

Employment and Wage Dynamics in Italian Industrial Districts

Muscio, Alessandro; Scarpinato, Michele

Postprint / Postprint

Zeitschriftenartikel / journal article

Zur Verfügung gestellt in Kooperation mit / provided in cooperation with:

www.peerproject.eu

Empfohlene Zitierung / Suggested Citation:

Muscio, A., & Scarpinato, M. (2007). Employment and Wage Dynamics in Italian Industrial Districts. *Regional Studies*, 41(6), 765-777. <https://doi.org/10.1080/00343400601142712>

Nutzungsbedingungen:

Dieser Text wird unter dem "PEER Licence Agreement zur Verfügung" gestellt. Nähere Auskünfte zum PEER-Projekt finden Sie hier: <http://www.peerproject.eu> Gewährt wird ein nicht exklusives, nicht übertragbares, persönliches und beschränktes Recht auf Nutzung dieses Dokuments. Dieses Dokument ist ausschließlich für den persönlichen, nicht-kommerziellen Gebrauch bestimmt. Auf sämtlichen Kopien dieses Dokuments müssen alle Urheberrechtshinweise und sonstigen Hinweise auf gesetzlichen Schutz beibehalten werden. Sie dürfen dieses Dokument nicht in irgendeiner Weise abändern, noch dürfen Sie dieses Dokument für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, aufführen, vertreiben oder anderweitig nutzen.

Mit der Verwendung dieses Dokuments erkennen Sie die Nutzungsbedingungen an.

Terms of use:

This document is made available under the "PEER Licence Agreement". For more information regarding the PEER-project see: <http://www.peerproject.eu> This document is solely intended for your personal, non-commercial use. All of the copies of this documents must retain all copyright information and other information regarding legal protection. You are not allowed to alter this document in any way, to copy it for public or commercial purposes, to exhibit the document in public, to perform, distribute or otherwise use the document in public.

By using this particular document, you accept the above-stated conditions of use.



EMPLOYMENT AND WAGE DYNAMICS IN ITALIAN INDUSTRIAL DISTRICTS

Journal:	<i>Regional Studies</i>
Manuscript ID:	CRES-2005-0138.R2
Manuscript Type:	Main Section
JEL codes:	J21 - Labor Force and Employment, Size, and Structure < J2 - Time Allocation, Work Behavior, and Employment Determination/Creation < J - Labor and Demographic Economics, J39 - Other < J3 - Wages, Compensation, and Labor Costs < J - Labor and Demographic Economics, R11 - Regional Economic Activity: Growth, Development, and Changes < R1 - General Regional Economics < R - Urban, Rural, and Regional Economics, R12 - Size and Spatial Distributions of Regional Economic Activity < R1 - General Regional Economics < R - Urban, Rural, and Regional Economics
Keywords:	employment, industrial districts, wages

SCHOLARONE™
Manuscripts

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

EMPLOYMENT AND WAGE DYNAMICS IN ITALIAN INDUSTRIAL DISTRICTS

Alessandro Muscio^α and Michele Scarpinato^β

***Abstract:** This paper is concerned with the analysis of differences in employment and wage growth rates inside and outside Italian industrial districts. On the basis of national statistical data, we compare employment and wage differentials in manufacturing industries between district and non-district areas. The aim is to investigate whether the industrial district model generates better labour conditions for sustaining employment performance and wage levels.*

***Keywords:** industrial districts, employment, wages*

***JEL Classification:** J21, J39, R11, R12*

^α Dipartimento di Scienze Economiche e Aziendali (DPTEA) – Università Luiss Guido Carli, Via O. Tommasini, 1 - 00162 Roma (Italy), Tel: + 39 06 86506530, Email: amuscio@luiss.it

^β Università dell'Insubria – Facoltà di Economia, via Ravasi, 2 - 21100 Varese (Italy) Tel: +39 0332 215410, Email: mscarpinato@eco.uninsubria.it

1 INTRODUCTION

The large quantity of empirical evidence on industrial districts (IDs) has shown that they can be highly competitive and generate steady economic growth (FORTIS, 2000; GUERRIERI and IAMMARINO, 2003). Yet very little is known about the quantitative aspects of labour dynamics arising from this complex model of industrial organisation.

Following the conditions set by Piore and Sabel's model of flexible specialisation in industrial organisation (PIORE and SABEL, 1984), underlying the district theory is the idea that this model can generate employment and create the opportunities for good pay and optimal social conditions (PYKE and SENGERBERGER, 1996).

However, the reasons why such a model of territorial development is better able to mobilize human resources have not been systemically analysed in the literature. In fact, the literature offers no clear explanation of why the district environment may generate favourable employment dynamics (BRUSCO et al., 1996; PITINGARO et al., 2001). Furthermore, the empirical evidence on employment dynamics in districts obtained through dynamic comparison of employment performance in firms located inside and outside districts is very limited.

1
2
3
4
5
6
7 Therefore, the gap we address in this study is substantive in terms of both
8
9 method and relevance. In terms of method, there is no extensive statistical
10
11 analysis of employment and wage differentials between district and non-
12
13 district areas and of how such differences vary over time. Also, we do not
14
15 know whether a district's employment and wage growth levels are
16
17 accompanied by different firm growth trends. In other words, we do not
18
19 know whether eventual differences in employment levels correspond to new
20
21 firm formation or consolidation processes.
22
23
24

25
26
27
28 In terms of the relevance of the subject we find that the topic of employment
29
30 performance in IDs is generally underestimated. First, evidence of any
31
32 positive impact of the district model on employment and wage levels would
33
34 obviously strengthen the argument of supporters of this model of territorial
35
36 development that industrial policies should be more locally oriented.
37
38 Secondly, evidence of the ability of districts to survive periods of general
39
40 economic downturn, generating growth, or at least keeping employment
41
42 levels constant, would introduce new perspectives into the ongoing debate
43
44 on the decline of districts. Some of the literature is providing evidence that
45
46 IDs may not be equipped to face the new competitive pressures (AMIN,
47
48 1999; BELUSSI 1999; GAROFOLI, 2002) and their potential advantage
49
50 with respect to non-clustered industries may have been exaggerated
51
52 (ENGELSTOFT et al., 2006). However, despite this, in some contexts,
53
54
55
56
57
58
59
60

1
2
3
4
5
6
7 districts may still have competitive advantage compared to isolated firms in
8
9 facing increasing competition. In other words, in Italy and other countries,
10
11 districts may be in decline, but their growth performance might still be
12
13 stronger than in the rest of the economic context in which they operate.
14
15 Therefore, evidence must be provided of how non-district areas in the same
16
17 national context and in the same industry, perform over the same period of
18
19 time.
20
21
22
23
24
25

26 Given the above, the purpose of this paper is to investigate the dynamics of
27
28 employment and wages in firms located inside and outside Italian IDs. We
29
30 use Italian national statistical data to test whether districts offer better labour
31
32 conditions in terms of employment and wage levels.
33
34
35
36
37

38 The paper is organised as follows: Section 2 discusses the theoretical
39
40 background and the research hypothesis; Section 3 reports the empirical
41
42 evidence. Concluding remarks follow.
43
44
45
46
47

48 **2 THEORETICAL BACKGROUND**

51 **2.1 Definition of industrial district**

52
53 The interest in IDs has been carried on the wave of the ability of such local
54
55 productive systems to achieve outstanding economic success and to generate
56
57
58
59
60

1
2
3
4
5
6
7 sustained development processes (BECATTINI, 1987, 1989; BRUSCO,
8
9 1989; GAROFOLI, 1989, 1992). Over the last two decades significant
10
11 empirical evidence has shown how districts specialised in producing high
12
13 quality products, have become competitive players in international markets
14
15 (FORTIS, 2000; MAZZONI, 2001; NADVI and HALDER 2002;
16
17 RABELOTTI, 1999; SAXENIAN, 1994; STORPER, 1993).
18
19

20
21
22
23 By definition the ID is:
24

25
26
27
28 *a socio-territorial entity which is characterised by the active*
29
30 *presence of both a community of people and a population of*
31
32 *firms in one naturally and historically bounded area*
33
34 (BECATTINI, 1990: 38).
35
36
37
38
39

40 District firms are generally small in size and, within one district, are
41
42 specialised in the production of the same product/s. They share a common
43
44 social and cultural background, which facilitates complementarity between
45
46 activities and division of labour among local actors. In IDs technical and
47
48 socio-cultural aspects are closely interwoven with the life of the community.
49
50
51 The existence of this strong relationship between social and technical
52
53 factors allows the co-existence of complex dynamics of cooperation and
54
55 competition between local firms (BECATTINI, 1990).
56
57
58
59
60

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

The competitiveness of districts relies on the collective efficiency of the local system, in which each firm exploits dynamic competitive advantages deriving from the existence of external economies and collective action (BELLANDI, 1992; GAROFOLI, 1989; SCHMITZ, 1999). A high degree of production specialisation generates continuous improvements in technology and production organisation (GOTTARDI, 2000). These improvements have multiplicative effects on the local system and are determined by continuous feedback effects between the increased competitiveness of individual firms and the system as a whole (GAROFOLI, 1989). As a result, districts are regarded as places where close inter-firm communication, socio-cultural structures and the institutional environment may stimulate socially and territorially embedded collective learning and continuous innovation (ASHEIM and ISAKSEN, 2002).

2.2 Employment dynamics in industrial districts

The results of the empirical studies on IDs have had an enormous impact on regional development policies. Research on districts has led to a general consensus among economists and policy makers that the territorial dimension plays a key part in economic development processes, and that districts may offer new opportunities for economic growth in both

1
2
3
4
5
6
7 industrialised and developing countries (HUMPHREY and SCHMITZ,
8
9 1996; McCORMICK, 1999; NADVI, 1999; NADVI and SCHMITZ 1999;
10
11 SCHMITZ, 2000).

12
13
14
15
16 Underlying, this interest in the district model and the adoption of what in the
17
18 policy makers' jargon is termed the '*cluster approach*', there is the idea that
19
20 clustering of firms producing similar products may generate wealth and
21
22 offer new opportunities for policy intervention. Clustering is seen as setting
23
24 new frontiers for industrial development planning in offering new
25
26 opportunities to set '*high roads to development*' (PYKE and
27
28 SENGENBERGER, 1992). There is general agreement that the organisation
29
30 of production in districts sustains employment performance and wage
31
32 levels. According to Glaeser et al. (1992), cluster firms should exhibit
33
34 higher employment levels and higher rates of employment growth compared
35
36 to production that is not clustered.
37
38
39
40
41

42
43 Studies on districts have also underlined that, compared to other forms of
44
45 small firm organisation, districts seem to have the capability of providing
46
47 good wages and social conditions (CASAVOLA et al. 1999; SOLINAS,
48
49 1991). This aspect of the district model has been of special interest for
50
51 international organisations such as the International Labour Organization
52
53 (ILO) (COSSENTINO et al., 1996; PYKE et al., 1990) and more recently
54
55 the United Nations Industrial Development Organization (UNIDO) (NADVI
56
57
58
59
60

1
2
3
4
5
6
7 and BARRIENTOS, 2004; UNIDO, 2001), which have identified new
8
9 perspectives for industrial development for countries and regions with
10
11 economies essentially based on small and medium sized enterprises (SMEs).
12
13

14
15
16 Indeed, the ID literature puts great emphasis on the key role of human
17
18 capital in districts' competitiveness. According to PYKE and
19
20 SENGENBERGER (1996), job creation in most Italian districts has been as
21
22 good as or better than the national average. Unemployment is generally
23
24 lower and wage levels are generally reported to be at least equal to, and
25
26 often above national levels. Evidence from industrial clusters in other parts
27
28 of the world also seems to confirm these trends (ISAKSEN, 1996; MARTIN
29
30 and SUNLEY, 2003; NADVI, 1999; KARLSSON and KLAESSON, 2000).
31
32 Other authors point out the abilities of districts to quickly and efficiently
33
34 react to external challenges. This allows them to minimise the negative
35
36 effects of changes in market demand, or economic downturns, on district
37
38 performance and therefore on employment (GAROFOLI, 2002; NADVI and
39
40 SCHMITZ, 1999).
41
42
43
44
45
46

47
48 Confirming these insights, some authors argue that the efficiency of SMEs
49
50 in districts also stems from good working conditions (BRUSCO et al., 1996;
51
52 SIGNORINI, 2000) especially for highly skilled workers (BRUSCO, 1991;
53
54 OCCARI and TATTARA, 1997). According to BECATTINI (1987) several
55
56 mechanisms such as information sharing in relation to workers' personal
57
58
59
60

1
2
3
4
5
6
7 and professional qualities, and employment as a factor of attraction to (and
8
9 retention in) the district of the best qualified workers.

10
11 Similarly, SIGNORINI (2000) argues that in IDs wage levels are normally
12
13 higher than in larger firms, and higher than the national average. However,
14
15 in the Italian context some studies have suggested that the relationship
16
17 between wage levels and districts is controversial (De BLASIO and DI
18
19 ADDARIO, 2002; PITINGARO et al., 2001; TATTARA, 2001).
20
21
22
23
24
25

26 In summary, several studies make reference to the relevance of district
27
28 effects on employment. It is argued that the district model can and does
29
30 guarantee good socio-economic conditions in the form of higher salaries and
31
32 sustained employment performance. However, there is no conclusive view
33
34 about the factors that converge to the competitive advantage of districts.
35
36 Similarly, there is no systematic empirical evidence of the extent to which
37
38 employment and wage levels are effectively higher in districts and of
39
40 whether eventual differences between district and non-district areas tend to
41
42 diverge or converge over time.
43
44
45
46
47
48

49 In our view there are several factors, which jointly may contribute to better
50
51 employment performance and better salaries in districts:
52
53
54
55
56
57
58
59
60

- 1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
1. **Agglomeration economies.** Agglomeration economies and economies of scale and scope (BELLANDI, 2002) generate superior competitiveness in local systems, which in turn leads to higher employment performance and better wages;
2. **Near-perfect information regimes.** Local knowledge spillovers stimulate flows of information on available positions and available workforce in the district area. Information flows on demand and supply of labour in the local labour market generate the efficient allocation of human resources and reduce the costs to firms of finding appropriate labour (AUDRETSCH and FELDMAN, 1996);
3. **Microeconomic effects of demand for labour.** High employment rates increase the price of labour as companies offer higher wage levels in order to fill vacant positions. In some cases these employment dynamics can ‘heat up’ the local labour market and the unemployment rate can approach near-frictional levels (MUSCIO, 2006a).
4. **Demand for skilled labour.** Districts are knowledge intensive environments where firms introduce innovative and qualitatively advanced products (GOTTARDI, 2000; MASKELL, 2001; MUSCIO, 2006b). The competitiveness of the local system is sustained by the use of skilled workers, who are rewarded with higher pay than they would receive elsewhere.

1
2
3
4
5
6
7 5. **Reduction of wage disparities.** High employment rates and
8
9 continuous information flows help to reduce wage disparities within
10 districts. The efficient circulation of information on wages offered in
11 the local system and the dynamic nature of the local labour market
12 generate a continuous optimisation of human resources allocation.
13
14 These factors reduce wage disparities and generate stable social
15 conditions.
16
17
18
19
20
21
22
23
24
25

26 In addition, the well-documented competitiveness of districts is also said to
27 translate into favourable work conditions. Efficient utilisation of resources
28 provides evidence of the endogenous nature of this model of territorial
29 development and its effectiveness as a viable solution in economic planning.
30
31 The district model can offer extraordinary opportunities for provision of
32 satisfactory social conditions and is rightly seen as a sustainable approach in
33 the development of SMEs systems in the development context (NADVI and
34 BARRIENTOS, 2004).
35
36
37
38
39
40
41
42
43
44
45

46
47 The scope of this work is to provide a systemic analysis of employment and
48 wage dynamics inside and outside Italian IDs. On the basis of national
49 statistical data, this study provides evidence of the recent dynamics of
50 labour in Italian firms in different manufacturing industries. We test the
51 following research hypotheses:
52
53
54
55
56
57
58
59
60

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Hypothesis 1: there are relevant static and dynamic differences in employment and wage levels between ID and non-ID areas.

Hypothesis 2: the ID model sustains firms' competition allowing better employment levels.

In the following sections we analyse the differences in employment and wage levels between ID and non-ID areas taking into consideration different industry sectors, geographic areas (north, central and southern Italy), firm size and employee qualifications. We also test via econometric analysis the impact of the 'district effect' on employment growth in Italy over the period 1991-2001.

3 EMPIRICAL EVIDENCE

3.1 Introduction to the research methodology

In the empirical evidence we refer to two different data sources:

1. Employment data obtained from the Italian statistical institute, *Istituto Nazionale di Statistica* (ISTAT) and which refer to the 1991 and 2001

1
2
3
4
5
6
7 Censuses. We considered data for all manufacturing sectors. We
8
9 excluded public institutions from our analysis.

- 10
11
12 2. Data on wages were obtained from the Italian social security agency,
13
14 *Istituto Nazionale di Previdenza Sociale* (INPS). INPS data used here
15
16 refer to four macro- manufacturing industries and consider both “white
17
18 collar” and “blue collar” workers. INPS data are available for the
19
20 period 1994-98.¹
21
22
23
24
25

26 We use here the definition of IDs proposed by ISTAT in its 1991
27
28 classification of districts. ISTAT has not issued an updated classification of
29
30 districts on the basis of the 2001 Census data. ISTAT identifies as districts
31
32 199 Local Labour Systems (LLS), with a total of 5,110,930 employees.²
33
34

35 Table 1 reports the regional distribution of districts and non-district LLS. It
36
37 can be seen that the majority of districts are concentrated in northern and
38
39 central Italy.
40
41
42
43
44
45
46
47
48

49
50 ² The criteria followed by ISTAT in the identification of IDs in Italy are built on the basis
51
52 of the conditions set in 1993 by the Ministry of Productive Activities (MAP). These
53
54 conditions focus on LLS, which are groups of neighbour communes where labour mobility
55
56 is self-contained. MAP identifies as industrial districts those LLS areas that meet the
57
58 following conditions:
59
60

a) employment share in manufacturing activities above the national average;

b) employment share in SMEs above the national average;

c) employment share in the main manufacturing activity above the national average;

d) employment share in SMEs in the main manufacturing activity above the national average.

TABLE 1

We split Census data on economic activities into two groups: firms located in IDs and firms located outside IDs. Section 3.2 presents a comparison of employment dynamics in district and non-district areas over the period 1991-2001. Data on employment performance was weighted based on the number of employees in 1991. Differences in performance between district and non-district areas were tested using an independent samples T-test. Section 3.3 adopts the same methodology for the analysis of differentials in terms of wealth and productivity between the two areas. In Section 3.4 we used INPS data to estimate differences in the growth and dispersion of salaries inside and outside IDs in selected manufacturing industries. INPS reports salary data filed by economic sector and Italian administrative units (provinces).³ Finally, Section 3.5 presents the econometric analysis of the impact of the ‘district effect’ on employment growth.

3.2 Employment dynamics in districts

In 2001 in Italy there were 1,342,000 local units in district areas (28.8% of total local units), employing a total of 5,111,930 staff (31.5% of total national employment) (Table 2). In the manufacturing industry there were

³ Provinces correspond to NUTS 3 units in the *Eurostat* classification of administrative units in Europe. The average dimension of Italian provinces is 2,926.6 Km².

1
2
3
4
5
6
7 238,139 local units located in districts (40% of total units) employing
8
9 2,205,304 staff (45% of total employment).
10
11

12 13 14 **TABLE 2**

15
16
17
18 We compared activity, employment and unemployment rates between
19 district and non-district areas, in all Italian macro-regions (Table 3). This
20 allowed analysis of employment performance *within* each individual macro-
21 region.⁴ According to the latest ISTAT data (ISTAT, 2002) employment
22 performance in districts appears to be more favourable than elsewhere: in
23 each macro-region, activity and employment rates in district areas were
24 higher while unemployment rates were consistently lower. Differences in
25 average means are always statistically significant, except for the South and
26 the Islands. Confirming this, of the 199 districts considered here, only ten
27 have unemployment rates higher than the Italian average; all of these are
28 located in Southern Italy⁵ where unemployment rates are typically higher
29 than in the rest of the country. However, these ten Southern districts have
30 unemployment rates lower than those found in their neighbouring areas.
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50

51 52 **TABLE 3**

53
54
55
56 ⁴ IDs are concentrated in the North and Central regions (Bagnasco, 1977), which perform
57 better than the South and the Islands.

58 ⁵ They are: Sora, San Marco Dei Cavoti, Montemiletto, Solfora, Taurasi, Barletta,
59 Putignano, Martina Franca, Bisognano and Maierato.
60

1
2
3
4
5
6
7
8
9 We analysed employment dynamics over the period 1991-2001 (Table 4).
10
11 This period has seen two different phases of the economic cycle. Whilst in
12
13 the first half of the decade there was an increase in national exports, the
14
15 second half saw a rapid erosion of the positive trade balance. This was the
16
17 result of increasing competition in international markets, especially in
18
19 traditional manufacturing sectors.
20
21

22
23 Overall, during the period considered employment in the manufacturing
24
25 industries diminished (-6%), although the total number of manufacturing
26
27 companies remained basically unchanged (-0.2%). At the same time, the
28
29 total number of companies and total employment grew at respectively 9.1%
30
31 and 24.4%.
32
33

34
35 Over the period considered the average growth in employment in the total
36
37 economy was higher in districts than in non-district areas. At the regional
38
39 level, statistically significant differences can be found in the North-West
40
41 macro-region. Employment growth in manufacturing sectors was better in
42
43 districts than in non-district areas in each macro-region; only in the case of
44
45 South and the Islands were differences between means not statistically
46
47 significant.
48
49

50
51 In district areas the average growth in the total number of local units was
52
53 lower than elsewhere (21.2% vs. 28.6%); similarly, despite the increase in
54
55
56
57
58
59
60

1
2
3
4
5
6
7 employment, the number of manufacturing companies in districts decreased
8
9 (-2.9%), whilst in non-district areas it marginally increased (1.7%).
10
11

12 13 14 **TABLE 4**

15
16
17
18 Although they are of differing intensity, the majority of manufacturing
19 industries show positive trends for employment performance: Table 5
20 reports data on companies and employment inside and outside districts, filed
21 with the *NACE* classification. In several sectors there are sharp differences
22 between district and non-district areas in terms of employment growth:
23 districts outperform other areas in many sectors - sometimes by very large
24 margins. Textiles, leather and tanning industries⁶ are the only industries
25 where employment performance was worse in districts than outside them.
26
27
28
29
30
31
32
33
34
35
36
37
38
39

40 These figures show that in Italy as elsewhere in Europe, over the period
41 studied, , the manufacturing industry has visibly reduced in importance in
42 economic terms. In aggregate terms, despite the increase in the number of
43 companies, employment levels have fallen in most sectors. Yet, despite
44 reductions in the number of companies, employment levels in districts seem
45 to be more stable than in non-district areas. This seems to support the
46 arguments in favour of the superior capabilities of districts to react to
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3
4
5
6
7 market changes (GAROFOLI, 1994), which have been highlighted in
8
9 several empirical works on Italy and other countries (HUMPHREY and
10
11 SCHMITZ 2002; MUSCIO, 2004; RABELOTTI, 1995).
12
13

14 15 16 **TABLE 5** 17

18
19
20
21 The reduction in the number of companies in district areas does not appear
22
23 to be a consequence only of negative industrial performance: rather it
24
25 appears to be due to consolidation processes and the reorganization of value
26
27 chains within local industrial systems. It is likely that in districts specialised
28
29 in technologically mature sectors a selection process is in operation. Within
30
31 districts smaller firms are closing down or are being taken over by more
32
33 competitive businesses and the number of newly formed companies is
34
35 weakening (GAROFOLI, 2002). The analysis of employment data filed by
36
37 firm size helps to explain these issues.
38
39
40
41
42
43
44

45 Table 6 presents trends in employment growth filed by firm size for the
46
47 period 1991-2001. Data on companies located outside district areas show a
48
49 reduction in the number of micro-units (1-9 employees), a modest increase
50
51 in the number of units in intermediate classes (50-249 employees) and a
52
53 sharp decrease in the number of units in the larger class (250 or more).
54
55
56

57 ⁶ The footwear sector in Italy has suffered from a radical process of re-organisation of
58
59
60

TABLE 6

The number of employees in micro and small units has decreased more for firms in districts than outside districts. On the contrary, employment in medium-size and large companies has grown much more in districts than outside districts. These data seem to confirm that within districts a selection process is cutting out of business smaller units (such as handicraft businesses) and is sustaining larger units. This trend is generally common to macro-regions. Smaller manufacturing units cannot compete in increasingly competitive markets, especially when they are involved in technologically mature sectors. On the other hand, larger firms in districts have developed new markets and activities, becoming increasingly competitive, growing and employing new staff (BUTERA, 1997; FERRUCCI and VARALDO, 1993; VARALDO, 1994).

We can conclude that the development process followed by districts is markedly different from that followed by manufacturing firms in the rest of the country. Over the period 1991-2001 increasing international competition has imposed major changes on the organisation of production of districts: in traditional industries in particular, the outsourcing of low value-added production and delocalisation of production to countries with lower labour costs (Amighini

1
2
3
4
5
6
7 activities and progressive mergers and acquisitions have caused a reduction
8
9 in employment in micro-units and growth in employment in larger
10
11 companies (AMIGHINI and RABELOTTI, 2003; MUSCIO, 2004). This
12
13 process is considered a necessary condition for competing in international
14
15 markets (RULLANI, 1997; VARALDO and FERRUCCI, 1997).
16
17

18
19 Overall, districts have been able to respond more promptly to the challenges
20
21 of global competition. In districts, employment levels in manufacturing
22
23 industries have remained constant, counterbalancing the negative
24
25 employment performance of non-district areas.
26
27

28 29 **3.3 Dynamics of value added in districts**

30
31 We studied differences in wealth and productivity between district and non-
32
33 district areas across the period 1996-2001. We measured value added (VA)
34
35 per inhabitant and VA per employee in the total economy and in the
36
37 manufacturing industries.
38
39

40
41 At the beginning of the period considered (1996) VA per inhabitant was
42
43 higher in district areas than in non-district areas in most macro-regions.
44
45 However, after five years VA per inhabitant was quite similar in the two
46
47 areas (Table 7).
48
49

50
51 In the total economy VA per employee levels are fairly similar inside and
52
53 outside districts, although over the period 1996-2001 growth was marginally
54
55 higher in districts. In 2001 in manufacturing sectors VA per employee was
56
57

58
59 and Rabelotti, 2003).
60

1
2
3
4
5
6
7 over 4,000 Euro lower than in non-district areas. This is not surprising,
8
9 considering that districts are generally specialised in traditional sectors.
10
11 However, growth has been marginally higher in districts than outside them
12
13 (15.9% vs. 15.2%).
14

15
16 At the regional level, district areas in southern Italy and in the Islands have
17
18 performed much better than non-district areas, both in terms of productivity
19
20 growth and in terms of wealth increase.
21

22
23 Unfortunately, due to data limitations we were not able to control for VA
24
25 differentials in individual industrial sectors and in different size classes of
26
27 firms.
28
29

30 31 32 33 **TABLE 7**

34 35 36 37 38 **3.4 Dynamics of salaries in districts**

39
40 We complete our descriptive analysis of employment dynamics with a study
41
42 of wage differentials between district and non-district areas in four
43
44 manufacturing macro-industries: machinery - metal products, leather, shoes
45
46 and textiles - clothing products, rubber and plastics, and woodworking. We
47
48 used INPS data and selected some of the industry sectors in which Italian
49
50 districts are specialised.⁷
51
52
53
54
55

56
57
58 ⁷ INPS are filed using the *NACE* 81 classification system. INPS data are not available for
59 all manufacturing sectors. One of the four sectors studied here is the macro-sector *leather-*
60

1
2
3
4
5
6
7 We compare industry-specific wage levels in administrative units where,
8
9 according to ISTAT, districts are located, with industry-specific wage levels
10
11 in provinces where there are no districts. Thus, for example, we compare
12
13 average salaries in the textile industries in provinces such as Varese and
14
15 Biella which have textiles districts, with salaries in textiles manufacturing in
16
17 provinces such as Milan and Turin, where there are no textiles districts.
18
19 Estimations are filed by employee occupation: *white-collar* and *blue-collar*.⁸
20
21
22
23
24
25

26 Table 8 shows how, besides generating more employment, districts also
27
28 have better wage levels. Both *blue-collar* and *white-collar* workers working
29
30 in districts earn higher salaries than employees working outside districts,
31
32 and this is the case for all the manufacturing sectors considered.
33
34

35 Over the period 1994-98 wage growth was higher in district than in non-
36
37 district areas. This was also the case in traditional industries, such as
38
39 production of leather and textile products, where employment decreased
40
41 (see Table 5). Wage levels are especially high in the case of white-collar
42
43 workers employed in district areas.
44
45
46
47
48
49

50
51 *shoes-textiles-garment*. Although ISTAT identifies districts both in the sectors *leather-*
52 *shoes* and in *textiles-clothing*, INPS data on wages refer to textiles and to clothing-shoes
53 separately. Therefore we had to merge these two industries in order to estimate district data
54 using the ISTAT classification of districts.

55 ⁸ Unfortunately, the INPS database does not allow us to control for firm size. However,
56 according to ISTAT data differences between district and non-district areas in terms of
57 share of employment in small firms are negligible (employment in micro-units is 27% of
58 total employment in districts and 24% outside districts. Similarly, employment share in
59 small firms is respectively 57% and 63%).
60

TABLE 8**FIGURE 1**

The diverging trends in terms of wage growth support the results on employment growth reported in the previous section (Figure 1). Furthermore, differences in wage growth in mature sectors such as textiles and leather manufacturing, is evidence that although the number of local units has dramatically reduced in districts, they have been able to preserve above-average wage and wage growth levels.

Similar results emerge when the wage dispersion index is considered (Table 9). This index is used by INPS to estimate the dispersion of average yearly wages. The lower the coefficient, the more precise is the estimation of average wages. Wage dispersion is much lower in districts areas than in non-district areas for all the sectors considered, and is lowest for blue-collar workers. The wage differential for workers inside districts is much lower than outside districts, contributing to the creation of a socially more stable and egalitarian environment.

Time-series analysis over the period 1994-98 confirms that the dispersion index has been fairly stable over time. In fact, over the four-year period considered wage differentials remained stable or changed only slightly.

1
2
3
4
5
6
7 Only in the case of the *leather-shoes* and *textiles-clothing* industries have
8
9 differences between district and non-district areas diminished over time. In
10
11 the case of woodworking the dispersion index decreased further in districts,
12
13 while elsewhere it increased.
14

15 16 17 18 **TABLE 9** 19

20
21
22
23 To summarise, data on salaries largely confirm the findings on employment
24
25 dynamics reported in Section 3.2. Even in periods of economic slowdown,
26
27 districts offer more employment opportunities and better salaries than other
28
29 areas. Data on wage levels also show that as a consequence of district –
30
31 effects, dispersion of salaries is much lower than elsewhere, contributing to
32
33 reducing wage inequality within IDs. Growth dynamics confirm this trend in
34
35 the case of both employment and wage data: over the time lag considered
36
37 the competitive advantage of districts in these areas of analysis increased
38
39 even more.
40
41
42
43
44

45 **3.5 Econometric analysis** 46

47
48 We conclude our empirical analysis on employment differentials between
49
50 district and non-district areas by measuring the impact of localization in IDs
51
52 on employment growth over the period 1991-2001. We run an Ordinary
53
54 Least Squares (OLS) regression model. On the basis of the descriptive
55
56 analysis presented in previous sections, we identified several control
57
58
59
60

variables to be introduced in the regression together with the indicator for firms' localisation in districts.

The data used in the regression are analysed at the LLS level. ISTAT provides data for 784 LLS in total, 199 of which are districts (see Table 1). The cases are weighted using population weights, controlling for LLS employment levels in 1991. The weighted model used here is the following:

$$\begin{aligned} emp_growth_i = & \beta_0 + \beta_1 district_i + \beta_2 emp_91_i + \beta_3 unem_rate_i \\ & + \beta_4 VAemp_86_ind_i + \beta_5 NE_i + \beta_6 NW_i + \beta_7 C_i \end{aligned} \quad (1)$$

where *emp_growth* indicates employment growth in manufacturing industries (1991-2001), *district* is a dummy controlling for localisation in a district, *emp_91* indicates employment in manufacturing in 1991 (stock value), *unem_rate* is the unemployment rate, *VAemp_96ind* is VA per employee in industry and *NE*, *NW* and *C* are geographical dummies controlling respectively for localisation in North-East, North-West and Central Italy.⁹

The estimation results are reported in Table 10.¹⁰ The second column of Table 10 reports estimated coefficients and t statistics in parentheses.

⁹ The geographical dummy SI, indicating localisation in southern Italy and in the Islands was removed from the regression to avoid perfect multicollinearity. We measured correlation between variables and found no significantly high coefficients.

¹⁰ Descriptive statistics are available from the authors on request.

TABLE 10

According to the results in Table 10, localisation of firms in districts (*DISTRICT*) has a strongly positive effect on firms' employment growth. Confirming the descriptive analysis presented in Section 3.2, these results support the insights of district studies on the positive effects of the district model on firms' competitiveness and growth (BRUSCO et al., 1996; PYKE and SENGERBERGER, 1996).

Employment stock values at the beginning of the period (*EMP_91*) have virtually no impact on employment growth. The estimated coefficient is negative and close to zero. The unemployment rate in 1991 has a negative impact on employment growth (*UNEM_RATE*), whilst productivity in industry (*VAEMP_96IND*) has no significant impact. Finally, confirming the *catching-up* process in manufacturing industries evidenced in Table 4, localisation in central and northern regions has a negative impact on employment growth.

In conclusion, the results of the econometric analysis corroborate the descriptive analysis reported in previous sections. The OLS regression provides evidence that the ID model of industrial organisation is able to sustain firms' competitiveness and consequently employment growth.

4 Concluding remarks

Several studies on IDs have argued that such dynamic systems can offer higher employment rates and better wage levels. However, empirical evidence on employment dynamics in districts has so far been scarce. This study contributes to filling this gap in the industrial districts literature by providing extensive evidence on the dynamics of employment and salaries inside and outside Italian districts.

The empirical investigation was carried out using data from national statistical sources. The data provide evidence that when district firms and non-district firms are observed separately, relevant differences in employment and wage levels emerge.

Following a trend common to many EU countries, over the ten period 1991-2001 employment in manufacturing industries in Italy has declined. However, over this period IDs have been able to preserve employment levels in most economic sectors and, in contrast to national trends, in some sectors employment has risen. In fact, whilst the number of firms in districts has basically remained constant, overall employment growth has more likely been associated with firm growth.

Data on salaries confirm district performance. Overall both blue-collar and white-collar employees working earn higher salaries in IDs than elsewhere

1
2
3
4
5
6
7 and their salaries have grown more steadily over the period 1994-98.
8
9 Furthermore, within districts wage differentials seem to be lower, providing
10
11 evidence that working conditions in districts may be more homogeneous.
12
13 Finally, in order to assess causality between firms' location and employment
14
15 growth this paper applied an econometric analysis to measure the impact of
16
17 localisation in districts on employment growth. Even controlling for
18
19 localisation in different geographical areas of Italy, the econometric analysis
20
21 confirms that the district effect has a strongly positive impact on
22
23 employment growth.
24
25
26
27
28
29

30
31 Therefore, if the question is whether it is better to work inside or outside an
32
33 ID, the data clearly show that in the Italian case IDs do offer better
34
35 standards of living, with their higher wage and employment levels, and
36
37 higher rates of wage growth. Although in the last few years, and following
38
39 international economic trends, the number of manufacturing firms has
40
41 declined, district firms have often been able to contain this reduction in
42
43 employment and, in some industries, have even achieved increases in the
44
45 number of employees. Despite the fact that districts are essentially based on
46
47 SMEs, employees working in districts earn higher salaries than other
48
49 employees, and gain from lower wage differentials. Wages for blue-collar
50
51 workers in particular suffer from very little dispersion in IDs, and this
52
53
54
55
56
57
58
59
60

1
2
3
4
5
6
7 contributes to the creation of a very socially stable environment in which
8
9 workers are not continually searching for better paid jobs.
10

11
12
13
14 In conclusion, this paper proves that the validity of the district model as a
15
16 successful model for economic development lies in the extraordinary
17
18 competitiveness it can provide to businesses, and in the favourable working
19
20 conditions it is able to create. Indeed, the ID model has the capability to
21
22 provide good pay and satisfactory social conditions combining economic
23
24 vitality and egalitarian labour conditions.
25
26
27
28
29

30 **Acknowledgements**

31
32
33 This work has benefited from valuable comments from Khalid Nadvi. We
34
35 would also like to thank Nick von Tunzelmann and Simona Iammarino for
36
37 their support.
38
39
40
41
42

43 **References**

- 44
45
46 AMIGHINI A. and RABELLOTTI R. (2003) The Effects of Globalization
47
48 on Italian Industrial Districts: Evidence from the Footwear Sector,
49
50 *Università del Piemonte Orientale, Quaderno*. 64.
51
52
53 AMIN A. (1999) The Emilian Model: Institutional Challenges, *European*
54
55 *Planning Studies* 7, pp.389-405.
56
57
58 ASHEIM B.T. and ISAKSEN A. (2002) Regional Innovation Systems: The
59
60

1
2
3
4
5
6
7 Integration of Local 'Sticky' and Global 'Ubiquitous' Knowledge, *The*
8
9 *Journal of Technology Transfer* 27(1), pp. 77-86.

10
11 AUDRETSCH D.B. and FELDMAN M.P. (1996) R&D Spillovers and the
12
13 Geography of Innovation and Production, *American Economic Review*
14
15 86, pp.630-640.

16
17
18 BECATTINI G. (1987) *Mercato e Forze Locali: Il Distretto Industriale*, Il
19
20 Mulino, Bologna.

21
22
23 BECATTINI G. (1990) The Marshallian Industrial District as a Socio-
24
25 Economic Notion, in PYKE F., BECATTINI G. and
26
27 SENGENBERGER W. (eds), op.cit.

28
29
30 BECATTINI, G. (ed) (1989) *Modelli locali di sviluppo*, Il Mulino, Bologna.

31
32
33 BELLANDI M. (1992) The Incentives to Decentralised Industrial Creativity
34
35 in Local Systems of Small Firms, *Revue d'Economie Industrielle* 59,
36
37 pp- 99-110.

38
39
40 BELLANDI M. (2002) Italian Industrial Districts: An Industrial Economics
41
42 Interpretation, *European Planning Studies* 10(4), pp.425-437.

43
44
45 BELUSSI F. (1999) Policies for the Development of Knowledge-Intensive
46
47 Local Production Systems, *Cambridge Journal of Economics* 23,
48
49 pp.729-747.

50
51
52 BRUSCO S. (1989) *Piccole imprese e Distretti Industriali*, Rosenberg &
53
54 Sellier, Torino.

- 1
2
3
4
5
6
7 BRUSCO S. (1991) La Genesi del Distretto Industriale, in PYKE F.,
8
9 BECATTINI G. and SENGERBERGER W. (eds), *Distretti Industriali*
10
11 *e Cooperazione fra le Imprese*, Studi e Informazioni, Banca Toscana
12
13 Quaderni 34.
14
15
16 BRUSCO S., CAINELLI G., FORNI F., FRANCHI M., MALUSARDI A.
17
18 and RIGHETTI R. (1996) The Evolution of Industrial Districts in
19
20 Emilia-Romagna, in COSENTINO F., PYKE F. and
21
22 SENGENBERGER W., (eds), op. cit.
23
24
25
26 BUTERA F. (ed) (1997) *La Media Impresa Costruita per Durare*, Franco
27
28 Angeli, Milano.
29
30
31 CASAVOLA P., PELLEGRINI G., ROMAGNANO E. (1999) Imprese e
32
33 Mercato del Lavoro nei Distretti Industriali Italiani, *Sviluppo Locale*
34
35 6(10), pp.41-59.
36
37
38 COSENTINO F., PYKE F. and SENGENBERGER W. (eds) (1996) *Local*
39
40 *and Regional Response to Global Pressure: the Case of Italy and Its*
41
42 *Industrial Districts*, International Institute for Labour Studies, Geneva.
43
44
45 DE BLASIO G. and DI ADDARIO S. (2002) Labor Market Pooling:
46
47 Evidence from Italian Industrial Districts, *Banca d'Italia – Temi di*
48
49 *Discussione del Servizio Studi* 453.
50
51
52 DEI OTTATI G. (1996) The Remarkable Resilience of the Industrial
53
54 Districts of Tuscany, in COSENTINO F., PYKE F. and
55
56 SENGENBERGER W. (eds), op. cit.
57
58
59
60

1
2
3
4
5
6
7 ENGELSTOFT S., JENSEN-BUTLER C., SMITH I. and WINTHER L.
8
9 (2006), Industrial clusters in Denmark: Theory and Empirical Evidence,
10
11 *Papers in Regional Science* 85(1), pp.73-98.
12

13
14 FERRUCCI L. and VARALDO R. (1993) La Natura e la Dinamica
15
16 dell'Impresa Distrettuale, *Economia e Politica Industriale* 80, pp.73-
17
18 98.
19

20
21 FORTIS M. (2000) Il Made in Italy nell'Economia Italiana e Mondiale: Il
22
23 Rilievo delle Piccole e Medie Imprese e dei Distretti, in CURZIO A.Q.
24
25 and FORTIS M. (eds), *Il Made in Italy oltre il 2000*, Il Mulino,
26
27 Bologna.
28
29

30
31 GAROFOLI G. (1989) Industrial Districts: Structure and Transformation,
32
33 *Economic Notes* 19(1), pp.37-54.
34

35
36 GAROFOLI G. (1994) New Firm Formation and Regional Development:
37
38 The Italian Case, *Regional Studies* 28(4), pp. 381-393.
39

40
41 GAROFOLI G. (2002) Distretti Industriali e Competitività: Comparazione
42
43 Internazionale e Scenari Evolutivi, in GALLI G. and PAGANETTO L.
44
45 (eds), *La Competitività dell'Italia: Le imprese*, Il Sole24Ore, Milano.
46

47
48 GAROFOLI G. (ed) (1992) *Endogenous Development and Southern*
49
50 *Europe*, Avebury, Aldershot.
51

52
53 GLAESER E.L., KALLAL H.D., SCHEINKMAN J.A. and SHLEIFER A.
54
55 (1992) Growth in Cities, *Journal of Political Economy* 100(6),
56
57 pp.1126-1152.
58
59
60

- 1
2
3
4
5
6
7 GOTTARDI G. (2000) Innovation and the Creation of Knowledge in Italian
8
9 Industrial Districts: A System Model, in BELUSSI F. and
10
11 GOTTARDI G. (eds), *Evolutionary Patterns of Local Industrial*
12
13 *Systems*, Ashgate Publishing Ltd, Aldershot.
14
15
16 GUERRIERI P. and IAMMARINO S. (2003) The Dynamics of Italian
17
18 Industrial Districts: Toward a Renewal of Competitiveness?, in
19
20 GUERRIERI P., IAMMARINO S. and PIETROBELLI C. (eds), *The*
21
22 *Global Challenge to Industrial Districts*, Edward Elgar, Cheltenham.
23
24
25 HUMPHREY J. and SCHMITZ H. (1996), The Triple C Approach to Local
26
27 Industrial Policy, *World Development* 24(12), pp.1859-1877.
28
29
30 HUMPHREY J. and SCHMITZ H. (2002) How Does Insertion in Global
31
32 Value Chains Affect Upgrading in Industrial Clusters? *Regional*
33
34 *Studies* 36(9), pp.1017-27.
35
36
37 ISAKSEN A. (1996) Regional Clusters and Competitiveness: the
38
39 Norwegian Case, *STEP rapport* 16, Oslo.
40
41
42 ISTAT (2002) *Occupati Residenti e Persone in Cerca di Occupazione nei*
43
44 *Sistemi Locali del Lavoro (SLL)*, Roma.
45
46
47 KARLSSON C. and KLAESSON J. (2000) Success in Manufacturing
48
49 Employment in an Industrial District: Higher Productivity or Lower
50
51 Wages?, *Investigaciones Europeas de Dirección y Economía de la*
52
53 *Empresa* 6(2), pp.65-90.
54
55
56
57
58
59
60

- 1
2
3
4
5
6
7 MARTIN R.L. and SUNLEY P. (2003) Deconstructing Clusters: Chaotic
8
9 Concept or Policy Panacea?, *Journal of Economic Geography* 3(1),
10
11 pp.5-35.
12
13
14 MASKELL P. (2001) Towards a Knowledge-Based Theory of the
15
16 Geographical Cluster, *Industrial and Corporate Change* 10(4), pp.
17
18 921-943.
19
20
21 MAZZONI R. (2001) I Fattori di Competitività dei Settori Tradizionali
22
23 Italiani: Sintesi di un Dibattito, *Economia e Politica Industriale* 109,
24
25 pp.19-46.
26
27
28 McCORMICK D. (1999) African Enterprise Clusters and Industrialisation:
29
30 Theory and Reality, *World Development* 27(9), pp.1531-1552.
31
32
33 MUSCIO A. (2004) Processi Innovativi nell'Industria Plastica Varesina,
34
35 *Economia, Società e Istituzioni* 3, pp.483-517.
36
37
38 MUSCIO A. (2006a) From Regional Innovation Systems to Local
39
40 Innovation Systems: Evidence From Italian Industrial Districts,
41
42 *European Planning Studies* 14(6), pp.773-789.
43
44
45 MUSCIO A. (2006b), Patterns of Innovation in Industrial Districts: An
46
47 Empirical Analysis, *Industry and Innovation* 13(3), 291-312.
48
49
50 NADVI K. (1999) The Cutting Edge: Collective Efficiency and
51
52 International Competitiveness in Pakistan, *Oxford Development*
53
54 *Studies* 27(1), pp.81-107.
55
56
57 NADVI K. and BARRIENTOS S. (2004) *Industrial Clusters and Poverty*
58
59
60

1
2
3
4
5
6
7 *Reduction: Towards a Methodology for Poverty and Social Impact*
8
9 *Assessment of Cluster Development Initiatives*, UNIDO, Vienna.

10
11 NADVI K. and HALDER G. (2002) *Local Clusters in Global Value Chains:*
12
13 *Exploring Dynamic Linkages Between Germany and Pakistan*, *IDS*
14
15 *Working Paper 152*, Institute of Development Studies, Brighton.

16
17
18 NADVI K. and SCHMITZ H. (1999) *Clustering and Industrialisation:*
19
20
21 *Special Issue*, *World Development* 27(9), pp.1503-1514.

22
23 OCCARI F. and TATTARA G. (1997) *Struttura e Organizzazione del*
24
25 *Sistema Produttivo Veneto nell'Ultimo Quindicennio*, in FELTRIN P.,
26
27 (ed), *Quale società della piccola impresa*, NIS, Roma.

28
29
30 PIORE M.J. and SABEL C. (1984) *Second Industrial Divide: Possibilities*
31
32 *for Prosperity*, Basic Books, New York.

33
34
35 PITINGARO S., TATTARA G., and VOLPE M. (2001) *Industrializzazione*
36
37 *Leggera e Mobilità del Lavoro in una Regione Industriale*, in
38
39 BECATTINI G., BELLANDI M., DEI OTTATI, G. and SFORZI F.
40
41 (eds), *Il Caleidoscopio dello Sviluppo Locale*, Rosenberg & Sellier.

42
43
44 PYKE F. and SENGENBERGER W. (eds) (1992) *Small Firm Industrial*
45
46 *Districts and Local Economic Regeneration*, International Institute for
47
48 Labour Studies, Geneva.

49
50
51
52 PYKE F. and SENGERBERGER W. (1996) *Introduction*, in
53
54 COSENTINO F., PYKE F. and W. SENGENBERGER (eds), op. cit.

- 1
2
3
4
5
6
7 PYKE F., BECATTINI G. and SENGENBERGER W. (eds) (1990)
8
9 *Industrial Districts and Inter-Firm Cooperation in Italy*, International
10
11 Institute for Labour Studies, Geneva.
12
13
14 RABELLOTTI R. (1999) Recovery of a Mexican Cluster: Devaluation
15
16 Bonanza or Collective Efficiency, *World Development* 27(9), pp.1571-
17
18 1586.
19
20
21 RABELLOTTI R. (1995) Is There an “Industrial District Model”? Footwear
22
23 Districts in Italy and Mexico Compared, *World Development* 23(1).
24
25
26 RITSILA J. and TERVO H. (2002) Effects of Unemployment on New Firm
27
28 Formation: Micro-level Panel Data Evidence from Finland, *Small*
29
30 *Business Economics* 19(1), pp.31-40.
31
32
33 RULLANI E. (1997) L’Evoluzione dei Distretti Industriali: Un Percorso tra
34
35 Decostruzione e Internazionalizzazione, in VARALDO R. and
36
37 FERRUCCI L. (eds), op. cit.
38
39
40 SAXENIAN A. (1994) *Regional Advantage: Culture and Competition in*
41
42 *Silicon Valley and Route 128*, Harvard University Press,
43
44 Cambridge/Massachusetts.
45
46
47 SCHMITZ H. (1999) Collective Efficiency and Increasing Returns,
48
49 *Cambridge Journal of Economics* 23(4).
50
51
52 SCHMITZ H. (2000) Does Local Co-operation Matters?, *Oxford*
53
54 *Development Studies* 28(3), pp.323-336.
55
56
57
58
59
60

- 1
2
3
4
5
6
7 SIGNORINI L.F. (ed) (2000) *Lo Sviluppo Locale. Un'Indagine della Banca*
8
9 *d'Italia sui Distretti Industriali*, Donzelli, Roma.
10
11 SOLINAS G. (1991), L'Anzianità Aziendale. Alcune Considerazioni sul
12
13 Caso Emiliano, *Politica Economica* 7(3), pp.409-477.
14
15
16 STORPER M. (1993), Regional 'Worlds' of Production: Learning and
17
18 Innovation in the Technology Districts of France, Italy and the USA,
19
20 *Regional Studies* 27(5), pp.433-55.
21
22
23 TATTARA G. (2001), L'efficienza dei Distretti Industriali: Una Ricerca
24
25 Condotta dal Servizio Studi della Banca d'Italia, *Economia e Società*
26
27 *Regionale* 19(4), pp.114-144.
28
29
30 UNIDO (2001), *Development of Clusters and Networks of SMEs: The*
31
32 *UNIDO Programme*, UNIDO, Vienna.
33
34
35 VARALDO R. (1994) La Natura e la Dinamica dell'Impresa Distrettuale, in
36
37 DIOGUARDI G. (ed) *Sistemi di Imprese. Le Nuove Configurazioni*
38
39 *delle Imprese e dei Mercati*, ETAS, Milano.
40
41
42 VARALDO R. and FERRUCCI L. (eds) (1997) *Il Distretto Industriale tra*
43
44 *Logiche di Impresa e Logiche di Sistema*, FrancoAngeli, Milano.
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Tables and figures

Table 1 District and non-district LLS in Italy (2002).

	North West	North East	Centre	South and Islands	Italy
District areas	59	65	60	15	199
Non-district areas	81	78	77	349	585
Total	140	143	137	364	784

Source: Authors' calculation based on ISTAT Census data.

Table 2 Summary data on economic activities inside and outside districts (2001).

	Total economy		Manufacturing industry	
	Local units	Employees	Local units	Employees
	Total values			
District areas	1,341,676	5,110,930	238,139	2,205,304
Non-district areas	3,315,099	11,090,501	352,428	2,691,813
Total	4,656,775	16,201,431	590,567	4,897,117
	% values			
District areas	28.8	31.5	40.3	45.0
Non-district areas	71.2	68.5	59.7	55.0
Total	100.0	100.0	100.0	100.0

Source: Authors' calculation based on ISTAT Census data.

Table 3 Employment inside and outside districts (2002).

	% average rates				
	North West	North East	Centre	South and Islands	Italy
Activity rate					
District areas	52.5	53.7	50.4	45.5	52.4
Non-district areas	51.0	51.9	48.3	44.1	49.0
	**	**	**		**
Employment rate					
District areas	50.7	51.8	47.9	40.8	50.4
Non-district areas	48.6	50.0	44.8	36.0	45.0
	**	**	**	**	**
Unemployment rate					
District areas	3.5	3.4	4.9	10.3	3.9
Non-district areas	4.7	3.7	7.4	18.5	8.5
	**	**	**	**	**

Independent samples T-Test: * significant at 5% level; ** significant at 1% level.

Source: Authors' calculation based on data from ISTAT (2002).

Table 4 Local units and employment growth (1991-2001).

	% average growth rate				Italy
	North West	North East	Centre	South and Islands	
Employees					
District areas	9.3	13.8	10.1	6.2	11.0
Non-district areas	5.8 **	12.1	10.2	6.9	8.0 **
Local units					
District areas	22.9	21.7	16.3	20.3	21.2
Non-district areas	33.2 **	21.9	33.6 **	23.0	28.6 **
Employees (Manufacturing)					
District areas	-5.8	3.4	1.4	-1.1	-0.9
Non-district areas	-18.3 **	0.0 *	-12.2 **	-3.5	-10.2 **
Local units (Manufacturing)					
District areas	-4.5	-2.0	-3.3	10.7	-2.9
Non-district areas	-1.1 **	-3.1	2.6 **	8.8	1.7 **

Independent samples T-Test: * significant at 5% level; ** significant at 1% level.

Source: Authors' calculation on ISTAT Census data.

Table 5 Employment growth in manufacturing activities (1991-2001).

Employment	Total values (2001)		% average growth rate (1991-2001)		
	District areas	Non-District areas	District areas	Non-District areas	
Food and tobacco industry	154,356	297,647	4.0	-5.6	**
Textiles	217,497	91,990	-26.5	-9.0	*
Clothing	162,179	136,062	-27.5	-30.7	
Leather and tanning industries	133,041	72,994	-33.0	-23.2	*
Woodworking and wood products	77,960	108,067	-0.9	-9.2	**
Paper	39,822	44,390	12.1	16.6	
Publishing and printing	49,597	124,884	10.0	-0.4	**
Coke, oil, fuels	1,687	22,850	60.0	12.1	**
Chemicals and chemical products	58,217	146,936	32.6	27.9	
Rubber and plastics	104,396	112,480	45.6	54.3	
Processing of non-metallic minerals	115,032	138,756	-0.9	-11.4	**
Metalworking	58,477	80,810	65.6	48.7	

Metal products	336,433	364,551	22.9	13.0	**
Mechanical appliances and machinery	300,658	296,886	28.3	25.3	
Office machinery and computers	4,150	15,107	419.6	125.7	**
Electrical machinery	89,462	121,942	50.4	27.4	
Radio, television and communication equipment	20,650	86,928	17.8	7.5	
Medical, precision and optical instruments	46,308	79,696	35.4	10.6	**
Means of transport	38,060	134,872	63.6	51.1	
Other transport equipment	19,741	83,355	45.9	14.5	
Other manufacturing industries	174,622	126,803	-2.5	5.3	
Recycling	4,809	8,857	267.8	254.1	
Total manufacturing industry	2,207,154	2,696,863	-0.9	-10.2	**

Note: Independent samples T-Test: * significant at 5% level; ** significant at 1% level.

Source: Authors' calculation on ISTAT Census data.

Table 6 Employment growth in manufacturing activities, filed by size (1991-2001).

Size class	% average growth rate				Italy
	North West	North East	Centre	South and Islands	
1-9					
District areas	-10.8	-6.9	-6.8	-2.3	-8.4
Non-district areas	-9.3	-8.4	-5.5	0.1	-6.1
	*				**
10-49					
District areas	-5.6	3.0	4.6	-7.8	-0.6
Non-district areas	-8.2	0.3	-4.0	15.8	0.1
			*	*	
50-249					
District areas	2.6	15.2	13.5	10.6	9.5
Non-district areas	-3.8	11.4	4.9	7.0	3.2
	*				*
250 or more					
District areas	-6.7	20.6	15.2	14.4	8.1
Non-district areas	-35.1	4.7	-26.2	-16.5	-21.6
	**		**	*	**
Total					
District areas	-5.8	3.4	1.4	-1.1	-0.9
Non-district areas	-18.3	0.0	-12.2	-3.5	-10.2
	**	*	**		**

Independent samples T-Test: * significant at 5% level; ** significant at 1% level.

Source: Authors' calculation based on ISTAT Census data.

Table 7 Value added growth (1996-2001).

Average VA (K euro, 2001)	North West	North East	Centre	South and Islands	Italy
Per inhabitant					
District areas	20.8	22.8	19.3	13.2	21.1
Non-district areas	26.0 **	23.3	20.6 *	13.2	21.3
Per employee					
District areas	50.4	48.5	45.1	38.2	48.4
Non-district areas	54.2 **	51.1 **	49.2 **	42.0 *	49.7 **
Per employee (Manufacturing)					
District areas	46.3	44.8	38.6	32.8	44.0
Non-district areas	53.4 **	48.6 **	47.6 **	39.9 **	48.1 **
Average VA % growth (1996-2001)	North West	North East	Centre	South and Islands	Italy
Per inhabitant					
District areas	11.7	14.9	18.1	21.1	14.3
Non-district areas	16.9 **	15.5	15.3 *	18.0	16.6 **
Per employee					
District areas	15.2	14.0	18.3	23.7	15.9
Non-district areas	15.4	15.3	16.2 *	17.0 *	15.5
Per employee (Manufacturing)					
District areas	16.3	14.6	15.5	32.5	15.9
Non-district areas	15.3	14.7	17.2	13.9 **	15.2

Independent samples T-Test: * significant at 5% level; ** significant at 1% level.

Source: Authors' calculation based on ISTAT data (2002).

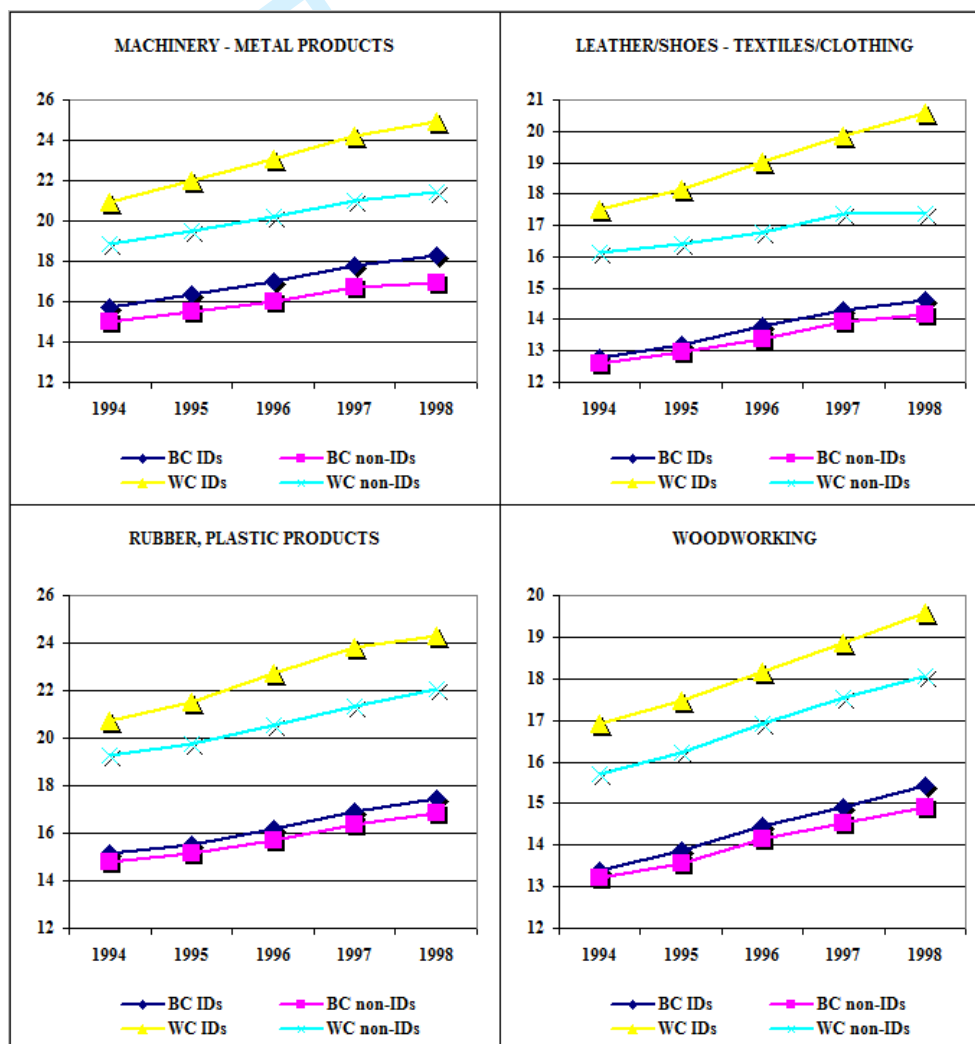
Table 8 Salaries inside and outside industrial districts (Euro, 1994-98).

	District areas	Non-District areas	% Diff.	District areas	Non-District areas	
<i>Blue Collars</i>	Total values (1998)			% Growth (1994-98)		
Machinery - Metal Products	18,287	16,944	7.9	16.2	13.1	**
Leather/Shoes - Textiles/Garment	14,640	14,160	3.4	14.7	12.6	
Rubber. Plastic Products	17,444	16,833	3.6	15.4	13.8	
Woodworking	15,411	14,909	3.4	15.1	12.9	**

<i>White Collars</i>	Total values (1998)		% Diff	Growth (1994-98)		
Machinery - Metal Products	24,915	21,452	16.1	19.0	13.7	**
Leather/Shoes - Textiles/Garment	20,570	17,394	18.3	17.4	8.0	*
Rubber. Plastic Products	24,328	22,080	10.2	17.4	14.7	
Woodworking	19,586	18,077	8.3	15.9	15.2	

Independent samples T-Test: * significant at 5% level; ** significant at 1% level.
Source: Authors' calculation based on INPS data.

Figure 1 Growth of salaries inside and outside industrial districts (Euro, 1994-98).



Source: Authors' calculation based on INPS data.

Table 9 Salaries inside and outside industrial districts: Index of dispersion (Euro, 1994-98).

	District areas	Non-District areas		District areas	Non-District areas
<i>Blue Collars</i>	Total values (1998)		% Diff.	% Growth (1994-98)	
Machinery - Metal Products	0.64	1.73	-63%	1.1%	1.3%
Leather/Shoes - Textiles/Garment	1.37	2.81	-51%	9.2%	-1.2%
Rubber. Plastic Products	0.77	2.29	-66%	2.9%	-0.1%
Woodworking	0.59	1.28	-53%	-0.8%	6.8% *
<i>White Collars</i>	Total values (1998)		% Diff.	% Growth (1994-98)	
Machinery - Metal Products	1.16	3.70	-69%	-1.4%	1.5%
Leather/Shoes - Textiles/Garment	3.83	5.22	-27%	21.2%	-3.2%
Rubber. Plastic Products	1.44	4.59	-69%	6.6%	0.1%
Woodworking	1.96	3.81	-49%	-6.3%	3.9%

Independent samples T-Test: * significant at 5% level; ** significant at 1% level.

Source: Authors' calculation based on INPS data.

Table 10 Impact of the district effect: OLS estimations

	Emp_growth
District	0.039* (2.25)
Emp_91	-0.000** (4.54)
Unem_rate	-0.012** (3.99)
VAemp_96ind	0.001 (0.65)
NE	-0.143* (2.43)
NW	-0.227** (3.90)
C	-0.180** (3.55)
Constant	0.152* (2.13)
Observations	784
R-squared	0.310

Robust t statistics in parentheses: * significant at 5%; ** significant at 1%