31	Electrical machinery n.e.c.	12.61	14.28	17.28	48.31	13.43	15.99	20.14	44.4
32	Radio, tv, communication equip	5.79	7.15	10.13	73.19	7.38	8.63	10.76	70
33	Medical, precision, optical inst	12.79	12.04	22.46	45.93	12.56	11.19	16.42	55.23
34	Motor vehicles, trailers	3.65	4.24	11.54	77.81	4.42	6.2	12.61	75.22
35	Other transport equipment	5.05	6.77	9.16	76.33	5.52	5.85	8.02	78.79
36	Manufacturing n.e.c.	21.27	23.44	19.29	24.38	19.17	22.43	24.13	22.46
37	Recycling	42.73	23.55	13.54	15.5	58.53	22.86	6.83	5.33
40	Electricity, gas, steam supply	2.24	1.31	3.98	92.11	6.9	2.88	3.04	86.97
41	Collection, distrib. of water	4.43	18.8	15.45	60.04	8.65	15.18	20.05	55.26
45	Construction	23.16	15.91	13.94	27.04	23.04	17.4	15.31	22.51
50	Sale, repair of motor vehicles	40.7	20.8	18.87	14.34	34.19	20.46	33.75	6.39
51	Wholesale commission trade	32.97	17.14	17.76	27.66	31.68	18.66	17.11	29.36
52	Retail trade	12.03	10.49	12.18	57.87	11.62	10.18	12.08	59.96
55	Hotel and Restaurants	12.47	10.59	14.12	39.52	9.85	10.19	12.6	46.7
60	Land transport and via pipelines	10.12	9.39	12.13	55.31	6.76	7.34	8.57	70.29
61	Water transport	6.84	13.99	26.04	49.07	7.41	8.46	26.23	55.84
63	Auxiliary transport activities	5.54	4.58	8.83	72.56	8.14	6.85	13.94	65.4
64	Post and telecommunications	0.06	-0.09	0.01	100.16	0.35	0.3	0.44	98.89
70	Real estate activities	28.57	10.93	19.99	36.67	33.91	24.84	23.29	12.4
71	Renting of machinery	9.85	11.19	41.48	34.35	22.33	11.23	28.92	36.49
72	Computer and related activities	9.83	9.9	16.48	54.95	10.45	10.93	17.36	53.44
73	Research and development	11.04	9.86	19.38	58.08	15.96	13.57	29.99	37.03
74	Other business activities	4.15	4.74	8.49	71.85	9.88	9.46	17.04	54.41
80	Education	21.65	21.54	25.06	0	27.29	19.43	19.41	12.01
85	Health and social work	6.38	13.93	27.71	30.76	5.34	12.51	30.07	37.27
90	Sewage & refuse disposal, sanit	9.95	10.52	18.51	56.44	13.42	12.16	18.7	50.85
92	Recreational cultural activities	12.28	10.36	19.83	52.33	8.37	11.81	7.14	69.96
93	Other service activities	11.8	25.71	21.33	13.48	20.02	22.03	16.83	21.18

## 8.2 Descriptive Statistics on selected 3 digit sectors

In this section we present, as we did for 2 digit sectors, some descriptive statistics for a selection of 3 digit industries. Sectors that are reported in the following tables are those with the highest number of observations. The threshold for inclusion is 100 employees: a 3 digit sector is included if in any of the year 1989-2004 it has reached the 100 employees threshold. According to these procedure we report descriptive statistics for 55 sectors out of the available 103 3-Digit industries. Then, results are provided taking as a reference the sample of the selected 55 3-digit sectors. So that, for instance, the total number of observations in 1989, 17469, as reported in Table 24 and 25 is the sum of firms in the selected 55 industries and not in all 103 3-Digit sectors.

The trend in the number of observations, as reported in Table 24 and 25 closely mirrors the trend observed for the whole Micro.3 database; that is we record a general increase in the number of firms monitored every year, with the exception of 1996 and 1997, as a result of the changes in the procedure applied by ISTAT. From 1998 onward, and also thanks to the availability of financial statements in addition to the ISTAT's census, the number of observations increases constantly. Of course given the generalized rising trend in the number of firms it is not easy to make a bold statement concerning the tendency in sectors under investigation. Such conclusion might however be drawn on the basis of the evidence in the following tables.



**Table 24:** *Yearly number of observations in each 3 digit sector. Source: Our elaboration on Micro.3.*

SECTOR		'89	'90	'91	'92	'93	'94	'95	'96	'97
151	Production, process & preserv. of meat	293	304	279	291	321	307	286	231	202
155	Dairy products	186	189	185	202	215	216	198	177	152
158	Prod. of other food (bread, sugar, etc)	339	359	348	385	414	409	383	335	303
159	Beverages (alcoholic & not)	224	232	211	207	228	210	192	165	142
171	Preparation and spinning of textiles	368	370	336	338	357	348	305	274	230
172	Textiles weaving	386	411	375	386	381	392	343	301	286
173	Finishing of textiles	344	359	324	361	383	375	352	309	282
175	Carpets, rugs and other textiles	209	223	199	225	230	222	199	174	126
177	Knitted and crocheted articles	450	467	414	428	453	446	366	317	192
182	Wearing apparel	1357	1615	1428	1643	1676	1684	1378	1130	904
191	Tanning and dressing of leather	193	195	176	185	198	194	186	165	97
193	Footwear	753	873	761	822	865	857	769	724	454
202	Production of plywood and panels	97	111	110	101	93	99	88	84	69
203	Wood products for construction	173	179	173	175	191	189	168	147	133
205	Other wood prod. (cork, straw, etc)	136	154	129	154	161	158	150	134	124
211	Pulp, paper and paperboard	86	95	89	94	93	88	88	77	75
212	Articles of paper and paperboard	334	356	353	369	367	390	388	328	315
221	Publishing	147	161	161	165	178	177	157	137	134
222	Printing	521	575	545	592	602	612	547	442	402
241	Production of basic chemicals	190	183	170	184	183	193	187	165	154
243	Paints, varnishes, inks & mastics	123	130	118	125	122	121	123	114	102
244	Pharma., med. chemicals, botanical prod	194	185	181	196	207	199	177	167	146
245	Soap & detergents, clean & toilet prep	91	93	91	85	92	100	93	81	81
246	Other chemical products	132	138	132	132	136	147	127	111	110
251	Rubber products	181	171	159	172	171	172	165	155	138
252	Plastic products	831	871	786	843	940	948	880	786	782
261	Glass and glass products	191	198	185	188	191	177	175	144	128
262	Ceramic goods not for construction	156	156	136	133	134	139	121	108	98
263	Ceramic goods for construction	208	205	195	202	206	193	185	153	140

264	Bricks, tiles & construction prod.	169	185	173	178	182	167	143	117	98
266	Concrete, plaster and cement	388	416	390	434	432	415	361	323	298
267	Cutting, shaping and finishing of stone	191	206	181	189	203	201	180	168	135
273	First processing of iron and steel	124	123	124	126	132	128	122	107	91
275	Casting of metals	267	257	278	280	265	260	256	215	213
281	Structural metal products	562	641	583	682	668	656	570	470	439
284	Forging, pressing, stamping, of metal	287	286	287	309	309	309	312	264	261
285	Treatment and coating of metals	608	638	652	751	799	807	799	674	657
286	Cutlery, tools and general hardware	285	292	264	254	250	251	245	220	209
287	Other fabricated metal products	545	566	540	591	641	624	638	584	526
291	Machinery for prod. & use of mech. power	441	449	440	458	466	466	451	375	379
292	Other general purpose machinery	652	693	696	776	825	824	748	618	622
293	Agricultural and forestry machinery	174	178	154	151	139	124	116	98	96
294	Machine tools	320	332	316	326	328	315	301	258	238
295	Other special purpose machinery	853	882	851	911	909	895	827	706	678
297	Domestic appliances not e/where class	136	134	124	125	148	143	145	118	121
311	Electric motors, generators and transform	177	197	177	182	195	189	177	150	144
312	Manuf. of electricity distrib, control equip	137	147	150	183	184	178	167	142	141
316	Electrical equipment not e/where class	302	317	291	313	342	345	316	275	265
322	TV, radio transmit., lines for teleph.	91	94	94	104	127	127	122	113	108
332	Measure, control and navigation instruments	126	135	134	138	141	130	120	112	99
342	Prod. of bodies for cars, trailers	117	121	112	123	111	106	94	84	78
343	Production of spare parts for cars	255	279	264	289	288	278	274	239	227
361	Furniture	1047	1126	1016	1115	1185	1121	1026	847	831
362	Jewelry and related articles	195	217	206	262	267	257	225	177	179
366	Miscellaneous manufact. not e/where class	127	148	136	156	169	157	157	131	118
	Total	17469	18617	17382	18789	19493	19235	17668	15220	13752

**Table 25:** *Yearly number of observations in each 3 digit sector. Source: Our elaboration on Micro.3.*

SECTOR	'98	'99	'00	'01	'02	'03	'04
151 Production, process & preserv. of meat	366	366	386	361	377	392	407
155 Dairy products	290	295	302	286	286	278	298
158 Prod. of other food (bread, sugar, etc)	574	585	596	576	603	611	624
159 Beverages (alcoholic & not)	289	286	246	253	250	230	221
171 Preparation and spinning of textiles	440	418	418	395	349	319	296
172 Textiles weaving	529	520	497	465	457	431	411
173 Finishing of textiles	486	486	447	443	423	417	406
175 Carpets, rugs and other textiles	323	326	329	323	331	295	290
177 Knitted and crocheted articles	409	369	328	308	304	277	251
182 Wearing apparel	1712	1687	1542	1494	1497	1349	1360
191 Tanning and dressing of leather	297	277	292	305	298	287	271
193 Footwear	1112	1061	1034	1018	974	906	867
202 Production of plywood and panels	119	115	105	118	105	100	104
203 Wood products for construction	213	231	259	238	235	254	281
205 Other wood prod. (cork, straw, etc)	215	222	211	204	210	203	199
211 Pulp, paper and paperboard	135	135	134	126	127	124	126
212 Articles of paper and paperboard	524	533	539	528	530	537	548
221 Publishing	222	220	210	210	216	205	197
222 Printing	767	786	788	755	766	734	755
241 Production of basic chemicals	271	266	262	268	272	263	273
243 Paints, varnishes, inks & mastics	168	172	177	171	170	166	179
244 Pharma., med. chemicals, botanical prod	257	263	269	260	267	260	265
245 Soap & detergents, clean & toilet prep	164	162	160	176	184	176	184

246	Other chemical products	216	215	234	226	240	223	229
251	Rubber products	294	287	284	290	291	262	256
252	Plastic products	1535	1551	1582	1553	1549	1548	1569
261	Glass and glass products	236	223	243	231	241	227	236
262	Ceramic goods not for construction	182	171	152	154	151	148	143
263	Ceramic goods for construction	244	236	222	220	218	209	212
264	Bricks, tiles & construction prod.	149	143	139	131	136	132	124
266	Concrete, plaster and cement	523	534	552	535	564	569	573
267	Cutting, shaping and finishing of stone	263	254	249	238	232	238	244
273	First processing of iron and steel	175	174	167	173	166	153	166
275	Casting of metals	368	367	352	359	346	346	333
281	Structural metal products	970	1046	1052	1013	1033	1077	1145
284	Forging, pressing, stamping, of metal	520	514	527	532	519	499	522
285	Treatment and coating of metals	1531	1604	1669	1697	1640	1617	1772
286	Cutlery, tools and general hardware	383	369	360	350	343	333	324
287	Other fabricated metal products	957	981	959	949	955	953	973
291	Machinery for prod. & use of mech. power	709	702	675	664	665	647	661
292	Other general purpose machinery	1394	1453	1503	1452	1452	1453	1494
293	Agricultural and forestry machinery	204	211	212	210	213	213	214
294	Machine tools	512	505	491	508	489	467	457
295	Other special purpose machinery	1344	1321	1296	1247	1222	1167	1184
297	Domestic appliances not e/where class	215	217	223	218	211	209	199
311	Electric motors, generators and transform	262	258	267	248	248	243	252
312	Manuf. of electricity distrib,	249	238	241	229	219	211	213

	control equip								
316	Electrical equipment not e/where class	583	593	607	602	578	572	594	
322	TV, radio transmit., lines for teleph.	226	224	239	238	227	206	211	
332	Measure, control and navigation instruments	206	217	205	199	209	188	198	
342	Prod. of bodies for cars, trailers	149	164	157	149	146	143	141	
343	Production of spare parts for cars	424	424	434	412	412	374	394	
361	Furniture	1420	1432	1453	1439	1440	1367	1434	
362	Jewelry and related articles	283	297	309	310	310	300	282	
366	Miscellaneous manufact. not e/where class	230	226	226	219	209	207	211	
	Total	126838	26932	26812	26276	26105	25315	25773	

Analogously to Table 16, we report in Tables 26 and 27 the contribution of each sector in terms of value added. As it could be expected, we find again 3-Digit sectors that belonged to 2-Digit sectors with the highest share of value added (Table 16). This is the case for the production of basic chemicals (NACE 241), pharmaceuticals (NACE 244), machinery for production (NACE 291) and other special purpose machinery (NACE 292) to mention but a few. One exception is represented by the wearing apparel sector (NACE 182) and this is partly explained by the varying numbers of sectors making up a 3-Digit industry. Sector 18 is made up by 3 sub-sectors only.

**Table 26:** *Share of Value Added in selected 3 Digit sectors. Source: Our elaboration on Micro.3.*

SECTOR	'89	'90	'91	'92	'93	'94	'95	'96	'97	
151	Production, process & preserv. of meat	1.46	1.52	1.68	1.8	1.65	1.52	1.35	1.26	1.41
155	Dairy products	2.54	2.12	2.36	2.39	2.4	2.23	2.02	2.02	1.97
158	Prod. of other food (bread, sugar, etc)	3.2	3.79	4.17	4.46	4.32	4.04	3.72	4.16	4.28
159	Beverages (alcoholic & not)	1.93	2.06	2.01	1.99	2.08	1.91	1.69	1.67	1.7
171	Preparation and spinning of textiles	1.71	1.69	1.47	1.68	1.68	1.71	1.53	1.43	1.26
172	Textiles weaving	2.74	2.73	2.37	2.19	2.28	2.41	2.33	2.28	2.41
173	Finishing of textiles	1.53	1.56	1.44	1.4	1.39	1.44	1.25	1.24	1.18
175	Carpets, rugs and other textiles	0.74	0.83	0.72	0.71	0.76	0.77	0.73	0.77	0.65
177	Knitted and crocheted articles	1.08	1.12	1.1	1.13	1.14	1.09	1	0.99	0.7
182	Wearing apparel	4.01	4.09	3.82	3.9	3.88	3.72	3.45	3.41	2.89
191	Tanning and dressing of leather	0.57	0.55	0.53	0.5	0.57	0.58	0.59	0.56	0.29

193	Footwear	1.53	1.67	1.64	1.55	1.76	1.83	1.7	1.84	1.07
202	Production of plywood and panels	0.41	0.48	0.48	0.46	0.42	0.47	0.49	0.49	0.49
203	Wood products for construction	0.38	0.37	0.36	0.39	0.41	0.37	0.34	0.34	0.35
205	Other wood prod. (cork, straw, etc)	0.25	0.27	0.26	0.3	0.3	0.28	0.28	0.28	0.28
211	Pulp, paper and paperboard	1.17	1.14	1.36	1.13	1.2	1.21	1.65	1.46	1.26
212	Articles of paper and paperboard	1.74	1.89	1.88	1.76	2	2.07	2.26	2.15	2.26
221	Publishing	3.17	2.76	2.88	3.01	2.85	2.73	2.32	2.53	2.94
222	Printing	2.15	2.32	2.32	2.3	2.26	2.26	2.08	2.02	1.89
241	Production of basic chemicals	4.04	3.48	2.97	2.97	3.4	3.96	5.84	4.56	4.61
243	Paints, varnishes, inks & mastics	0.9	0.91	0.83	0.82	0.82	0.93	0.91	1.13	0.98
244	Pharma., med. chemicals, botanical prod	4.94	5.12	5.5	5.59	5.39	5.04	4.83	5.55	5.08
245	Soap & detergents, clean & toilet prep	1.11	1.09	1.33	1.24	1.31	1.4	1.32	1.38	1.36
246	Other chemical products	0.98	1.34	1.34	1.26	1.31	1.35	1.24	1.27	1.3
251	Rubber products	2.16	1.92	2.01	1.94	1.88	1.98	2	2.13	2.07
252	Plastic products	3.33	3.44	3.33	3.39	3.65	3.81	3.79	4.04	4.02
261	Glass and glass products	1.64	1.67	1.68	1.56	1.41	1.56	1.71	1.46	1.21
262	Ceramic goods not for construction	0.75	0.68	0.65	0.6	0.59	0.59	0.55	0.58	0.56
263	Ceramic goods for construction	1.94	1.81	1.75	1.82	2.09	2.04	2.1	1.78	1.9
264	Bricks, tiles & construction prod.	0.58	0.7	0.77	0.89	0.78	0.61	0.47	0.42	0.35
266	Concrete, plaster and cement	1.45	1.62	1.58	1.72	1.36	1.22	1.15	1.29	1.21
267	Cutting, shaping and finishing of stone	0.49	0.47	0.43	0.46	0.49	0.49	0.43	0.44	0.39
273	First processing of iron and steel	0.68	0.58	0.57	0.54	0.57	0.67	0.86	0.76	0.59
275	Casting of metals	1.74	1.6	1.52	1.43	1.32	1.4	1.53	1.48	1.61
281	Structural metal products	1.49	1.54	1.61	1.57	1.46	1.31	1.17	1.2	1.23
284	Forging, pressing, stamping, of metal	1.1	1.02	1	1.02	1.01	1.17	1.37	1.29	1.38
285	Treatment and coating of metals	1.45	1.46	1.44	1.53	1.57	1.63	1.68	1.75	1.83
286	Cutlery, tools and general hardware	1.07	1.03	0.98	0.9	0.89	0.95	1.01	1.06	1.1
287	Other fabricated metal products	2.13	2.05	2.09	2.12	2.28	2.24	2.57	2.64	2.37
291	Machinery for prod, use of mech. power	3.77	3.78	3.72	3.88	3.84	4.05	4.31	4.54	4.83

292	Other general purpose machinery	3.44	3.68	3.76	4.03	3.96	4.15	3.95	4.35	4.51
293	Agricultural and forestry machinery	1.13	0.96	0.81	0.76	0.78	0.79	0.84	0.75	1
294	Machine tools	1.51	1.59	1.47	1.28	1.19	1.22	1.33	1.34	1.43
295	Other special purpose machinery	4.88	4.93	4.64	4.58	4.79	4.75	4.75	4.48	5.09
297	Domestic appliances not e/where class	2.02	2.12	2.44	2.52	2.78	2.78	2.52	2.95	2.65
311	Electric motors, generators and transform	1	0.98	0.98	0.93	0.89	0.91	0.89	0.7	0.92
312	Manuf. of electricity distrib, control equip	1.2	1.37	1.38	1.49	1.47	1.5	1.61	1.43	1.89
316	Electrical equipment not e/where class	3.3	2.59	2.93	2.8	2.74	2.51	2.09	2.01	2.32
322	TV, radio transmit., lines for teleph.	3.44	3.34	3.83	3.4	2.97	2.57	2.26	2.36	2.55
332	Measure, control and navigation instr	1.03	1.06	1.07	1.1	1.05	0.91	0.93	0.88	0.82
342	Prod. of bodies for cars, trailers	0.56	0.52	0.44	0.39	0.4	0.39	0.38	0.42	0.34
343	Production of spare parts for cars	2.86	2.75	2.56	2.55	2.31	2.61	3.14	3.1	3.45
361	Furniture	2.76	2.88	2.8	2.84	2.88	2.86	2.72	2.59	2.74
362	Jewelry and related articles	0.44	0.43	0.45	0.5	0.5	0.5	0.47	0.47	0.49
366	Miscellaneous manufact. not e/where class	0.38	0.5	0.48	0.52	0.53	0.51	0.53	0.55	0.53

**Table 27:** *Share of Value Added in selected 3 Digit sectors. Source: Our elaboration on Micro.3.*

SECTOR		'98	'99	'00	'01	'02	'03	'04
151	Production, process & preserv. of meat	1.43	1.35	1.4	1.48	1.59	1.74	1.58
155	Dairy products	1.71	1.94	1.88	1.92	1.78	1.95	1.75
158	Prod. of other food (bread, sugar, etc)	3.65	3.73	3.67	3.88	3.96	3.89	4.04
159	Beverages (alcoholic & not)	1.8	1.81	1.68	1.58	1.57	1.78	1.54
171	Preparation and spinning of textiles	1.51	1.36	1.44	1.34	1.14	1.02	0.86
172	Textiles weaving	2.12	2.09	2.06	1.99	1.88	1.67	1.58
173	Finishing of textiles	1.33	1.22	1.19	1.23	1.18	1.13	1.07
175	Carpets, rugs and other textiles	0.96	0.9	0.91	0.9	0.87	0.78	0.74
177	Knitted and crocheted articles	0.93	0.72	0.76	0.77	0.71	0.66	0.67
182	Wearing apparel	3.61	3.38	3.17	3.38	3.38	3.18	3.23
191	Tanning and dressing of leather	0.6	0.59	0.69	0.7	0.7	0.66	0.63
193	Footwear	1.8	1.83	1.81	1.92	1.86	1.74	1.61

202	Production of plywood and panels	0.44	0.4	0.39	0.44	0.4	0.34	0.41
203	Wood products for construction	0.37	0.41	0.44	0.46	0.47	0.51	0.54
205	Other wood prod. (cork, straw, etc)	0.33	0.35	0.35	0.37	0.36	0.37	0.34
211	Pulp, paper and paperboard	1.33	1.16	1.18	0.85	1.08	1.02	1.03
212	Articles of paper and paperboard	2.14	2.27	2.23	2	2.09	2.32	2.35
221	Publishing	2.3	2.32	2.49	2.16	2.33	2.44	2.95
222	Printing	2.07	2.08	2.16	2.19	2.15	2.13	2.2
241	Production of basic chemicals	3.68	3.21	3.59	3	2.79	2.77	2.91
243	Paints, varnishes, inks & mastics	0.96	0.95	0.95	0.95	0.95	1.17	1.14
244	Pharma., med. chemicals, botanical prod	4.77	5.06	5.15	5.38	5.84	5.52	5.72
245	Soap & detergents, clean & toilet prep	1.3	1.31	1.17	1.46	1.54	1.55	1.56
246	Other chemical products	1.29	1.22	1.26	1.13	1.19	1.09	1.07
251	Rubber products	1.85	2.08	1.77	1.62	1.66	1.55	1.6
252	Plastic products	4.36	4.47	4.55	4.57	4.73	4.69	4.45
261	Glass and glass products	1.28	1.4	1.18	1.23	1.4	1.27	1.43
262	Ceramic goods not for construction	0.55	0.46	0.42	0.43	0.45	0.44	0.46
263	Ceramic goods for construction	1.84	1.83	1.76	1.71	1.73	1.77	1.75
264	Bricks, tiles & construction prod.	0.38	0.44	0.44	0.46	0.53	0.56	0.62
266	Concrete, plaster and cement	1.27	1.36	1.48	1.62	1.85	1.91	1.84
267	Cutting, shaping and finishing of stone	0.44	0.43	0.44	0.42	0.4	0.44	0.44
273	First processing of iron and steel	0.61	0.59	0.58	0.58	0.53	0.57	0.67
275	Casting of metals	1.42	1.31	1.29	1.27	1.22	1.24	1.21
281	Structural metal products	1.6	1.72	1.74	1.81	1.88	1.98	2.07
284	Forging, pressing, stamping, of metal	1.61	1.66	1.7	1.71	1.73	1.68	1.72
285	Treatment and coating of metals	2.55	2.59	2.69	2.8	2.82	2.87	3.08
286	Cutlery, tools and general hardware	1.11	1.14	1.03	1.1	1.07	1.08	1.05
287	Other fabricated metal products	2.65	2.67	2.7	2.66	2.67	2.74	2.8
291	Machinery for prod. & use of mech. power	4.33	4.48	4.32	4.15	4.43	4.34	4.47
292	Other general purpose machinery	4.82	4.9	5.07	5.06	5.11	5.5	5.29
293	Agricultural and forestry	0.86	0.87	0.89	0.88	0.81	0.94	0.81



	machinery							
294	Machine tools	1.82	1.82	2.08	1.98	1.74	1.57	1.58
295	Other special purpose machinery	4.78	4.57	4.63	4.92	4.47	4.32	4.06
297	Domestic appliances not e/where class	2.04	2.12	2.04	2.07	2.15	2.27	2.17
311	Electric motors, generators and transform	0.94	0.97	0.9	0.91	0.93	0.9	0.82
312	Manuf. of electricity distrib, control equip	1.45	1.35	1.38	1.32	1.38	1.48	1.47
316	Electrical equipment not e/where class	2.25	2.16	2.08	2.03	1.97	1.95	1.97
322	TV, radio transmit., lines for teleph.	2.09	1.82	1.71	1.88	1.15	1.4	1.4
332	Measure, control and navigation instruments	0.85	0.93	0.97	0.98	1.19	1.2	1.29
342	Prod. of bodies for cars, trailers	0.5	0.54	0.45	0.51	0.47	0.44	0.4
343	Production of spare parts for cars	3.31	3.5	3.46	3.42	3.35	3.22	3.39
361	Furniture	2.95	3.11	3.25	3.34	3.32	3.16	3.19
362	Jewelry and related articles	0.47	0.52	0.51	0.51	0.51	0.51	0.46
366	Miscellaneous manufact. not e/where class	0.59	0.54	0.51	0.55	0.52	0.55	0.54

The following tables report respectively, the share of the number of firms in every size class (Tables 28 and 29); the distribution of employment among size classes (Table 30 and 31) and the distribution of value added among size classes (Tables 32 and 33).

**Table 28:** *Distribution of number of firms per size class, percentages. Selected 3 digit sectors in the Manufacturing.*  
*Source: Our elaboration on Micro.3.*

SECTOR	1989				1997			
	20-49	50-99	100-249	250	20-49	50-99	100-249	250
151 Production, process & preserv. of meat	63.14	18.43	13.31	5.12	61.88	16.34	15.35	6.44
155 Dairy products	52.69	22.04	16.13	9.14	46.05	31.58	16.45	5.92
158 Prod. of other food (bread, sugar, etc)	57.82	18.58	14.75	8.85	52.48	23.43	15.51	8.58
159 Beverages (alcoholic & not)	55.8	21.43	14.73	8.04	57.75	19.01	13.38	9.86
171 Preparation and spinning of textiles	52.45	22.28	17.66	7.61	52.17	26.09	15.22	6.52
172 Textiles weaving	49.22	24.35	16.84	9.59	50.35	25.17	13.29	11.1
173 Finishing of textiles	52.03	29.36	16.57	2.03	53.9	32.98	12.06	1.06
175 Carpets, rugs and other textiles	61.24	22.49	11.96	4.31	61.11	25.4	7.94	5.56
177 Knitted and crocheted articles	67.33	20	9.33	3.33	63.54	22.92	7.81	5.73

182	Wearing apparel	64.26	20.63	10.61	4.5	67.15	20.91	8.63	3.32
191	Tanning and dressing of leather	70.47	20.21	9.33	0	72.16	19.59	6.19	2.06
193	Footwear	67.86	20.32	9.83	1.99	70.93	19.38	7.71	1.98
202	Production of plywood and panels	56.7	26.8	12.37	4.12	44.93	28.99	21.74	4.35
203	Wood products for construction	78.03	16.18	5.2	0.58	72.18	19.55	7.52	0.75
205	Other wood prod. (cork, straw, etc)	77.21	16.91	5.15	0.74	75	17.74	7.26	0
211	Pulp, paper and paperboard	48.84	29.07	11.63	10.47	49.33	29.33	14.67	6.67
212	Articles of paper and paperboard	58.08	22.75	14.67	4.49	60.95	20.95	12.38	5.71
221	Publishing	33.33	19.05	27.89	19.73	34.33	32.09	20.15	13.4
222	Printing	70.06	19	8.45	2.5	70.4	19.15	7.21	3.23
241	Production of basic chemicals	44.21	21.05	20.53	14.21	39.61	20.78	23.38	16.2
243	Paints, varnishes, inks & mastics	50.41	25.2	18.7	5.69	48.04	29.41	13.73	8.82
244	Pharma., med. chemicals, botanical prod	26.8	19.59	24.74	28.87	23.29	24.66	26.03	26
245	Soap & detergents, clean & toilet prep	40.66	25.27	19.78	14.29	44.44	25.93	16.05	13.5
246	Other chemical products	54.55	23.48	17.42	4.55	51.82	27.27	14.55	6.36
251	Rubber products	55.25	20.99	13.26	10.5	50.72	28.26	10.87	10.1
252	Plastic products	61.13	24.19	11.31	3.37	60.61	24.17	12.02	3.2
261	Glass and glass products	52.88	22.51	13.09	11.52	53.12	23.44	16.41	7.03
262	Ceramic goods not for construction	58.33	19.87	14.74	7.05	58.16	15.31	18.37	8.16
263	Ceramic goods for construction	37.02	26.44	27.88	8.65	30	28.57	25	16.4
264	Bricks, tiles & construction prod.	73.96	17.75	7.1	1.18	73.47	17.35	7.14	2.04
266	Concrete, plaster and cement	64.18	23.45	10.05	2.32	68.46	20.81	8.72	2.01
267	Cutting, shaping and finishing of stone	84.82	12.04	2.62	0.52	82.22	14.07	2.96	0.74
273	First processing of iron and steel	55.65	27.42	15.32	1.61	58.24	28.57	10.99	2.2
275	Casting of metals	54.68	25.47	12.73	7.12	56.34	22.54	17.84	3.29
281	Structural metal products	70.46	20.46	7.12	1.96	73.35	20.27	5.92	0.46
284	Forging, pressing, stamping, of metal	58.19	27.53	12.89	1.39	54.41	31.03	11.11	3.45
285	Treatment and coating of metals	75.66	18.26	5.76	0.33	73.52	20.4	5.94	0.15
286	Cutlery, tools and general hardware	63.86	22.46	9.47	4.21	61.72	23.44	10.05	4.78
287	Other fabricated metal products	62.02	22.2	12.48	3.3	63.88	23	9.7	3.42

291	Machinery for prod. & use of mech. power	48.53	26.3	16.1	9.07	45.91	24.27	20.05	9.76
292	Other general purpose machinery	57.67	23.16	14.11	5.06	52.89	27.17	14.31	5.63
293	Agricultural and forestry machinery	64.37	18.39	12.64	4.6	63.54	23.96	5.21	7.29
294	Machine tools	51.56	26.56	18.44	3.44	55.46	23.11	17.23	4.2
295	Other special purpose machinery	55.1	24.27	15.12	5.51	56.19	21.83	16.37	5.6
297	Domestic appliances not e/where class	40.44	25.74	18.38	15.44	30.58	26.45	21.49	21.4
311	Electric motors, generators and transform	56.5	18.64	17.51	7.34	56.25	26.39	9.72	7.64
312	Manuf. of electricity distrib, control equip	49.64	21.9	13.87	14.6	51.06	19.86	14.18	14.8
316	Electrical equipment not e/where class	55.3	20.2	11.92	12.58	56.98	24.91	9.43	8.68
322	TV, radio transmit., lines for teleph.	41.76	21.98	17.58	18.68	47.22	24.07	18.52	10.1
332	Measure, control and navigation instruments	57.94	18.25	15.87	7.94	51.52	22.22	19.19	7.07
342	Prod. of bodies for cars, trailers	55.56	23.93	15.38	5.13	55.13	21.79	19.23	3.85
343	Production of spare parts for cars	36.86	27.45	22.35	13.33	33.92	23.35	25.99	16.7
361	Furniture	69.34	19.96	8.6	2.1	68.71	21.54	6.86	2.89
362	Jewelry and related articles	76.41	18.97	3.59	1.03	75.42	15.08	7.82	1.68
366	Miscellaneous manufact. not e/where class	65.35	19.69	11.81	3.15	60.17	23.73	11.02	5.08

**Table 29:** *Distribution of number of firms per size class, percentages. Selected 3 digit sectors in the Manufacturing. Source: Our elaboration on Micro.3.*

	SECTOR	2000				2004			
		20-	50-	100-	250	20-	50-	100-	250
		49	99	249		49	99	249	
151	Production, process & preserv. of meat	60.82	20.47	12.87	5.85	59.44	20.83	13.61	6.11
155	Dairy products	58.27	21.94	14.03	5.76	56.55	20.22	17.23	5.99
158	Prod. of other food (bread, sugar, etc)	51.67	25.52	15.48	7.11	50.51	26.57	16.02	6.29
159	Beverages (alcoholic & not)	65.24	15.45	12.02	7.3	59.72	20.85	11.37	8.06
171	Preparation and spinning of textiles	48.82	23.53	19.12	8.24	49.59	22.95	19.26	8.2
172	Textiles weaving	47.63	27.96	15.17	9	47.89	24.51	19.15	8.17
173	Finishing of textiles	42.48	37.58	16.67	2.61	46.42	32.08	17.74	3.4
175	Carpets, rugs and other textiles	56.05	27.82	11.69	4.03	57.59	25	13.39	4.02

177	Knitted and crocheted articles	52.47	25.56	16.14	5.83	51.38	28.18	14.92	5.52
182	Wearing apparel	46.93	28.91	17.6	6.56	50.19	28.41	15.39	5.63
191	Tanning and dressing of leather	66.67	20.33	11.38	1.22	64.11	25.84	8.13	1.91
193	Footwear	51.54	30.2	14.83	3.44	51.64	29.92	14.14	4.1
202	Production of plywood and panels	48.81	25	23.81	2.38	53.41	19.32	20.45	6.82
203	Wood products for construction	62.5	25	10.71	1.79	55.56	28.57	13.76	1.59
205	Other wood prod. (cork, straw, etc)	62.79	26.36	8.53	0.78	62.5	23.44	10.94	2.34
211	Pulp, paper and paperboard	47.93	29.75	14.88	6.61	49.09	31.82	9.09	10
212	Articles of paper and paperboard	57.45	23.17	13.95	5.44	54	24.03	16.02	5.72
221	Publishing	46.7	23.35	18.78	11.1	44.62	21.51	20.43	12.3
222	Printing	61.51	24.95	10.25	3.29	59.23	24.95	12.37	3.04
241	Production of basic chemicals	47.97	19.51	21.14	11.3	45.74	20.93	22.09	11.2
243	Paints, varnishes, inks & mastics	53.09	22.22	17.28	7.41	51.92	22.44	16.03	8.97
244	Pharma., med. chemicals, botanical prod	31.69	23.87	23.46	20.9	25.68	24.51	25.68	23.3
245	Soap & detergents, clean & toilet prep	50	23.57	16.43	10	46.63	25.15	17.18	11
246	Other chemical products	55.29	26.92	13.46	4.33	54.88	26.98	14.42	3.26
251	Rubber products	48.74	28.64	12.06	10.5	46.01	30.05	14.55	9.39
252	Plastic products	56.28	26.02	14.34	3.27	53.5	26.31	16.12	3.72
261	Glass and glass products	49.12	26.9	15.2	8.77	51.41	23.73	14.12	10.7
262	Ceramic goods not for construction	43.75	28.12	18.75	8.33	52.14	23.93	17.09	6.84
263	Ceramic goods for construction	27.84	28.98	25.57	17.6	33.71	21.71	25.14	18.8
264	Bricks, tiles & construction prod.	58.18	29.09	9.09	3.64	55.34	28.16	13.59	2.91
266	Concrete, plaster and cement	64.15	23.82	9.2	2.83	57.05	27.29	12.98	2.68
267	Cutting, shaping and finishing of stone	78.11	17.16	4.14	0.59	77.98	15.48	5.95	0.6
273	First processing of iron and steel	57.14	28.57	12.93	1.36	59.24	26.75	12.1	1.91
275	Casting of metals	50.36	24.45	19.71	5.11	47.96	25.65	21.56	4.83
281	Structural metal products	63.24	25.78	9.93	1.05	62.84	24.07	11.31	1.45
284	Forging, pressing, stamping, of metal	49.23	29.34	16.33	4.59	51.52	26.9	16.24	4.82
285	Treatment and coating of metals	65.43	25.93	8.28	0.36	61.72	26.86	10.6	0.82
286	Cutlery, tools and general hardware	55.27	27	12.66	5.06	55.95	24.23	13.66	6.17

287	Other fabricated metal products	53.25	27.08	14.83	4.69	52.26	26.66	17.47	3.61
291	Machinery for prod. & use of mech. power	42.65	25.63	21.51	10	40.18	27.68	21.96	10.1
292	Other general purpose machinery	53.34	27.45	14.18	4.76	51.42	26.13	16.98	5.38
293	Agricultural and forestry machinery	59.86	21.09	12.24	6.8	64.94	20.69	8.62	5.75
294	Machine tools	47.66	26.17	20.66	5.23	49.13	27.91	18.9	4.07
295	Other special purpose machinery	54.18	25.19	14.92	5.5	52.82	28.67	13.54	4.85
297	Domestic appliances not e/where class	35.43	30.29	15.43	18.8	34.97	25.15	19.02	20.8
311	Electric motors, generators and transform	49.23	28.72	14.87	7.18	46.73	32.16	15.58	5.53
312	Manuf. of electricity distrib, control equip	49.11	23.67	13.61	13.6	52.02	20.81	15.03	11.5
316	Electrical equipment not e/where class	57.11	24.74	11.58	6.58	53.73	26.37	14.18	5.72
322	TV, radio transmit., lines for teleph.	48.55	22.54	20.23	8.09	47.59	25.9	16.87	9.64
332	Measure, control and navigation instruments	51.97	21.71	18.42	7.89	52.63	17.76	19.08	9.87
342	Prod. of bodies for cars, trailers	49.15	21.19	22.88	6.78	49.09	24.55	20.91	5.45
343	Production of spare parts for cars	30.77	19.94	29.34	19.6	35.36	22.32	22.61	19.1
361	Furniture	55.98	29.11	10.93	3.98	48.92	31.34	15.62	3.9
362	Jewelry and related articles	68.97	23.15	5.91	1.97	73.71	18.31	5.63	1.88
366	Miscellaneous manufact. not e/where class	58.93	22.62	15.48	2.98	55.23	28.49	13.37	2.91

**Table 30:** *Employment share per size cohort, percentages. Selected 3 digit sectors in the Manufacturing. Source: Our elaboration on Micro.3.*

	SECTOR	1989				1997			
		20-49	50-99	100-249	250	20-49	50-99	100-249	250
151	Production, process & preserv. of meat	22.13	14.13	24.86	38.89	18.11	10.32	22.22	49.35
155	Dairy products	9.66	8.23	15.07	67.04	10.38	14.78	16.92	57.93
158	Prod. of other food (bread, sugar, etc)	13.81	10.3	16.95	58.93	9.64	10.18	14.03	66.14
159	Beverages (alcoholic & not)	16.95	15.43	22.54	45.08	16.21	11.34	17.68	54.77
171	Preparation and spinning of textiles	17.35	15.96	27.87	38.81	19.14	19.86	24.42	36.58
172	Textiles weaving	12.4	13.3	20.34	53.96	13.36	13.62	16.03	56.99
173	Finishing of textiles	23.26	29.83	35.24	11.66	26.83	36.37	25.5	11.3

175	Carpets, rugs and other textiles	29.01	23.34	25.65	22	26	25.27	16.98	31.75
177	Knitted and crocheted articles	32.92	22.6	21.57	22.91	25.83	21.08	17.16	35.92
182	Wearing apparel	26.01	18.82	22.07	33.1	29.81	21.69	19.08	29.42
191	Tanning and dressing of leather	43.55	28.32	28.13	0	43.28	27.23	14.41	15.08
193	Footwear	35.65	23.35	24.54	16.46	35.34	21.62	18.77	24.26
202	Production of plywood and panels	24.42	25.63	25.43	24.52	15.66	21.58	35.85	26.9
203	Wood products for construction	51.69	25.49	19.41	3.41	44.8	28.31	22.66	4.23
205	Other wood prod. (cork, straw, etc)	54.54	27.3	13.81	4.35	50.86	27.86	21.28	0
211	Pulp, paper and paperboard	9.46	12	10.84	67.7	10.1	13.04	15.8	61.06
212	Articles of paper and paperboard	22.22	19.69	27.31	30.78	22.82	17.8	22.42	36.96
221	Publishing	4.59	6.14	20.56	68.71	6.13	12.57	18.58	62.73
222	Printing	30.39	18.54	18.31	32.76	30.38	17.83	14.38	37.41
241	Production of basic chemicals	5.69	5.8	13.09	75.42	5.27	5.92	14.37	74.44
243	Paints, varnishes, inks & mastics	16.85	18.2	30.88	34.06	14.93	19.27	20.32	45.48
244	Pharma., med. chemicals, botanical prod	3.16	4.85	13.86	78.13	2.7	6.01	13.79	77.51
245	Soap & detergents, clean & toilet prep	8.64	11.12	19.28	60.96	9.48	11.49	16.36	62.67
246	Other chemical products	18.91	17.65	29.02	34.42	16.72	19.7	21.76	41.82
251	Rubber products	8.69	7.17	9.49	74.65	8.39	9.74	8.21	73.67
252	Plastic products	28.58	25.23	25.57	20.63	28.61	24.72	25.9	20.78
261	Glass and glass products	12.88	11.74	15.82	59.55	14.57	13.04	22.12	50.27
262	Ceramic goods not for construction	17.67	13.51	22.66	46.17	17.83	11.77	28.9	41.5
263	Ceramic goods for construction	10.42	15.33	33.47	40.79	6.59	12.06	25.21	56.15
264	Bricks, tiles & construction prod.	42.97	22.47	17.62	16.94	37.4	20.76	17.85	23.99
266	Concrete, plaster and cement	31.92	25.34	23.58	19.15	36.98	24.31	22.4	16.31
267	Cutting, shaping and finishing of stone	64.47	22.36	9.35	3.82	62.21	23.97	8.96	4.86
273	First processing of iron and steel	24.69	28.06	34.19	13.06	22.94	23.79	22.32	30.95
275	Casting of metals	16.45	15.65	17.81	50.09	17.89	15.35	28.13	38.64
281	Structural metal products	39.91	25.94	20.79	13.36	47.86	30.15	18.84	3.15
284	Forging, pressing, stamping, of metal	30.44	29.47	31.12	8.97	24.99	32.23	23.64	19.14
285	Treatment and coating of metals	51.56	27.96	18.09	2.38	49.49	30.88	18.46	1.17

286	Cutlery, tools and general hardware	29.55	22.69	20.32	27.44	25.61	22.17	20.62	31.6
287	Other fabricated metal products	28.22	22.33	27.21	22.24	31.13	25.07	22.61	21.2
291	Machinery for prod. & use of mech. power	11.03	13.21	16.97	58.8	9.2	10.71	19.2	60.88
292	Other general purpose machinery	22.94	19.41	24.85	32.79	17.83	20.3	23.58	38.28
293	Agricultural and forestry machinery	16.62	10.02	16.14	57.23	15.78	13.87	6.33	64.02
294	Machine tools	22.23	23.61	35.68	18.48	23.49	20.61	31.77	24.12
295	Other special purpose machinery	19.17	18.84	25.71	36.27	18.2	15.76	25.57	40.46
297	Domestic appliances not e/where class	4.59	6.57	10.49	78.35	3.04	5.87	10.35	80.74
311	Electric motors, generators and transform	17.79	12.71	26.57	42.93	18.65	20.13	17.81	43.4
312	Manuf. of electricity distrib, control equip	10.37	10.81	15.37	63.46	9.48	8.08	14	68.44
316	Electrical equipment not e/where class	9.15	7.11	9.59	74.15	13.81	12.68	10.49	63.03
322	TV, radio transmit., lines for teleph.	2.72	3.44	5.54	88.3	4.33	4.63	8.55	82.49
332	Measure, control and navigation instruments	15.24	10.2	19.51	55.05	14.91	13.72	27.83	43.54
342	Prod. of bodies for cars, trailers	19.23	18.41	25.87	36.49	24.12	20.7	37.78	17.4
343	Production of spare parts for cars	6.01	9.67	18.23	66.09	5.66	8.18	19.06	67.1
361	Furniture	39.17	25.16	22.54	13.13	34.09	25.45	17.11	23.35
362	Jewelry and related articles	48.9	29.4	10.37	11.32	45.94	20.06	20.88	13.12
366	Miscellaneous manufact. not e/where class	32.58	22.4	24.04	20.98	24.51	22.45	18.62	34.41

**Table 31:** (Continued) Employment share per size cohort, percentages. Selected 3 digit sectors in the Manufacturing. Source: Our elaboration on Micro.3.

	SECTOR	2000				2004			
		20-	50-	100-	250	20-	50-	100-	250
		49	99	249		49	99	249	
151	Production, process & preserv. of meat	17.36	14	20.56	48.07	17.51	14.37	20.64	47.48
155	Dairy products	15.26	12.73	19.63	52.38	17.34	13.21	24.5	44.95
158	Prod. of other food (bread, sugar, etc)	12.58	13.93	19.11	54.3	12.65	15.15	20.81	51.14
159	Beverages (alcoholic & not)	19.94	11.11	18.3	50.65	17.57	12.97	16.16	53.31
171	Preparation and spinning of textiles	15.8	16.5	29.16	38.39	16.22	15.48	27.8	40.5
172	Textiles weaving	14.08	18.07	21.32	46.43	14.27	15.73	26.15	43.72

173	Finishing of textiles	16.53	31.7	28.51	22.87	18.37	26.82	28.13	26.45
175	Carpets, rugs and other textiles	23.79	27.83	25.61	22.48	25.56	24.14	28.68	21.63
177	Knitted and crocheted articles	19.46	20.66	29.88	30	16.44	20.42	22.77	40.38
182	Wearing apparel	15.02	21.16	28.3	35.52	17.3	21.85	25.38	35.26
191	Tanning and dressing of leather	35.13	25.37	31.02	8.1	33.42	30.36	20.89	15.33
193	Footwear	21.5	27.66	27.41	23.43	22.4	27.18	27.83	22.46
202	Production of plywood and panels	18.11	19.97	44.15	17.77	18.38	15.55	35.88	30.18
203	Wood products for construction	33.62	31.46	25.53	9.39	27.91	32.04	30.9	8.72
205	Other wood prod. (cork, straw, etc)	37.07	33.36	24.3	3.85	35.47	28.01	24.58	11.25
211	Pulp, paper and paperboard	10.35	15.28	19.7	54.39	10.35	15.01	8.73	65.91
212	Articles of paper and paperboard	20.48	18.47	25.06	35.99	18.83	18.58	26.22	36.24
221	Publishing	10.28	12.54	22.03	55.15	10.16	11.1	22.91	55.46
222	Printing	25.07	23.18	20.55	31.21	24.5	22.71	25.61	26.91
241	Production of basic chemicals	8.04	7.78	18.17	66.01	8.82	9.13	21.19	60.85
243	Paints, varnishes, inks & mastics	17.47	17.28	28.62	36.63	15.26	16.08	23.77	44.58
244	Pharma., med. chemicals, botanical prod	4.4	7.49	16.21	71.9	3.27	6.72	15.41	74.44
245	Soap & detergents, clean & toilet prep	13.9	13.98	22.5	49.62	12.98	14.04	22.59	50.38
246	Other chemical products	21.04	22.53	25.39	31.04	23.09	26.3	31.54	18.74
251	Rubber products	8.99	10.83	11.14	69.04	10.04	13.27	16.27	60.42
252	Plastic products	24.68	25.21	30.53	19.52	22.75	23.88	32.71	20.42
261	Glass and glass products	12.76	15.4	21.18	50.65	11.68	11.77	15.91	60.64
262	Ceramic goods not for construction	13.37	20.75	30.35	35	15.58	16.4	28.53	39.48
263	Ceramic goods for construction	5.3	11.36	24.73	58.6	6.46	8.59	23.34	61.44
264	Bricks, tiles & construction prod.	25.92	29.6	19.24	25.24	26.42	28.37	30.03	15.17
266	Concrete, plaster and cement	31.18	26.93	22.11	19.79	26.36	27.39	27.51	18.73
267	Cutting, shaping and finishing of stone	55.76	27.18	13.48	3.59	54.34	23.56	17.98	4.12
273	First processing of iron and steel	26.73	30.26	30.55	12.45	29.22	28.86	28.64	13.28
275	Casting of metals	17.69	18.19	32.22	31.71	17.17	19.4	36.92	26.51
281	Structural metal products	34.74	32.37	26.02	6.87	34.62	28.99	27.42	8.69
284	Forging, pressing, stamping, of metal	18.68	25.43	31.09	24.49	22.09	24.72	29.98	22.87



285	Treatment and coating of metals	40.18	35.32	22.31	2.19	34.61	32.65	27.29	5.45
286	Cutlery, tools and general hardware	22.42	24.85	25.28	27.45	21.45	20.39	23.78	34.38
287	Other fabricated metal products	22.13	24.51	29.55	23.72	21.66	23.93	35.47	18.94
291	Machinery for prod. & use of mech. power	9.84	13.03	23.84	53.22	9.76	14.58	25.16	50.5
292	Other general purpose machinery	19.99	23.09	26.2	30.55	18.41	20.94	28.71	31.88
293	Agricultural and forestry machinery	16.89	13.63	17.09	52.39	20.44	14.52	14.11	50.92
294	Machine tools	15.44	18.28	30.16	35.99	18.55	23.13	32.7	25.61
295	Other special purpose machinery	19.45	20.1	25.83	34.5	19.34	23.35	24	33.25
297	Domestic appliances not e/where class	4.29	8.84	10.32	76.55	3.55	5.34	9.09	82.02
311	Electric motors, generators and transform	15.46	21.49	22.7	40.35	16.92	27.96	26.95	28.17
312	Manuf. of electricity distrib, control equip	10.37	11.26	13.8	64.58	10.91	10.11	15.46	63.33
316	Electrical equipment not e/where class	16.97	15.95	18.18	48.9	18	18.78	22.07	41.15
322	TV, radio transmit., lines for teleph.	7.64	8.31	15.3	68.6	9.87	12	17.21	60.92
332	Measure, control and navigation instruments	12.82	12.12	23.15	51.91	12.15	8.63	19.73	59.26
342	Prod. of bodies for cars, trailers	15.5	15.38	35.85	33.27	16.11	17.63	32.42	33.84
343	Production of spare parts for cars	4.87	6.75	20.61	67.71	5.71	7.74	17.24	69.17
361	Furniture	24.42	28.58	21.12	25.88	19.34	26.34	27.48	26.7
362	Jewelry and related articles	37.94	30.03	17.25	14.77	44.65	25.16	17.41	12.33
366	Miscellaneous manufact. not e/where class	25.31	22.79	29.46	22.45	24.78	27.72	27.61	19.89

**Table 32:** Share of value added per size cohort, percentages. Selected 3 digit sectors in the Manufacturing. Source: Our elaboration on Micro.3.

	SECTOR	1989				1997			
		20-	50-	100-	250	20-	50-	100-	250
		49	99	249		49	99	249	
151	Production, process & preserv. of meat	21.12	13.49	27.22	38.17	18.18	11.48	24.8	45.53
155	Dairy products	7.68	7.17	13.4	71.75	7.3	11.51	15.96	65.24
158	Prod. of other food (bread, sugar, etc)	10.73	9.24	15.78	64.25	7.43	8.84	13.54	70.2
159	Beverages (alcoholic & not)	14.36	14.54	24.39	46.72	13.73	11.57	18.48	56.22
171	Preparation and spinning of	19.21	15.63	28.84	36.32	18.58	19.48	25.45	36.49

textiles									
172	Textiles weaving	13.45	15.05	21.09	50.4	13.78	15.05	15.51	55.66
173	Finishing of textiles	21.08	28.75	34.91	15.26	24.99	35.5	26.38	13.12
175	Carpets, rugs and other textiles	29.52	21.2	25.69	23.59	19.85	22.89	13.34	43.92
177	Knitted and crocheted articles	28.63	20.54	22.41	28.42	16.89	18.45	16.17	48.49
182	Wearing apparel	18.94	17.13	25.2	38.73	18.89	19.08	20.79	41.25
191	Tanning and dressing of leather	41.25	31.26	27.49	0	39.69	31.33	15.23	13.75
193	Footwear	30.63	22.44	25.45	21.48	32.47	22.83	22.83	21.87
202	Production of plywood and panels	19.88	26.35	29.82	23.96	12.71	19.54	40.27	27.48
203	Wood products for construction	43.73	26.29	26.36	3.62	38.71	28.17	27.99	5.14
205	Other wood prod. (cork, straw, etc)	51.71	26.99	15.57	5.73	47.17	28	24.84	0
211	Pulp, paper and paperboard	8.33	11.34	10.46	69.87	7.84	11.83	15.84	64.49
212	Articles of paper and paperboard	19.14	18.05	26.74	36.07	17.02	15.81	21.73	45.44
221	Publishing	4.13	6.46	19.93	69.48	4.86	9.86	16.66	68.61
222	Printing	25.33	17.91	19.67	37.1	26.34	17.55	17.55	38.56
241	Production of basic chemicals	5.44	6.91	15.24	72.41	4.51	5.25	15.05	75.18
243	Paints, varnishes, inks & mastics	14.11	16.95	33.85	35.1	12.46	17.61	19.48	50.44
244	Pharma., med. chemicals, botanical prod	3.55	4.31	11.84	80.3	2.12	5.4	11.83	80.65
245	Soap & detergents, clean & toilet prep	7.17	11.74	16.78	64.3	7.14	8.68	13.59	70.6
246	Other chemical products	19.56	17.63	31.18	31.63	13.31	19.28	23.86	43.55
251	Rubber products	7.17	6.25	9.48	77.1	6.89	8.62	8.51	75.98
252	Plastic products	26.11	25.35	26.27	22.27	23.7	23.19	29.32	23.8
261	Glass and glass products	8.68	9.5	15.86	65.96	9.69	9.48	24.22	56.61
262	Ceramic goods not for construction	13.79	13.08	23.51	49.62	13.92	13.24	33.06	39.78
263	Ceramic goods for construction	8.37	13.12	31.47	47.03	5.09	9.17	21.56	64.18
264	Bricks, tiles & construction prod.	44.93	23.86	15.85	15.36	36.3	19.28	20.73	23.69
266	Concrete, plaster and cement	30.25	25.45	22.16	22.14	32.48	23.32	24.17	20.03
267	Cutting, shaping and finishing of stone	59.87	22.95	13.03	4.14	56.76	22.9	15.19	5.15
273	First processing of iron and steel	24.16	30.65	32.9	12.3	20.83	25.04	30.52	23.61
275	Casting of metals	16.79	16.44	16.96	49.81	18.92	14.87	26.69	39.52
281	Structural metal products	37.44	26.68	21.43	14.45	43.8	31.82	21.4	2.99

284	Forging, pressing, stamping, of metal	30.42	29.86	34.18	5.55	20.88	32.32	28.08	18.72
285	Treatment and coating of metals	50.82	31.11	16.14	1.94	47.76	33.1	18.33	0.81
286	Cutlery, tools and general hardware	27.67	22.4	20.45	29.48	22.79	22.53	23.32	31.36
287	Other fabricated metal products	25.53	22.09	27.85	24.53	30.5	23.37	23.04	23.09
291	Machinery for prod. & use of mech. power	10.71	14.23	18.08	56.98	7.76	10.24	19.51	62.5
292	Other general purpose machinery	21.01	19.83	23.95	35.21	15.04	19.55	23.77	41.64
293	Agricultural and forestry machinery	13.8	9.75	18.91	57.53	11.76	10.78	7.84	69.62
294	Machine tools	21.31	23.84	37.75	17.11	19.89	21.19	31.17	27.75
295	Other special purpose machinery	17.7	18.88	26.2	37.22	16.02	15.07	26.86	42.05
297	Domestic appliances not e/where class	4.17	7.53	11.64	76.66	2.24	5.06	11.7	81
311	Electric motors, generators and transform	16.65	12.9	27.75	42.7	17.07	19.67	18.55	44.71
312	Manuf. of electricity distrib, control equip	10.53	10.01	16.1	63.36	7.73	7.97	12.04	72.26
316	Electrical equipment not e/where class	8.33	6.66	9.07	75.94	12.81	11.31	11.32	64.57
322	TV, radio transmit., lines for teleph.	2.38	3.07	5.32	89.24	3.86	4.24	10.77	81.13
332	Measure, control and navigation instruments	14.01	8.74	19.09	58.16	12.62	12.6	30.54	44.24
342	Prod. of bodies for cars, trailers	17.96	18.8	26.85	36.39	20.12	20.17	42.04	17.67
343	Production of spare parts for cars	5.74	10.36	19.41	64.5	4.92	7.42	19.08	68.58
361	Furniture	34.5	25.44	23.65	16.41	28.9	25.01	18.21	27.88
362	Jewelry and related articles	43.3	33.43	10.84	12.43	40.33	16.07	25.6	17.99
366	Miscellaneous manufact. not e/where class	34.43	21.19	23.79	20.58	22.9	23.71	21.03	32.36

**Table 33:** *Share of value added per size cohort, percentages. Selected 3 digit sectors in the Manufacturing.*  
*Source: Our elaboration on Micro.3.*

	SECTOR	2000				2004			
		20-	50-	100-	250	20-	50-	100-	250
		49	99	249		49	99	249	
151	Production, process & preserv. of meat	18.86	16.78	22.94	38.85	21.48	17.31	21.07	37.57
155	Dairy products	11.84	10.04	16.13	60.89	13.62	9.75	20.13	55.2
158	Prod. of other food (bread, sugar, etc)	9.73	11.96	15.31	60.07	9.66	12.68	17.7	56.44

159	Beverages (alcoholic & not)	18.32	11.94	17.73	51.33	16.74	15.16	18.12	49.14
171	Preparation and spinning of textiles	15.77	15.11	27.01	36.78	17.32	15.47	26.4	35.67
172	Textiles weaving	14.99	18.21	19.68	43.64	14.61	16.12	24.16	41.96
173	Finishing of textiles	15.54	27.92	24.67	19.25	14.85	21.57	22.45	21.49
175	Carpets, rugs and other textiles	21.08	22.04	21.29	27.69	21.02	22.72	26.21	21.73
177	Knitted and crocheted articles	16.49	14.04	22.5	35.01	14.95	17.83	18.7	41.49
182	Wearing apparel	11.47	15.67	21.58	36.46	12.83	15.7	20.7	41.07
191	Tanning and dressing of leather	31.21	22.2	30.78	8.7	29.8	26.74	19.29	15
193	Footwear	16.69	21.05	23.32	20.16	16.57	19.89	21.88	25.37
202	Production of plywood and panels	13.69	15.32	42.57	17.52	14.99	12.28	32.86	36.71
203	Wood products for construction	26.25	24.3	24.18	10.21	21.05	25.63	26.88	12.32
205	Other wood prod. (cork, straw, etc)	28.39	26.52	22.65	3.33	26.72	21.82	22.68	11.38
211	Pulp, paper and paperboard	10.04	15.45	17.42	55.86	10.55	13.75	6.55	67.3
212	Articles of paper and paperboard	14.33	14.62	24.84	41.65	13.61	14.21	24.11	43.63
221	Publishing	6.06	9.23	14.66	68.93	7.04	7.22	15.65	69.29
222	Printing	18.84	18.42	16.99	33.91	18.09	19.21	23.13	27.37
241	Production of basic chemicals	7.31	7.94	19.35	64.38	8.56	11.39	19.01	60.16
243	Paints, varnishes, inks & mastics	15.93	18.23	25.63	38.87	10.05	15.23	21.69	50.59
244	Pharma., med. chemicals, botanical prod	4	5.79	14.47	72.4	2.27	6.87	15.41	70.89
245	Soap & detergents, clean & toilet prep	10.57	10.97	19.51	57.35	9.04	10.58	17.69	60.85
246	Other chemical products	20.6	20.68	25.77	29.93	20.92	24.25	34.32	18.71
251	Rubber products	8.64	9.6	10.75	63.67	8.91	12.17	13.82	62.09
252	Plastic products	20.6	20.84	29.79	18.31	19.52	20.44	30.04	19.54
261	Glass and glass products	8.41	10.87	19.31	55.3	7.05	8.5	14.81	65.47
262	Ceramic goods not for construction	11.42	16.65	26.14	30.86	14.07	16.71	31.15	33.44
263	Ceramic goods for construction	4.01	10.75	21.51	61.1	4.95	7.31	20.93	64.75
264	Bricks, tiles & construction prod.	23.33	26.93	21.13	22.93	25.59	24.58	31.16	12.49
266	Concrete, plaster and cement	26.35	22.74	18.84	23.85	23.72	23.12	23.27	22.56
267	Cutting, shaping and finishing of stone	43.31	22.55	16.38	2.74	44.94	17.93	19.27	3.11
273	First processing of iron and steel	23.26	25.44	31.85	12.6	24.19	29.4	30.06	14.97

275	Casting of metals	17.03	18.85	30.33	25.89	17.44	20.02	35.07	21.8
281	Structural metal products	26.74	24.09	21.22	3.5	24.49	22.19	21.1	6.61
284	Forging, pressing, stamping, of metal	16.92	22.31	29.61	20.88	20.47	22.21	32.45	15.41
285	Treatment and coating of metals	27.81	24.13	14.83	1.67	24.48	22.17	18.08	2.74
286	Cutlery, tools and general hardware	18.56	20.17	21.53	27.33	17.15	17.47	20.8	34.14
287	Other fabricated metal products	18.72	20.37	26.92	22.4	18.14	20.84	30.25	18.82
291	Machinery for prod. & use of mech. power	8.74	11.81	22.22	52.83	7.51	12.74	24.06	52.92
292	Other general purpose machinery	17.85	19.62	24.26	29.63	15.92	19.1	25.44	30.12
293	Agricultural and forestry machinery	13.37	10.62	12.12	56.39	18.74	13.93	10.87	50.91
294	Machine tools	13.31	16.46	30.3	32.43	15.6	20.29	29.71	26.44
295	Other special purpose machinery	17.18	17.74	24.45	31.62	17.44	21.28	21.6	31.32
297	Domestic appliances not e/where class	4.01	8.38	10.33	74.94	3.61	5.18	9.89	79.6
311	Electric motors, generators and transform	13.63	21.77	20.77	35.98	15.25	25.56	25.29	26.45
312	Manuf. of electricity distrib, control equip	7.77	9.55	12.16	65.94	7.96	7.78	12.05	69.6
316	Electrical equipment not e/where class	15.74	13.8	16.71	42.8	14.74	16.16	23.85	35.57
322	TV, radio transmit., lines for teleph.	6.61	9.26	12.44	67.89	7.94	11.44	14.53	62.58
332	Measure, control and navigation instruments	12.66	10.45	23.85	47.07	10.31	7.01	17.59	61.14
342	Prod. of bodies for cars, trailers	16.3	14.14	36.05	25.38	17.14	18.49	37	18.58
343	Production of spare parts for cars	5.32	6.21	19.13	66.1	5.41	7.41	16.86	68.64
361	Furniture	19.34	23.86	18.28	26.61	15.64	22.27	24.14	24.6
362	Jewelry and related articles	29.82	22.78	17.59	14.34	34.27	20.89	20.7	11.8
366	Miscellaneous manufact. not e/where class	22.54	20.31	26.91	21.13	23.23	24.84	29.2	17.19

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