

# Recent Trends in the Size Structure of Italian Manufacturing Firms

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**ABSTRACT.** This paper analyses the re-emergence of small-scale production which has characterised the more recent phase of industrial development in Western countries, providing updated evidence about the phenomenon and focussing in particular the attention on Italy, where it has been assuming peculiar relevance.

Data show that in the course of the '80s the main industrial European countries – with the notable exception of Germany – have experienced a further reduction in the average size of manufacturing firms, which was declining since the mid-'70s. Yet, in all of the countries concerned the increase of the relative “weight” in the employment shares of small enterprises is associated to an overall decline of employment levels in absolute numbers (smaller firms do not succeed in making up for the whole amount of job losses in the industrial sector).

These trends appear particularly strong in the Italian manufacturing sector. In particular, a transition matrix drawn from a data-base of over 200,000 firms and data relative to birth and exit rates show that the rising importance of small firms in terms of employment (in particular within the range between 10 and 50 employees) has been linked to higher rates of growth with respect both to large enterprises and very small ones, as well as to a relatively higher “inertia” of their entry rates with respect to the latter. More specifically, data highlight a peculiarly low frequency of growing firms in the range including very small units (less than 5 employees); at the same time, such firms’ exit rates do not show any tendency to be especially affected by the slowing down of economic activity in the late '80s.

## 1. Introduction

Over the last 20 years industrial development in advanced economies has been characterised as a major feature by the re-emergence of small scale production. This phenomenon, which appears widespread to most of the industrialised countries and approximately dates from the early '70s,

represents a sharp reversal of the previous decades’ trend: while up to the first oil shock the development of the industrial sector is associated with rising concentration, during the following years a decrease occurs in the average size both of firms and establishments. Such a trend is associated with an increase – in absolute and relative terms – of the number of employees in smaller enterprises.

Even if rather scattered, available data highlight the existence of a structural discontinuity around the mid-70s for a wide range of industrialised countries:<sup>1</sup> the share of employment in firms with less than 100 employees falls up to the beginning of the '70s, to rise again in the following years. A notable exception is represented by Germany, which shows no clear pattern with respect to small firms weight in manufacturing sector (both in terms of enterprises and establishments).

Whether such a process reflects a “historical” discontinuity or it does not,<sup>2</sup> in recent years – and notably in Europe – the debate about the phenomenon has been enhanced owing to growing difficulties in maintaining the employment levels in the industrial sector. Particularly, the discussion has focused on whether employment in small (and very small) firms could represent – in a normative view – a *structural* alternative to declining employment in large units.<sup>3</sup>

The purpose of this paper is to provide (within the often narrow limits imposed by available statistical information) some more updated evidence about the recent evolution of the phenomenon in the most important European countries, and especially to examine the recent pattern of development of firm size structure in the Italian economy, where it has shown a peculiar intensity.

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## 2. Small sized enterprises and structural change in european manufacturing

Observed shifts in employment *shares* among size classes may depend upon either a change in the average size of the enterprises belonging to a given class, or a variation in their number, and may be quite independent of the *absolute* changes in employment.<sup>4</sup> To clarify the matter, the present section analyses over the '80s the evolutionary pattern of small firms for four European countries, with reference both to the average size of enterprises and the growth, in absolute numbers, of employment (and output) levels.

Information from Eurostat (only) provide the basis for an international comparison of enterprises with more than 20 employees in France, Germany, Italy and – partly – United Kingdom.<sup>5</sup> The first issue which can be drawn from the data (Table I) is that the average size of manufacturing enterprises, in terms of employees, is declining in three out of the four countries studied. The decrease is greater in France and U.K.;<sup>6</sup> the exception is represented by Germany, which appears

*constantly* characterised by a higher average size of firms – more than double of the Italian one. Both the level and growth of the average size do not show remarkable differences at the two-digit NACE level: apart from a few exceptions, the average size is declining in all sectors (for Germany the decrease, as it occurs, is generally slighter than in other countries).<sup>7</sup>

The general reduction of the average size of firms entails relevant changes in shares: apart from Germany,<sup>8</sup> the share of employment in units with less than 100 employees steadily rises in all countries. Employment shares for firms with 20 to 99 employees rise in Italy (1981–91) from 32.7 to 39.0 per cent, in France (1981–90) from 19.7 to 24.9, in U.K. (1985–93) from 15.7 to 19.4.

The trend which characterizes the second half of the '80s seems to be consistent with the tendency emerged over the previous decade. Apart from Germany, in most European countries the *relative* number of small sized enterprises is steadily growing and industrial employment concentrates in these firms. Yet, in order to assess the profile of the phenomenon in *absolute* numbers

TABLE I  
Average size of firms in terms of employees in 1990 (1981 = 100)

| Nace  |                                                              | G     | F     | U.K. <sup>a</sup> | I <sup>b</sup> |
|-------|--------------------------------------------------------------|-------|-------|-------------------|----------------|
| 22    | Metal manufacturing <sup>c</sup>                             | 77.8  | 51.3  | 92.8              | 66.8           |
| 23/24 | Extraction of non-metalliferous minerals, non-metallic prod. | 101.8 | 100.9 | 90.7              | 97.8           |
| 25/26 | Chemical and man-made fibres industries                      | 99.8  | 101.0 | 75.7              | 97.8           |
| 31    | Manufacture of metal articles                                | 97.6  | 82.2  | 79.4              | 91.3           |
| 32    | Mechanical engineering                                       | 89.8  | 81.3  | 79.6              | 87.1           |
| 33    | Office and data processing machinery                         | 65.2  | 38.0  | 79.8              | 48.6           |
| 34    | Electrical engineering                                       | 86.3  | 68.5  | 67.3              | 76.9           |
| 35    | Motor vehicles & parts                                       | 98.0  | 71.1  | 72.7              | 86.3           |
| 36    | Other means of transport                                     | 94.6  | 84.9  | 74.1              | 93.3           |
| 37    | Instrument engineering                                       | 96.1  | 101.6 | 90.5              | 81.7           |
| 41/42 | Food, drink and tobacco industry                             | 97.2  | 87.3  | 101.4             | 95.4           |
| 43    | Textile industry                                             | 96.0  | 73.4  | 82.6              | 100.0          |
| 44    | Leather and leather goods industry                           | n.a.  | 102.2 | 101.6             | 97.8           |
| 45    | Footwear and clothing                                        | 98.8  | 85.0  | 103.3             | 83.9           |
| 46    | Timber and wooden furniture industry                         | 102.9 | 90.8  | 92.6              | 99.6           |
| 47    | Paper and paper products, printing and publishing            | 96.6  | 90.6  | 76.2              | 90.1           |
| 48    | Rubber and plastics                                          | 103.7 | 78.1  | 82.2              | 88.7           |
| 49    | Other manufacturing industries                               | 110.3 | 98.8  | 102.5             | 91.5           |
| M     | Manufacturing industry                                       | 98.5  | 82.8  | 82.6              | 89.5           |

<sup>a</sup> Index 1985/1993.

<sup>b</sup> Index 1983/1989.

<sup>c</sup> For the U.K. data refer to sectors 21/22.

Source: EUROSTAT (for the U.K. Business Monitor).

two questions have to be answered: firstly, whether the increase in the share of small firms has involved an increase in the number of their employees; secondly, whether such re-allocation has been associated to a shrink or an increase in *total* employment – if the balance of the re-allocation is positive or negative.

An answer to both questions is given by Table II, which shows, at the manufacturing level, the employment indices (total and splitted per size classes) for each of the countries considered. Employment decreases in all countries (Germany included) and in all size classes (more heavily in large firms). Hence, it may be argued that in most industrialised European countries – likewise in the '70s – the upward trend in the employment shares of small units – over the last 15 years – has *only partially* compensated for the employment losses in large enterprises; the overall balance of the employment “reallocation” appears negative.

TABLE II  
Manufacturing, employment indices per size classes

|                | 1981 | 1985 | 1988  | 1990 | 1991  |
|----------------|------|------|-------|------|-------|
| GERMANY        |      |      |       |      |       |
| 20–99          | 100  | 93.0 | 95.0  |      |       |
| 100–499        | 100  | 90.6 | 96.9  |      |       |
| 500+           | 100  | 92.4 | 94.0  |      |       |
| Total          | 100  | 93.6 | 94.9  |      |       |
| FRANCE         |      |      |       |      |       |
| 20–99          | 100  | 79.2 | 84.8  | 84.2 |       |
| 100–499        | 100  | 90.9 | 85.7  | 87.5 |       |
| 500+           | 100  | 85.6 | 72.9  | 71.5 |       |
| Total          | 100  | 89.5 | 82.5  | 82.0 |       |
| ITALY          |      |      |       |      |       |
| 20–99          | 100  |      |       |      | 99.7  |
| 100–499        | 100  |      |       |      | 81.1  |
| 500+           | 100  |      |       |      | 67.9  |
| Total          | 100  |      |       |      | 82.0  |
| UNITED KINGDOM |      |      |       |      |       |
| 20–99          |      | 100  | 106.9 |      | 115.9 |
| 100–499        |      | 100  | 98.7  |      | 101.6 |
| 500+           |      | 100  | 92.2  |      | 88.2  |
| Total          |      | 100  | 96.6  |      | 96.8  |

Sources: EUROSTAT (U.K. Business Monitor, Italy Census of Industry).

On the other hand, it must be emphasized that the decrease of employment in large firms does not necessarily imply *per se* a reduction of their *output* levels (both in relative and absolute numbers), for it might simply reflect shifts in production techniques).<sup>9</sup> Differences in the growth of value added (in constant prices and constant exchange rates) among size classes (Table III) show however that small enterprises actually gain ground with respect to large units even in terms of output (in France, the value added of enterprises with more than 500 employees falls in *absolute* numbers). Even if data from Eurostat do not provide any recent information for the United Kingdom, Dunne and Hughes (1992) argue that U.K. follows almost the same trend: between 1979 and 1988 the share of net output of enterprises with 1 to 99 employees increases from 14.6 to 18.6 per cent; the one related to enterprises with 100 to 499 employees grows from 11.6 to 14.5; in enterprises with 500 to 999 the share remains

TABLE III  
Manufacturing, value added indices per size classes  
(millions of ECU, constant exchange rates, constant prices)

|                | 1981 | 1983  | 1985  | 1988  | 1989  | 1990  |
|----------------|------|-------|-------|-------|-------|-------|
| GERMANY        |      |       |       |       |       |       |
| 20–99          | 100  | 96.5  | 95.2  | 101.4 |       |       |
| 100–499        | 100  | n.a.  | 94.5  | 105.8 |       |       |
| 500+           | 100  | n.a.  | 102.0 | 104.8 |       |       |
| Total          | 100  | 95.4  | 101.7 | 104.6 |       |       |
| FRANCE         |      |       |       |       |       |       |
| 20–99          | 100  | 103.0 | 101.1 | 112.9 |       | 117.1 |
| 100–499        | 100  | 99.9  | 98.3  | 101.6 |       | 105.4 |
| 500+           | 100  | 95.6  | 89.4  | 93.6  |       | 91.5  |
| Total          | 100  | 97.9  | 93.4  | 98.7  |       | 99.1  |
| ITALY          |      |       |       |       |       |       |
| 20–99          |      | 100   | 111.7 | 128.6 | 128.0 |       |
| 100–499        |      | 100   | 112.7 | 130.2 | 124.8 |       |
| 500+           |      | 100   | 105.6 | 125.8 | 119.0 |       |
| Total          |      | 100   | 109.4 | 127.9 | 123.3 |       |
| UNITED KINGDOM |      |       |       |       |       |       |
| 20–99          |      | 100   | 117.6 |       |       |       |
| 100–499        |      | 100   | 106.1 |       |       |       |
| 500+           |      | 100   | 91.5  |       |       |       |
| Total          |      | 100   | 104.7 |       |       |       |

Source: EUROSTAT.

almost constant (from 6.8 to 7.0), while in enterprises with more than 1000 employees it decreases from 67.0 to 59.9.<sup>10</sup>

### 3. Recent changes in the size structure of italian industry

Over the last twenty years the Italian manufacturing industry has experienced a major change in its size pattern. The trend towards a steady growth of the average size of firms, which was associated with the industrial development process following the Second World War, showed a sharp reversal in the decade 1971–81.<sup>11</sup> Since then, the tendency towards a gradual “fragmentation” of industrial structure has been unchanged.

Studies by various authors<sup>12</sup> broadly agree about three major points: i) in the decade involved, the manufacturing sector experienced an increase – in absolute terms – in the number of employees and firms with up to 500 employees;<sup>13</sup> ii) employment growth concentrated in the size class from 6 to 50 employees (at least in relative terms, the shift of employment does *not* concern very small units); and iii) mainly due to a reduction of the employment in larger units, the average size of the establishments showed a remarkable decrease.

The National Institute of Statistics has most recently made available complete data from the

late Census of Industry, which provide evidence about the size structure of manufacturing firms in 1991. Drawing (after some harmonisation) from such data this section updates the analysis of firms’ size pattern to the ’80s decade.

Table IV outlines a general picture concerning the number of firms and employees per size band for the last three Censuses. Two main issues can be stressed: firstly, with the (notable) exception of firms with less than 5 employees, the *relative* number of small firms and their employees steadily increases all over the period (in 1981 as well as in 1991 the level of both indexes generally shows an inverse relation with respect to size); at the same time, whereas between 1971 and 1981 the *absolute* number of firms and employees increases with respect to *all* size classes – apart from the larger one – between 1981 and 1991 both variables appear to increase only in firms with more than five and less than 50 employees.

Whilst 1991 data about firms with less than five employees seem to deserve specific attention, insofar as they most probably may involve some statistical source biases,<sup>14</sup> the general framework here outlined appears straightforward: be the smallest size class included or not, the overall balance of the trends at the size class level is very much positive, in particular as far as employment is concerned, in years from 1971 to 1981, while in the following decade it turns out to be negative.

TABLE IV  
Italian Manufacturing Industry, enterprises and employees.

|                                                    | 1–5   | 6–9   | 10–19 | 20–49 | 50–99 | 100–199 | 200–499 | 500–999 | 1000+   | Total |
|----------------------------------------------------|-------|-------|-------|-------|-------|---------|---------|---------|---------|-------|
| Number of enterprises per size classes, 1971 = 100 |       |       |       |       |       |         |         |         |         |       |
| 1971                                               | 100   | 100   | 100   | 100   | 100   | 100     | 100     | 100     | 100     | 100   |
| 1981                                               | 114.2 | 152.2 | 170.6 | 123.5 | 107.7 | 110.3   | 104.8   | 101.8   | 95.6    | 120.8 |
| 1991                                               | 100.9 | 169.0 | 185.9 | 137.5 | 95.3  | 89.4    | 87.4    | 77.4    | 71.1    | 112.7 |
| Number of employees per size classes, 1971 = 100   |       |       |       |       |       |         |         |         |         |       |
| 1971                                               | 100   | 100   | 100   | 100   | 100   | 100     | 100     | 100     | 100     | 100   |
| 1981                                               | 119.2 | 152.8 | 169.1 | 121.4 | 107.5 | 110.2   | 106.0   | 101.1   | 89.5    | 113.1 |
| 1991                                               | 114.8 | 170.7 | 188.2 | 131.1 | 94.7  | 88.4    | 86.9    | 74.7    | 59.2    | 101.4 |
| Average size per size classes                      |       |       |       |       |       |         |         |         |         |       |
| 1971                                               | 1.85  | 7.22  | 13.38 | 30.43 | 68.82 | 137.91  | 299.21  | 700.38  | 3876.67 | 10.59 |
| 1981                                               | 1.93  | 7.24  | 13.26 | 29.91 | 68.72 | 137.79  | 302.61  | 695.93  | 3630.71 | 9.91  |
| 1991                                               | 2.11  | 7.29  | 13.54 | 29.01 | 68.41 | 136.39  | 297.40  | 675.90  | 3228.12 | 9.53  |

Source: Census of Industry.

That is, while in the '70s the re-emergence of small firm production is associated with net job creation, in the following decade the widening of the industrial sector in terms of employees comes to a halt: smaller units still appear to expand, but in a context which is characterised by an overall fall of total employment – indeed, in 1991 manufacturing employment in the enterprises with more than 6 employees is lower than the corresponding level in both 1981 and 1971.<sup>15</sup> Even if the role of small firms in sustaining industrial employment is undoubtedly positive, they by no means succeed in compensating the downward trend of employment in large firms.<sup>16</sup>

This point deserves special attention, for it directly relates to the role that the industrial sector as such can play in the Italian economy. In fact, the absolute loss of jobs in the industrial sector seems to represent a *structural* feature of the present phase of industrial development as much as the “re-emergence of small scale production”: after 1981, new small firms entering the market do not succeed in keeping (not to say widening) the boundaries of the industrial sector.<sup>17</sup> From this point of view, something like a de-industrialisation process appears to be at work: even if an overall evaluation of the matter would require further analysis, as far as employment shifts from manufacturing to services may partly reflect “outsourcing effects” (lowering vertical integration may have been especially concentrated in tertiary activities), such trend hardly accounts for any (smooth) decline of manufacturing following “Clark-Fisher” rules. In fact, the shrinking of industrial sector employment over the period 1981–91 showed up almost suddenly in the early '80s (via a deep restructuring of the manufacturing process) and it underwent a further acceleration at the very end of the same decade (when firms were tightened by a strong appreciation of the real exchange rate).<sup>18</sup>

More evidence about the phenomenon can be drawn from information by the National Institute for Social Security (INPS), providing figures for every year starting from 1987 with reference to the (manufacturing) population of firms with at least 1 employee.<sup>19</sup> Though cutting away the whole sector of enterprises without *dependent* employees, INPS data are most helpful for observing the phenomenon over the second phase

of the period involved, which is characterised by a slowdown of economic activity.<sup>20</sup>

Table V contains, for nine size bands, INPS data referring to the number of enterprises and employees, ranging from 1987 to 1992. The number of both enterprises and employees generally shows a similar trend. Yet, fairly different trends can be observed at the size class level: in larger firms the employment fall brought about by the slowdown of economic activity (roughly after 1989) results much more considerable than that affecting firms, whilst the most dynamic classes appear those included in the 10 to 100-employee range.<sup>21</sup> The “slow” trend of smaller enterprises stands out of this context: between 1987 and 1992 the employment share of the enterprises with less than 10 employees remains almost unchanged (in percentage terms, from 17.4 to 17.7), whereas the one referred to enterprises with 10 to 100 employees rises from 38.6 to 41.2. Within this size range, the upward trend in employment up to the peak in 1989 appears anyway mainly due to the

TABLE V  
Italian Manufacturing Industry, enterprises and employees

|                                                    | 1987 | 1988  | 1989  | 1990  | 1991  | 1992  |
|----------------------------------------------------|------|-------|-------|-------|-------|-------|
| Number of enterprises per size classes, 1987 = 100 |      |       |       |       |       |       |
| 1–5                                                | 100  | 101.3 | 101.9 | 101.0 | 101.0 | 98.9  |
| 6–9                                                | 100  | 102.8 | 104.2 | 103.9 | 103.5 | 99.8  |
| 10–19                                              | 100  | 104.1 | 107.1 | 107.1 | 104.6 | 101.5 |
| 20–49                                              | 100  | 103.2 | 108.1 | 110.2 | 110.2 | 108.8 |
| 50–99                                              | 100  | 101.3 | 104.2 | 105.3 | 105.3 | 102.2 |
| 100–199                                            | 100  | 101.2 | 105.8 | 106.3 | 103.3 | 100.0 |
| 200–499                                            | 100  | 100.5 | 102.4 | 104.0 | 103.3 | 99.1  |
| 500–999                                            | 100  | 99.2  | 100.8 | 101.8 | 101.5 | 93.6  |
| > 999                                              | 100  | 100.4 | 98.9  | 94.7  | 92.7  | 92.7  |
| Total                                              | 100  | 102.0 | 103.5 | 103.1 | 102.6 | 100.2 |
| Number of employees per size classes, 1987 = 100   |      |       |       |       |       |       |
| 1–5                                                | 100  | 101.7 | 103.0 | 102.3 | 101.8 | 99.3  |
| 6–9                                                | 100  | 102.7 | 104.3 | 103.9 | 103.4 | 99.8  |
| 10–19                                              | 100  | 104.3 | 107.7 | 107.9 | 105.3 | 102.1 |
| 20–49                                              | 100  | 103.2 | 107.6 | 109.9 | 109.9 | 108.4 |
| 50–99                                              | 100  | 101.5 | 103.8 | 105.1 | 105.0 | 101.9 |
| 100–199                                            | 100  | 101.1 | 105.5 | 105.9 | 102.9 | 99.6  |
| 200–499                                            | 100  | 100.6 | 102.7 | 103.7 | 102.6 | 98.4  |
| 500–999                                            | 100  | 98.2  | 100.8 | 101.5 | 101.0 | 92.9  |
| > 999                                              | 100  | 98.9  | 98.1  | 93.1  | 91.4  | 83.9  |
| Total                                              | 100  | 101.5 | 103.7 | 103.3 | 102.1 | 98.0  |

Source: INPS.

increase in the number of production units, rather than in the number of employees in existing ones.

Apart from providing further evidence that a very slight contribution to the widening of manufacturing employment comes in this period from very small units,<sup>22</sup> the availability of annual data also casts some light upon the cyclical pattern of behaviour of firms with respect to their size. Following a pattern which has been suggested in theoretical literature, small firms show some broadly anti-cyclical tendency to “retain” their employees in the final years of the period involved.<sup>23</sup> At least over the threshold of 1000 employees, the employment index undergoes a constant decline all over the years concerned, whilst in size classes within 10 and 100 employees in the final year it still stays above the 1987 level.

The point is especially relevant insofar as in literature smaller firms are generally maintained to show, at least as their *sales* are concerned, a remarkable tendency to be much more sensitive than larger ones to cyclical downswings following tight money<sup>24</sup> – such a policy having actually been pursued in the late '80s in order to keep the exchange rate within the narrower boundaries of EMS.

#### 4. Rates of growth, rates of birth, and the size structure of manufacturing firms

The observed changes in the size distribution of firms' population are the result of enterprises' growth processes and the balance between the creation of new activities and the survival of the existing ones: the amount of firms observed in each size class depends upon the “transfers” of enterprises from one class to another, as well as upon “births” and “deaths” within each class.

The present paragraph will focus upon these two specific issues. As far as the former is concerned, it must be said that in the Italian experience the analysis of firms' growth processes has been largely disregarded (mainly because of the lack of adequate statistical sources); nevertheless, thanks to the setting of new data files,<sup>25</sup> in more recent years some empirical studies have become available.

The phenomenon has been typically assessed by directly analysing the rates of growth of firms

with respect to their (initial) size,<sup>26</sup> drawing on the whole the attention on the following issues: i) consistently with some recent findings of international literature,<sup>27</sup> Italian small-sized enterprises show a (almost regular) tendency to grow faster than the average; such a tendency disappears in firms over the threshold of 40–50 employees; ii) in general, within smaller size classes the variability of growth rates is wider (small firms show up as the most “heterogeneous” group); and iii) a few analyses observing the behaviour of *very small* firms find that a lower size limit to growth is sometimes also discernible.

In this section the growth of Italian manufacturing firms is analysed with respect to a panel of over 200,000 enterprises with at least one employee. The panel is drawn from the same INPS Data-set which constitutes the basis for previous calculations, as it is defined as the “intersection” of the 1987 and 1992 sets (i.e., it includes firms which are registered in the panel in the first *and* in the last year of the available series).<sup>28</sup> The transition matrix appears peculiarly relevant from the point of view of the present analysis, for it also casts some light on the variance of the growth process *within* each size class – as it indicates the number (the share) of firms which grow, other than the overall (average) amount of growth itself.<sup>29</sup>

Table VI reports the percentage values of transitions calculated at the manufacturing level. The first point to highlight is that the number of enterprises which do *not* change size class (which lie along the main diagonal of the matrix) is quite conspicuous even in lower classes; its frequency, in most cases over 60%, is especially high in the first size class (firms with less than 5 employees). Anyway, at every one size level growing firms are less than shrinking ones.<sup>30</sup>

As a first issue, it can be confirmed – see point i) – that some deviation from a Gibrat-type pattern of growth is at work: frequency transfers towards larger average size (on the right) are more numerous in lower classes; at the same time transfers towards the left (i.e., size shrinks) are more frequent in higher classes. Yet, such a pattern cuts away *very small* firms – i.e., when very small firms are taken into account on a large data basis, the relationship between size and growth seems not to follow a monotonic trend.<sup>31</sup>

The trend highlighted by the transition matrix

TABLE VI  
Italian Manufacturing Industry, transition matrix of enterprises per size classes

|            | 1–5    | 6–9   | 10–19 | 20–49 | 50–99 | 100–199 | 200–499 | 500–999 | > 999 | Total 1992 |
|------------|--------|-------|-------|-------|-------|---------|---------|---------|-------|------------|
| 1–5        | 85.03  | 11.01 | 3.31  | 0.55  | 0.07  | 0.02    | 0.01    | 0.00    | 0.00  | 114355     |
| 6–9        | 27.87  | 44.31 | 25.45 | 2.18  | 0.13  | 0.04    | 0.01    | 0.00    | 0.00  | 32046      |
| 10–19      | 6.56   | 16.91 | 60.09 | 15.78 | 0.55  | 0.08    | 0.02    | 0.01    | 0.01  | 32646      |
| 20–49      | 2.64   | 1.86  | 16.79 | 68.97 | 9.03  | 0.61    | 0.10    | 0.02    | 0.00  | 16641      |
| 50–99      | 2.21   | 0.56  | 1.62  | 19.43 | 63.19 | 12.05   | 0.94    | 0.00    | 0.00  | 5012       |
| 100–199    | 2.20   | 0.60  | 0.60  | 2.97  | 18.35 | 64.21   | 10.68   | 0.34    | 0.04  | 2322       |
| 200–499    | 2.44   | 0.32  | 0.41  | 1.87  | 2.35  | 18.02   | 67.45   | 6.57    | 0.57  | 1232       |
| 500–999    | 0.62   | 0.62  | 0.62  | 1.23  | 1.54  | 3.08    | 29.23   | 53.23   | 9.85  | 325        |
| > 999      | 1.42   | 0.47  | 0.94  | 0.94  | 0.94  | 0.00    | 3.30    | 16.04   | 75.94 | 212        |
| Total 1987 | 108949 | 32667 | 34456 | 19025 | 5431  | 2493    | 1262    | 302     | 206   | 204791     |

Source: INPS.

represents a relevant information since it refers to a (very large) set of firms which is consistent with (indeed, it belongs to the same data-set of) the panel which has been analysed in previous section. By comparing the two data-sets it can be said that the stability of the “weight” of micro-firms – at least in terms of employment – that has been pointed out in section 3 is tied to a *very limited tendency to grow*. Even if *some* of them are very “dynamic” in absolute terms, in the size class which includes firms with less than 5 employees firms trespassing the upbound threshold represent only 15% of the total number. These results highlight a strong difference between small and very small firms in the observed sample; the fact that the latter do not grow faster than large units – unlike it is generally stated by cross-sectional comparisons which do not provide separate figures for small and very small firms – suggests that their behaviour must be affected by specific factors.

Such evidence may be consistent with two different theoretical frameworks. Firstly, it may reflect the existence of barriers to growth (were they “external” or “internal”),<sup>32</sup> acting at the lower size level. On the other hand it may simply depend, as it has recently been stressed in various contributions,<sup>33</sup> upon willingness to grow: from this point of view, the fact that a majority of firms with less than 5 employees does not show any tendency to move towards larger size classes may just mean that they *choose* to keep their size. The question is very tough indeed to be answered on the basis of available evidence – possibly, both forces are to some extent at work. Yet, the latter

deserves special attention, for a major issue stemming from empirical analyses is represented by the widespread fragmentation of the Italian industrial production process, which in its turn reflects a peculiarly high extension – far beyond the boundaries of “local” industrial districts – of sub-contracting and widespread inter-firm market linkages. From this point of view, the observed low growth rates of smaller manufacturing firms could even be considered as being a function of the efficiency of the mechanisms regulating the division of labour among firms themselves (if the “system” works, then firms do not *need* to grow at all).<sup>34</sup>

Apart from the behaviour of very small firms (below 5 employees), growth data confirm that even in the range including firms between 10 to 100 employees – as it has been stressed in section 3 – rising employment stems from an increase of the overall number of firms more than from their average growth: indeed, firms moving across the transition matrix from lower classes towards such range constitute just a small group. For the matrix by its very nature does not include any information about *new* firms, it appears most relevant also to consider the process of formation of new activities with respect to each size class. INPS data again allow to compare the topic at issue with the picture hitherto outlined.

In structural terms, the very concept of “birth”, when referred to medium-sized (not to say large) firms appears indeed rather ambiguous – it probably has more to do with quite different phenomena such as mergers or other effects of cor-

porate restructuring. In fact, the (few) available information point out that firms' birth rates are – as it seems indeed obvious – peculiarly high in smaller units (this in its turn implies that on average the “entry” size is smaller than that prevailing in the market); the same occurs as the rates of death are concerned. In general, survival rates increase with size (“turbulence” decreases).<sup>35</sup> In such a context the smallness of size is strongly connected with the young “age” of firms.<sup>36</sup>

As it concerns the *evolution*, in the period involved, of birth and death rates with respect to size, aggregate data relative to *net* birth's rates in absolute numbers for the whole manufacturing sector (years 1987–91)<sup>37</sup> show a sharp reversal of the balance between births and deaths, which in four years turns from positive for more than 7,000 firms to negative for nearly 4,000. Yet, the fall (in absolute numbers) in the rate of creation of new firms reflects the fall in births, rather than the increase in deaths, which undergo just a slight increase.

When computed at the size level (Table VII), data show that the dynamics of birth rates – at least as it concerns *gross* ones<sup>38</sup> – closely depend upon the behaviour of smaller classes (firms below 10 employees), experiencing a most relevant fall of the rate of formation of new activities, whilst beyond the threshold of 10 employees the decline of birth rates appears quite lower. At the same time separate figures show that in firms with less than 5 employees the exit rate was 9.5 per cent in 1988, and it just rose to 10.3 in 1991; in the range between 5 and 10 it was respectively 4.9 and 5.7.

TABLE VII  
Italian Manufacturing Industry, rate of birth of enterprises per size classes

|         | 1988  | 1989  | 1990  | 1991 |
|---------|-------|-------|-------|------|
| 1–5     | 12.78 | 11.72 | 10.51 | 9.45 |
| 6–9     | 5.56  | 5.25  | 4.83  | 4.33 |
| 10–19   | 4.28  | 4.22  | 3.90  | 3.24 |
| 20–49   | 3.06  | 3.00  | 3.50  | 2.54 |
| 50–99   | 1.98  | 2.45  | 2.56  | 1.95 |
| 100–199 | 2.51  | 2.94  | 2.82  | 1.92 |
| 200–499 | 2.70  | 3.61  | 2.57  | 2.35 |
| 500–999 | 4.60  | 3.35  | 2.54  | 1.76 |
| > 999   | 3.44  | 2.28  | 3.86  | 2.82 |
| Total   | 9.47  | 8.75  | 7.91  | 6.99 |

Source: INPS.

Exits have not been increasing in such classes faster than in larger ones.

On theoretical grounds, it can be said that no signals of rising “turbulence” seem to emerge in manufacturing industry, even in the face of a constantly slowing down of economic activity all over the period – that is, the substantial stability, on average, of very small firms employment levels as compared to the growth in “medium-small” ones (by and large 10 to 50 employees) appears to depend, other than on a low frequency of growing firms, on falling *gross* job creation rates, much more than on the evolution of *net* ones. As they are interpreted in the light of the observed growth rate structure, these data also seem to upset the traditional view of the relationship between (small) firms' growth and life duration:<sup>39</sup> against a view according to which smaller firms grow faster and die more frequently than larger, the observed panel shows that they are characterised by a limited tendency to grow, as well as by a basic stability of their exit rates as far as recession becomes deeper. Furthermore, the evidence runs against the hypothesis of “opportunistic” entry as it has been formulated by Highfield and Smiley (1987), according to which firms' rate of entry is directly related to the “sluggishness” of the macro-economic climate (low growth rate of GNP, low inflation rate, high growth in the unemployment rate). At least at the manufacturing level INPS data look more consistent with a “Stiglerian” view of market entry, which attributes central relevance to market expansion (shrinkage).<sup>40</sup>

## 5. Conclusions

In the course of the '80s the main industrial European countries – with the notable exception of Germany – have experienced a further reduction in the average size of manufacturing firms, which was declining since the mid-'70s. In all of the countries concerned the increase of the relative “weight” (of the shares) of small and medium sized enterprises (20 to 100 employees) by no means corresponds to an increase in employment in absolute terms; on the contrary, employment levels in such units have been falling, even if not as much as in bigger size classes. The changes occurred, therefore, are associated to an overall fall of the employment levels in the industrial

sector – small firms do not succeed in making up for the whole amount of job losses.

These trends appear particularly strong in the Italian manufacturing sector: data from the Census of Industry point out that between 1981 and 1991 – as well as between 1971 and 1981 – small sized enterprises increased their employment share. Nevertheless, after 1981 such an increase is not linked any more with an increase in the employment of the industrial sector in absolute terms, as it occurred during the previous decade, and total industrial employment falls almost sharply.

Data from INPS referred to the 1987–92 period provide evidence that small firms' employment anyway showed lower sensitivity to recession. Over such years, the comparison between figures concerning the number of firms and employees, and figures concerning both the transfer of units among different size classes and the trend of birth rates allows to get a more precise outline of the changes occurred. In this connection, it appears that the rising importance of small firms in terms of employment (in particular within the range between 10 and 50 employees) has been linked to higher rates of growth with respect both to large enterprises and very small ones, as well as to a relatively higher "inertia" of their entry rates with respect to the latter.<sup>41</sup>

INPS data highlight a peculiarly low frequency of growing firms in the range including very small units (less than 5 employees); at the same time, such firms appear to be affected by a sharp fall of their birth rates, even if they experience nothing but a slight increase of exit rates notwithstanding the slowing down of economic activity in the late '80s. In this respect, data reveal that the small business sector as such by no means represents a homogeneous world – indeed, figures referring to the overall range of small firms within an industry may hide important differences in their behaviour.

From an interpretive standpoint, nonetheless, many important issues still appear somewhat unsettled, as it concerns either the determinants of the growth (and the death) of existing firms, and the factors affecting the setting up of new ones.

The re-emerging of small scale production and the whittling down of concentration in Italian manufacturing industry have indeed been yielding

a very wide series of studies about their "structural" determinants for at least two decades. The debate has developed through several stages, alternately focussing the attention on supply side factors (such as the spreading of "flexible" technologies which can reduce the minimum efficient size of plants); on changes in the demand structure (namely the deceleration of output growth rates and the diversification of the aggregate demand, which have both reduced the comparative advantages of large scale production); on the breaking out of job actions within the factory (which have fostered the decentralization of production towards small units where trade union pressures are lower); on growing market uncertainty, which has systematically made advantageous to meet random demand increase via the decentralization of entire production stages.<sup>42</sup> More recently, it has also been suggested that the uprise of small firms sector in manufacturing may have been associated with lowering efficiency levels – growth and efficiency dynamics seems indeed to have been characterised, at least in the first half of the '80s, by an inverse relationship.<sup>43</sup>

On the whole, the width of the range of such explanations highlights by its very nature the complexity of the phenomenon;<sup>44</sup> but above all it suggests that no one single "theory" can easily account for the continuous series of *structural adjustments* which have been characterising the evolution of Italian manufacturing industry over the last twenty years. As far as the long-run forces underlying such changes and the major "environmental" shocks occurred have to be disentangled, further empirical research is required as much as theoretical reflection.

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## Notes

<sup>1</sup> See in particular OECD (1985) and the wide overview by Loveman and Sengenberger (1990). The problem is also discussed in Acs and Audretsch (1990). A more recent (albeit extremely concise) picture is provided by Schwalbach (1994). The “V” pattern showed by the sector of small-sized firms, as it concerns its overall “weight” in structural terms, hardly relates to cyclical fluctuations. On the other hand, it appears mostly independent of possible statistical biases arising from international comparison.

<sup>2</sup> The point at issue refers to the compatibility between a “fragmented” production structure and the long-run development of an industrial economy. In terms of the “flexible specialisation” view, it refers to the actual existence of an industrial “divide” (see Piore and Sabel, 1984); in a “systemic” perspective see also the framework suggested by Best (1990).

<sup>3</sup> A very sceptical view about the question is put forth by Davis *et al.* (1994).

<sup>4</sup> In the French industry between the end of the '70s and the first half of the '80s, as well as in the U.K. one during the second half of the '70s, the increase of employment in *relative* terms in small sized enterprises is associated with a *reduction* of the overall number of employees in the manufacturing sector (see in particular Amadiou, 1990; Marsden, 1990). According to more recent estimates by Hughes (1993), in the U.K. the uprise in the employment shares of small firms appears both advanced (dating approximately since the mid-sixties) and closely dependent upon the sharp fall of employment in larger ones: in absolute terms, the employment level of smaller firms has all the same been characterised by a steady (albeit slow) decline.

<sup>5</sup> With reference to U.K., Eurostat data actually provide evidence only for *establishments*, even when attributed to *firms*. Data here referred to U.K. are drawn from Business Monitor. As B.M. series are both affected by a break between 1984 and 1985, and updated with respect to Eurostat ones, U.K. data result somewhat “shifted” onward. As it concerns Italy, Eurostat data are collected on a different data-set basis with respect to the Census of Industry, which represents the main source for calculation provided in next sections.

<sup>6</sup> As the United Kingdom is concerned see also the evidence gathered in Stanworth and Gray (1991).

<sup>7</sup> In most cases reductions (both in relative and absolute numbers) are more significant in sectors characterised by a larger average size of firms. It may be argued that this is partly due to specific policies of reorganization undertaken in sectors affected by structural problems and where large firms prevail (motorcar industry, iron and steel industry, electronics). Yet, the regularity of the downward trend of units' average size suggests that in the course of the '80s, as well as in the previous decade, changes in firms' size cannot have been exclusively influenced by industry-specific factors.

<sup>8</sup> As far as establishments are concerned, evidence of the long-run stability of the share of small firms' sector in Germany can be found in Stockmann and Leicht (1994). With reference to the '80s figures including enterprises are also provided by Schwalbach (1989).

<sup>9</sup> Falling employment can all the same be consistent with unchanged output levels, if “shifts” along the production

function are admitted. Such a kind of employment decline is of course quite different, in structural terms, from the decline which may show up in a situation in which production levels also shrink.

<sup>10</sup> See on this point also Henley (1994). Different results when the picture is referred only to very large firms (the largest 53 ones) are obtained for the 1980–86 period by Pratten (1991).

<sup>11</sup> As the National Institute of Statistics Census of Industry is taken every ten years, it is impossible to account for the phenomenon *within* the period involved.

<sup>12</sup> See in particular Zanetti (1983), Barca (1985), Bruni (1986), Tassinari (1989).

<sup>13</sup> Significant differences between the sample surveys of 1971 and the one of 1981 (being the latter probably greater) have nevertheless to be taken into account.

<sup>14</sup> The dramatic fall in the number of enterprises (and hence employees) between 1981 and 1991 in the smaller size class may appear quite odd, insofar as it contrasts with the general behaviour of small firms (less than 50 employees). A major shortcoming of the data-set may nonetheless affect information regarding very small firms, for in the 1991 Survey many “Artisan” firms seem to have been registered as belonging to the Services sector (while in 1981 they all were *by definition* classified within industry). Such bias tends to disappear beyond the five-employees threshold. As far as a deeper assessment of the matter is undoubtedly required, the present paper omits to discuss Census data referred to the 1 to 5 employees size range.

<sup>15</sup> Between 1971 and 1981 manufacturing employment rose by 12.1%, between 1981 and 1991 it declined by 11.5%.

<sup>16</sup> From this point of view figures referring to firms with less than 20 employees do not change the general pattern outlined in section 2. No major biases anyway arise from sectoral differences (at the two-digit NACE level) in the outlined pattern: even if in many sectors employment shrinks in firms with less than 50 employees as well, the frequency of positive changes is almost always inversely correlated to size.

<sup>17</sup> Indeed, it could even be argued that their growing importance may entail a further weakening of the industrial structure, insofar as it tends to enhance market “turbulence”. For very small firms are characterised, in structural terms, by higher entry/exit rates (see below, section 4), their growing importance may contribute – as it has been suggested for instance by Mueller (1991) – to widen the “fringe” area in the industrial sector (even if its absolute size remains unchanged).

<sup>18</sup> The de-industrialisation process of Italian economy has been analysed elsewhere (see in particular Traù, 1993).

<sup>19</sup> INPS provides information about the population of firms making security payments for their employees; such a database excludes both entrepreneurs and unpaid family members from employment figures, and self-employed from firms' figures (i.e., only firms with at least one employee are concerned). This involves some obvious difficulties in comparing INPS data with the Census of Industry ones, which include “non-dependent” employees as well.

<sup>20</sup> They therefore exclude the “restructuring” years (by and large up to 1983) during which in the Italian industry employment shrink proved to be especially intense.

<sup>21</sup> It is well worth to notice that, even in the face of a recession phase, both indeces referred to the 20 to 49 size class result higher in 1992 than in 1989.

<sup>22</sup> Of course, such an interpretation must be qualified in relation to the role played in the matter by “independent” workers (included in Census data, excluded in INPS ones).

<sup>23</sup> See for example Vercelli (1989), Loveman and Sengenberger (1990). It should be noticed anyway that in the Italian experience the slowdown of economic activity has been showing up since the first years of the period involved (the rate of growth of industrial production has been falling since 1988).

<sup>24</sup> See on the matter the very recent analysis by Gertler and Gilchrist (1994).

<sup>25</sup> Apart from the INPS Data-Base, information about several thousands individual firms is provided on a balance-sheet data basis by the “Centrale dei Bilanci” (data are available from 1982). Whilst fairly representative of the population of larger firms, the CdB sample is however far less reliable as far as smaller sized firms are concerned.

<sup>26</sup> See for example Brusco *et al.* (1979), Traù (1990), Contini and Revelli (1992, ch. 3), Solinas (1992), Bianco and Sestito (1992), Signorini (1993), Arrighetti (1994).

<sup>27</sup> Evidence about U.S. industry can be found in Dunne *et al.* (1989), while recent U.K. figures are provided by Dunne and Hughes (1994).

<sup>28</sup> Unfortunately, no information about *individual* firms is officially provided by INPS; yet, a reckoning of firms’ shifts across the different size classes has been provided by INPS Statistical Department, which allows to build a transition matrix for the period involved.

<sup>29</sup> The transition matrix describes the shifts of firms from one size class to another. For the upper thresholds of each size band are *by and large* double than the lower ones, the observed shifts nearly measure *proportionate* variations in firms’ size. Within these limits the matrix data also provide some information about the existence of a “Gibrat type” pattern of growth.

<sup>30</sup> When computed at the two-digit NACE level the share of firms which have not moved outside their initial size class, no major biases arise (data are not reported for editorial constraints).

<sup>31</sup> For the question to be directly tested information at the individual firm level (here not available) is obviously required.

<sup>32</sup> See for instance the taxonomy suggested by Barber *et al.* (1989), according to which the former include managerial constraints, while the latter are represented by resource shortages (finance, skilled labour, technology) and market conditions. In the Italian context, a relevant role in limiting firms’ growth is generally played by institutional-type constraints as well, such as those arising from labour-market legislation; yet, by their very nature, at the very small size level they should not affect the transition towards the next size class (5–10 employees) – no relevant discontinuities can be observed say in labour market legislation below the 10-employees threshold.

<sup>33</sup> Contributions providing (positive) evidence for the phenomenon with reference to different panels of Italian firms are offered by Solinas (1992) and Arrighetti (1994); for a wide overview about the matter see Storey (1994, ch. 5).

<sup>34</sup> On theoretical grounds, the question can be envisaged

from different perspectives. For an analysis of the de-verticalisation process based on “Stiglerian” premises see for example Contini (1984); an evaluation of “system” economies viewed from the standpoint of the theory of co-operative agreements among firms has recently been proposed by Wilkinson and You (1994).

<sup>35</sup> This may imply that small firms’ gross job creation is higher than large ones’, but *net* job creation is lower. See among others Beesley and Hamilton (1984), Dunne *et al.* (1989), Davis *et al.* (1993), and the general review by Storey (1994, ch. 6). New small firms’ role must anyway be evaluated with respect to the absolute number of new jobs they create (as far as employment is concerned many new small firms account for one large firm). See in particular on the point Acs and Audretsch (1989).

<sup>36</sup> With reference to the present data-set, data referred to 1987 (i.e., the first year of the available series) show that over 50% of deaths are concentrated in firms less than 5 years old; in firms more than 20 years old the corresponding percentage falls to 5.6%. Exits are at any rate concentrated in very small firms: in any one age class, more than 70% of exits relate to firms with less than 5 employees.

<sup>37</sup> The observed series exclude data referred to 1992, for as far as “demographic” issues are concerned they have proved to be incomplete.

<sup>38</sup> It is important to notice that – even if it has sometimes happened in literature – on the basis of INPS data it is absolutely incorrect to analyse *jointly* birth and death rates (i.e., to calculate *net* birth rates) at the size class level, for the former are attributed to the various size classes on the basis of firms’ size *at the end of the year involved*, whereas the latter are referred to the size of firms at the end of the *previous* year (that is at the *beginning* of the current one).

<sup>39</sup> See for instance Dunne *et al.* (1989), Dunne and Hughes (1994), Mata and Portugal (1994).

<sup>40</sup> These two different perspectives may be respectively regarded as the “push” and the “pull” hypothesis (see for example Vivarelli, 1991; Storey, 1994, ch. 3). The point should of course be better analysed at the sectoral level (i.e., at a level which may help in identifying the specific dynamics of the market for firms’ products); the basic question in such perspective is that the sectoral breakdown which is required to identify such a market lies very often (as it is in the present context) beyond the boundaries of available statistics.

<sup>41</sup> From this point of view the present analysis provides some preliminary answer to the question raised in Schwalbach (1994) with reference to the role played by the formation of new enterprises vs. the downsizing of larger ones in the observed shifts of the size distribution.

<sup>42</sup> Further “structural constraints” are represented at various size levels by many institutional factors (such as the tax system, the labor market legislation and the banking system).

<sup>43</sup> See in particular Traù (1992). A similar pattern with reference to the United Kingdom has been found by Hughes (1993).

<sup>44</sup> Indeed, it directly relates to the observed differences in small firms’ behaviour. As it has recently been argued by You (1995, p. 457), “since small firms are in fact a highly heterogeneous group, we should not expect a single theory that can explain everything about them”.

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