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**The determinants of outsourcing and off-shoring strategies
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3 The determinants of outsourcing and offshoring strategies in industrial districts: evidence from Italy
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3 Abstract
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5 Outsourcing has become more and more a distinguished feature of the recent evolution of industrial
6 districts and constitutes the object of this study. We focus on the industrial district of Castel
7
8 Goffredo, which is the largest European manufacturing area specialised in tights. We analyse the
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10 determinants of outsourcing as function of firms' specific characteristics and how they affect the
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12 geographical reach of outsourcing relations. Our firm level analysis allows to grasp the impact of
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15 firm heterogeneity on outsourcing decision.
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22 Jel codes: R12, R1, R
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25 Keywords : offshoring, outsourcing, industrial districts, ceramic sector,
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30 1. Introduction

31 Industrial districts have long been representing the backbone of the Italian manufacturing industry.
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33 Since the second half of the 1970s, following post-fordist restructuring of the Italian manufacturing
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35 system, they have emerged as a model of decentralised production and flexible specialisation.
36
37 Typically, the division of labour among local players is deep, also supported by specific local
38
39 institutions. The specialised functions and competences recombine continuously at the territorial
40
41 level, generating variety and a distinct capacity of the system to respond rapidly to changing
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43 markets. Knowledge externalities and benefits from labour market pooling work as an important
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45 centripetal force, further attracting localization of specialized suppliers and broadening the scope
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47 for further division of labour and specialisation (BECATTINI, 1990; BRUSCO, 1982; GAROFOLI,
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49 2002; PYKE, BECATTINI and SENGENBERGER, 1990; SCOTT, 1988). In this regard, local
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51 outsourcing has been always represented a mechanism through which territorial chains have
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53 articulated, giving rise to a dense local web of subcontracting relationships.
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59 In the last decade or so, however, this model of flexible specialisation has been put under significant
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strain by the increased competition in international markets, the emergence of new global players

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3 and the restructuring in the international division of labour they have brought about. Industrial
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5 districts have broadly transformed, as established business models have changed in terms of both
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7 organisational structure and competitive drivers. The late process of industrial restructuring has
8
9 significantly modified the conventional ‘marshallian’ paradigm, on which districts prospered in the
10
11 1980s, in particular in relation with the degree of vertical integration and the spatial dimension of
12
13 the dense web of production relationships. In the new competitive environment, district firms have
14
15 been forced to achieve greater efficiency by growing in size, through strategies of merger and
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17 acquisition and the creation of business groups, and cutting costs, mainly via the externalisation of
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19 labour intensive phases of production to local or distant subcontractors, or to upgrade their core
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21 activities (CORÓ, VOLPE and BONALDO, 2005; CAINELLI, IACOBUCCI and MORGANTI,
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23 2006). As a consequence, nowadays, industrial districts, once characterised by geographically
24
25 bounded networks of SMEs, are more often populated by large and medium size firms, and, in
26
27 several cases, the local leaders have turned into “small multinationals” or business groups that
28
29 govern global value chains (RABELLOTTI, CARABELLI and HIRSCH, 2009). In particular,
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31 outsourcing strategies, the object of the present study, have been reshaping the structure of
32
33 territorial relationships and the spatial boundaries of the district-related value chains. As such they
34
35 have become an issue of debate among scholars and concerns by policy makers, in particular in the
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37 case of international outsourcing (offshoring). On the one hand, offshoring can turn into an
38
39 important channel of internationalisation, beyond the traditional export-based model of district
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41 firms. The search for distant suppliers and the delocalisation of production stages can allow input
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43 sourcing at more favourable cost conditions, but also access to markets, especially emerging ones,
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45 and integration into global networks. However, as the competitive advantages of industrial districts
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47 are strongly localised, based on integrated systems of customers, subcontractors, services and
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49 knowledge (RABELLOTTI, CARABELLI and HIRSCH, 2009), distant outsourcing is likely to
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51 reduce this density and weaken the local capacity to continuously generate idiosyncratic knowledge
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53 and recombine functions among local actors.
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3 The present work focuses on the industrial district of Castel Goffredo, which is the largest European
4 manufacturing area specialised in tights production, accounting for approximately 75% of the
5 Italian production, 60% of the European one and 30% of the world production (Banca Intesa, 2004;
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10 www.adici.it).

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12 The case of Castel Goffredo is exemplary of the transformations occurring in Italian industrial
13 districts. In fact, this district went through a process of vertical disintegration in the nineties, which
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17 was followed, more recently, by a process of concentration and partly of internationalisation (Banca
18 Intesa, 2004). Our attention goes to the processes of organisational and geographical restructuring
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22 of the production value chain. In particular, we aim at analysing the firm-level determinants of
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26 outsourcing. In this way we aim at shedding light on the micro dynamics that result into the
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29 broader transformation captured by the studies based on aggregate data. Indeed, our firm level
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33 analysis allows to grasp the impact of firm heterogeneity on the outsourcing decision. More in
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37 details, we examine how firms' characteristics (e.g. size, degree of vertical integration, product
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KILIÇASLAN, 2005; TOMIURA, 2005). The outcome of this analysis has obviously implication
for the internal dynamics of industrial districts. We relate the findings to the specific territorial
context investigated and contribute with new evidence to the understanding of the evolutionary
paths of industrial districts.

2. Outsourcing and offshoring strategies in industrial districts

Outsourcing and its variants and specifications (e.g. subcontracting, networking) identify firms' strategies to cope with a continuously changing and increasingly diversifying pattern of demand, while preserving or strengthening efficiency (AJAYI, 2005). These organisational forms constitute the peculiar character of industrial districts. Indeed, a high degree of specialisation and the co-

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3 ordination of local supply chains are at the base of the post-fordist flexible specialisation model, in
4
5 which the potential weaknesses at the firm level (e.g. small size) are turned into key competitive
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7 factors (COOKE and MORGAN, 1994; PIORE and SABLE, 1984; SCOTT, 1988; STORPER and
8
9 SCOTT, 1989). It is at the level of the territorial system that economies of scale and scope emerge,
10
11 that is, localised networks of SMEs enjoy external economies, which replace the internal economies
12
13 of scale that generally characterise large corporations (BECATTINI, 1990; BRUSCO, 1982;
14
15 MASKELL and MALBERG, 1999).

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18 Local outsourcing is the mechanism by which specialisation and flexible recombination of
19
20 specialised functions are achieved. Its local character relates, first of all, to cost advantages, driven
21
22 by self-reinforcing marshallian externalities. Physical proximity favours the emergence of
23
24 pecuniary externalities, as firms can easily access, at lower costs, resources, specialised markets of
25
26 inputs and providers. This entails that outsourcing of production activities, in particular for
27
28 production smoothing, often takes place at the local level. Furthermore, as the transaction cost
29
30 approach suggests, outsourcing to local suppliers is more beneficial because firms can more rapidly
31
32 monitor the quality of the input and services provided by subcontractors. Long distance
33
34 outsourcing, on the other hand, can generate longer lead times, larger inventories, communication
35
36 and co-ordination problems, difficulties in contractual specification and monitoring
37
38 (WILLIAMSON, 1985). This is even more relevant when non-standardised tasks or specific assets
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40 are concerned, as in advanced services, which entail significant customisation, frequent contacts
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42 between users and providers, or even simultaneous production and consumption (HOWELLS,
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44 2000).

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Secondarily, a network based organisation, like the one prevailing in districts, can turn into a *locus* of innovation and knowledge production, fuelled by knowledge externalities (CAMAGNI, 1991). Firms learn through user-producer relationships along the value chain (LUNDVALL, 1992) as well as along horizontal linkages, via informal know-how trading with competitors (VON HIPPEL,

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2
3 2001). Also, local learning is enhanced by labour market pooling, and the high degree of labour
4
5 mobility.
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7
8 In districts, the decentralized production system combines proximity and diversity. Firms, which are
9
10 close in both geographical and social terms, create knowledge through the deepening in the division
11
12 of labour, and the variation and recombination of functions or products at the system level
13
14 (MASKELL, 2001). Moreover, opportunistic behaviour, which is regarded by the transaction cost
15
16 approach as the key reason for internalising activities, is significantly reduced. Physical, cultural
17
18 and social proximity facilitate transparency and control, so that formal and informal contracts are
19
20 more likely to be complied because deviant behaviours can be more easily identified and
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22 sanctioned.
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26
27 Nevertheless, the current economic scenario seems to put under pressure the mechanisms described
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29 above.
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32 As to start with, pecuniary externalities seem to be less relevant than in the past, in particular in
33
34 terms of costs advantages. In fact, as improvements in transport and communication technology
35
36 have reduced the costs of arm's length interactions, physical proximity becomes less important for
37
38 managing relationships along a fragmented (or de-verticalised) value chain. "Organized proximity",
39
40 that is, common behavioral rules and routines (TORRE and RALLET, 2005) and the means for
41
42 sharing information and knowledge, offers powerful mechanisms for long-distance coordination.
43
44 This implies that firms located in a cluster are not excluded from externalities generated somewhere
45
46 else (PHELPS, 2004; PHELPS and OZAWA, 2003); what matters is the "accessibility" rather than
47
48 "proximity" to the sources of externality In other words, location in one area does not preclude
49
50 access to externalities generated in another area if the two are strongly connected, by means of
51
52 exchange of inputs and intangibles and in terms of business culture or practices (CUSMANO et al.,
53
54 2010). Paradoxically, the wider availability of pecuniary externalities pushes individual firms to
55
56 search for partners outside the boundary of the cluster, and in so doing puts under threats the
57
58 internal dynamics of traditional industrial agglomeration.
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3 Second, the extreme specialisation implied by vertical disintegration might imply that the space for
4 interactive learning is indeed reduced, as cognitive distance between clusters' members widens. On
5 the other hand, as BOSCHMA (2005) points out, intense horizontal cooperation and knowledge
6 sharing might also undermine the benefits of interacting with firms in the cluster, as they get too
7 similar in their knowledge bases. All in all, these forces might generate *lock in* that firms escape by
8 establishing relations with partners (e.g. subcontractors, providers) external to the cluster
9 (ARTHUR, 1983; BATHELT et al. 2004; GRABHER, 1993). External linkages might in fact help
10 firms in clusters to access complementary assets and new market relationships, so reducing static
11 and dynamic uncertainty (CAMAGNI, 1991). This seems to be increasingly the case for firms that
12 search for specialised knowledge in non-manufacturing activities, such as advanced services, which
13 is indeed the kind of outsourcing that characterises the recent wave of industrial restructuring. Some
14 business service functions are extremely sophisticated to be developed within firms, especially
15 SMEs, which are inherently bounded in their financial and competence resources and have too little
16 scope and scale economies to carry out these activities (BEYERS and LINDAHL, 1996; COE,
17 2000). Traditional manufacturing districts tend to be short of advanced service providers and firms
18 often refer to specialists outside of the district, especially in the large markets of possibly close
19 metropolitan areas.

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21
22 As third point, we have to mention the upsurge of international subcontracting towards low-cost
23 areas, which stems from the increasing competition in international markets (FEENSTRA, 1998).
24 Cost factors have been always present in districts firms' strategies; however they feature even more
25 prominently today as competition has become harsher for districts specialised in traditional
26 industries (AMIGHINI and RABELLOTTI, 2006; CORÓ, VOLPE and BONALDO, 2005;
27 RABELLOTTI, 2004). In a globalised world economy, this implies that firms seek for factor price
28 differentials across countries and regions, particularly, though not exclusively, in labour-intensive
29 and routinised unskilled production activities. It is in traditional sectors that cost-cutting strategies
30 have often resulted in total outsourcing, so giving rise to global buyers, which co-ordinate global

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3 production networks of subcontractors in many different countries (GEREFFI, 1999). A side effect
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5 at the level of the district of these business strategies can be the dismantling of the above
6
7 mentioned local user-producer relationships, which are at best replaced by similar patterns of
8
9 subcontracting relationships in peripheral areas of advanced countries or developing regions.
10
11

12 Finally, we acknowledge that the organisational structure of districts has evolved significantly
13
14 towards a greater internal heterogeneity. Few districts can nowadays be represented as an
15
16 undifferentiated and homogeneous population of SMEs linked by subcontracting relationships
17
18 (LAZERSON and LORENZONI, 1999; TAYLOR and THRIFT, 1982). Industrial districts differ to
19
20 a large extent, some are characterized by highly competing networks of small firms, others are
21
22 conversely populated by a small core of large firms with several subcontractors or see the
23
24 emergence of a limited number of business groups of medium size firms (BELUSSI et al. 2002;
25
26 CAINELLI, IACOBUCCI and MORGANTI, 2006; PANICCIA, 2002). As far as outsourcing is
27
28 concerned, district firms are undertaking different strategies in which their individual or sectoral
29
30 characteristics might shape the nature and extent of this process. In order to unfold the
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32 heterogeneity of these strategies, the next section presents the recent evidence brought by the
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34 literature on firm level determinants of outsourcing.
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43 2.1 The determinants of firm level outsourcing: brief overview of the empirical literature

44
45 A number of recent empirical studies have investigated the determinants of outsourcing strategies
46
47 using firm level data (CUSMANO et al., 2010; GIRMA and GÖRG 2004; MAZZANTI et al., 2007;
48
49 MOL, 2005; TOMIURA, 2005). These contributions analyse the firm characteristics that impact on
50
51 outsourcing strategies and, when built on evidence from specific local production systems (e.g.
52
53 MAZZANTI et al., 2007; 2009) draw implications about the industrial restructuring at the territorial
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55 level induced by firm level strategies. These latter studies also comment on whether outsourcing
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57 drivers have different explanatory power in cluster or district settings, related to the peculiar
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59 organization and dynamics of the industrial agglomeration.
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3 Among firm characteristics, size is regarded as an important explanatory factor by the empirical
4 literature. Subcontracting relationships are for example often modelled as an asymmetric relation
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6 between large firms and small subcontractors (TAYLOR and THRIFT, 1982). Thus large firms
7
8 might be expected to be more engaged in externalisation, in particular in relation with activities that
9
10 can be carried out also by small firms, presumably labour intensive tasks. A positive sign between
11
12 size and outsourcing is expected if subcontracting is intended as a strategy of "production
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14 smoothing", which allows large firms to reduce costs and enhance flexibility (IMRIE, 1986;
15
16 KIMURA, 2002; TAYAZ and KILIÇASLAN, 2005). Conversely, the literature inspired by the
17
18 Resource Based View of the firm suggests that small firms are more likely to outsource, due to the
19
20 limited resources available, which are largely focused on core activities (ABRAHAM and
21
22 TAYLOR, 1996; CORÓ and GRANDINETTI, 1999). However, we might also argue that small
23
24 firms outsource less, given that they have a smaller scope to start with, and, especially as far as
25
26 service activities are concerned, fewer and simpler needs than large firms (MARTINEZ and
27
28 RUBIERA, 2004). The effect of size has been tested by some recent empirical works (CUSMANO
29
30 et al., 2010; GIRMA and GÖRG, 2004; MAZZANTI et al. 2007; 2009), which however do not
31
32 provide clear cut evidence. According to Mazzanti et al. (2009), in the case of local production
33
34 systems ambiguous results are not unexpected, as outsourcing does not occur within a "dual"
35
36 relationship, in which the largest firms subordinate the smaller firms. Large firms have certainly
37
38 more scope for outsourcing and may have greater capacity to manage and coordinate fragmented
39
40 value chains, but SMEs can resort to outsourcing as a means of implementing a heterarchic division
41
42 of labour within the system. This dynamics of SME-led social division of labour is indeed what the
43
44 literature identifies as a defining character of the Italian district productive organisation, which is
45
46 highly different from the division of labour connected to technical and organizational needs that are
47
48 defined by the leading firm (GAROFOLI, 2002).

49
50 Productivity is widely tested by the literature, following the hypothesis that outsourcers enjoy
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52 higher productivity than vertically integrated firms (OLSEN, 2006). The rationale is that firms
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3 outsource activities in which they are less efficient, in so doing they focus on core competencies or
4
5 reallocate resources towards activities with greater value added, thus gaining in productivity. Only
6
7 very few studies have analysed the reverse direction of causality, providing however no clear cut
8
9 evidence (KIMURA, 2002; TOMIURA, 2005).

10
11
12 Propensity to innovate and R&D intensity are also considered factors that might impact on
13
14 outsourcing (MAHNKE, 2001; MOL, 2005). The conventional view suggests that firms operating
15
16 in R&D intensive industries tend to be vertically integrated because they have to recover the sunk
17
18 costs generated by innovation investment. As suggested by the transaction cost approach, firms
19
20 dealing with complex products face appropriability problems, therefore they internalise these
21
22 activities to avoid knowledge leakages (WILLIAMSON, 1985). On the other hand, the 'open
23
24 innovation' literature, which conceives firms as open platforms (CHESBROUGH, 2003), argues
25
26 that companies need to develop extensive external networks, in particular international ones, to
27
28 access relevant capabilities (BARNEY, 1999). In a similar vein, modular technologies and products
29
30 show that outsourcing is desirable for firms operating in highly changing markets (BRUSONI et al.,
31
32 2001). In the case of local production systems, outsourcing at the local level may allow to tap into
33
34 the resources and competences of skilled suppliers, which can feed the innovation process
35
36 (MAZZANTI et al., 2009).

37
38
39 As far as human capital is concerned, it can be argued that firms pursuing cost cutting strategies
40
41 externalise those activities that employ mainly low skill workers or blue collars. On the other hand,
42
43 firms with high skill workers are less willing to outsource activities that entail the risk of losing
44
45 relevant capabilities. Both rationales should emerge in the data in terms of a negative relation
46
47 between percentage of skilled workers and probability of being an outsourcee. Finally, some
48
49 authors suggest that skilled workers are deemed essential for accessing international markets and
50
51 negotiating with foreign partners (TOMIURA, 2005). Hence qualified human resources might be
52
53 associated with foreign outsourcing.
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1
2
3 The outward orientation of the firm seems to be an important control for international outsourcing.
4
5 Most studies show a positive relationship between export and international outsourcing
6
7 (CUSMANO et al., 2010; TOMIURA, 2005), which is consistent with the idea that firms having
8
9 already business experience abroad can reduce the fixed costs of foreign contracting.
10
11

12
13 As for the effect of the position of firms in the value chain, it is straightforward that firms operating
14
15 in many different stages of production have higher scope for outsourcing. In particular, it is
16
17 suggested that firms operating along the final stages of the value chain would show higher
18
19 propensity to outsource. Outsourcing in this case represents an effective strategy for smoothing
20
21 production over different subcontractors, thus coping with seasonal or demand peaks (IMRIE,
22
23 1986). This argument is consistent with the evidence on cost saving strategies, as found in recent
24
25 works on subcontracting relationships (TAYMAZ and KILIÇASLAN, 2005).
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32 3. The Castel Goffredo hosiery district: research questions and methodology

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34 Our empirical investigation examines the case of the hosiery district of Castel Goffredo, which is
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36 among the world leaders in women tights, accounting for approximately 80%, 70% and 30%
37
38 respectively of the Italian, European and worldwide production (WWW.ADICI.IT). The district is
39
40 located in the Northern Italian region of Lombardy, Italy's wealthiest and most industrialized area,
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42 and it counts 280 firms, employing more than 7000 workers (WWW.ADICI.IT).
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47

48 3.1 Why Castel Goffredo: research questions

49
50 Over the last decade, Castel Goffredo has attracted the attention of scholars as a paradigmatic
51
52 example of the evolutionary transformations of Italian industrial districts (COOKE and MORGAN,
53
54 1994; BELUSSI and SEDITA, 2009). As in many other districts, in fact,, its origin dates back to the
55
56 end of the Second World War, and it revolves around the fortunes and misfortunes of a large firm.
57
58 Decentralised production and flexible specialisation followed the rise and fall of "Noemi", the large
59
60 vertically-integrated firm that, from 1924 to the 1950s, was the only hosiery producer in the area.

1
2
3 When the firm went bankrupt in the mid-50s, new firms spun off and specialised in the different
4 phases of production (LAZERSON and LORENZONI, 1999). As for most industrial districts,
5
6 during the sixties and seventies the rapid growth of the local network of firms and the attractiveness
7
8 to foreign operators were favoured by the low costs of production and the increasing demand of
9
10 tights that favour. However, as in other traditional labour intensive businesses (e.g. clothing,
11
12 leather, shoes), the 1980s and early 1990s brought about major changes in market demand, which
13
14 became increasingly sensitive to temporary fashion trends (BANCA INTESA, 2004; AASTER,
15
16 2006). This turning point meant for many industrial districts either the beginning of a sharp decline,
17
18 or the shift towards a new business model based on trading rather than manufacturing (BOSCHMA
19
20 and LAMBOOY, 2002; GRABHER, 1993). Castel Goffredo belongs to the group of successful
21
22 districts that have been able to keep their manufacturing core and reposition themselves on the
23
24 international markets by upgrading their activities at functional, process and production level.
25
26 Under the stimuli of an increased international competition, firms within the district have achieved
27
28 higher efficiency by growing in size and at the same time focusing on core activities while sourcing
29
30 out (also internationally) labour intensive ones.
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38 The question that arises is then how this new organisational structure might affect the internal
39
40 coherence of the district. In particular, does the emergence of small multinationals, along with the
41
42 survival of local manufacturing activities, trigger a process of multiple embeddedness or re-
43
44 embeddedness, in which local ties help to preserve the district's culture while external linkages feed
45
46 the district with novel ideas and competences (ZUCHELLA, 2006). On the contrary, does it rather
47
48 lead to a process of dis-embeddedness, with disruption of local learning and productive relations?
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52 In order to understand the extent of this process of re-embeddedness, and the role that the different
53
54 types of district firms might play in it, we carry out a quantitative analysis at firm level, testing the
55
56 impact of firm characteristics on outsourcing (both domestic and international). The empirical and
57
58 theoretical literature on outsourcing discussed in section 2.1 provides a useful background to
59
60 formulate testable propositions. As to start with, size is a key determinant to understand the role of

1
2
3 emerging “small multinationals” and in particular the extent of their internationalisation. Although
4
5 empirical research does not provide clear cut evidence on this point (see section 2.1), based on the
6
7 qualitative evidence on Castel Goffredo shortly discussed above (BANCA INTESA, 2004;
8
9 AASTER, 2006), we expect large firms to play a major role in international outsourcing, as small
10
11 firms are relatively more inclined to outsource locally. Similarly, export orientation is, as
12
13 unanimously suggested by the literature, positively linked to international outsourcing. We expect
14
15 this to be the case also for Castel Goffredo. Qualitative evidence based on secondary sources and
16
17 direct interviews also support this hypothesis (BANCA INTESA, 2004; AASTER, 2006) that
18
19 innovation and productivity are positively related to international outsourcing, as other studies
20
21 focusing on the Italian case suggest (CASTELLANI, 2007). However, the presence of specialised
22
23 subcontractors and, in particular, of specialised providers of capital goods in the district, might
24
25 suggest that local learning is still a major source of change and we might therefore expect a positive
26
27 relation between innovation and domestic outsourcing. As for human capital, we need to account
28
29 for the fact that blue collars in district based SMEs are often repositories of idiosyncratic and tacit
30
31 knowledge, which is sticky and hardly (or costly) replaceable. As Becattini et al. (2003) suggest, the
32
33 district’s capacity for innovation depends on the ability to integrate codified knowledge with the
34
35 wealth of tacit knowledge that is mainly embedded in local entrepreneurs and workers.. Hence,
36
37 despite most literature would suggest a positive relation, the peculiarity of the innovation process in
38
39 industrial districts makes it a case for a less straightforward outcome. . Finally, a key question in
40
41 this context is to understand what kind of functions and products (high vs low value added) are
42
43 relocated either locally or abroad. Evidence of this kind would provide robust evidence on the
44
45 processes of re-embeddedness and dis-embeddedness. To illustrate this point we first check what
46
47 type of production phases are sourced out and where (a typology of production phases is presented
48
49 in Table 1). In the econometric analysis (section 4) we analyse also the range of goods (high vs low
50
51 quality) outsourced by firms. We expect to find that firms outsource locally the production of high
52
53 quality goods.

-----TABLE 1 HERE-----

3.2. Data and methodology

Our empirical analysis exploits micro firm-level data based on a survey which the “Centro Servizi Calza” (“Tights Service Centre”, a local business centre) conducted in 2005. The survey includes all the 205 firms that, according to the local Chamber of Commerce, were operating in the district of Castel Goffredo and were identified as belonging to the following *Atecofin 4* activity codes:

17.71.0 Manufacturing of hosiery items;

18.23.A Packaging of underwear items;

18.24.3 Other manufacturing related to the clothing industry.

For 85% of these firms, turnover is lower than 5 million euros; 25% of the units are microfirms recording a turnover lower than 150.000 euros (Table 2).

The survey is composed of 98 questions, grouped into ten sections, pertaining: turnover, employment, production structure, technology, commercialization and strategy. While some general questions were answered by all the surveyed firms, there are specific questions to which only some of the firms replied. For this reason, large part of the analysis is conducted on a smaller sample of 100 firms, which provided all the information needed for the purposes of this study. It is worth noting that this sample of 100 firms is representative of the whole population. The larger sample (205 firms) will be used for some of the variables under study.

In the survey, outsourcing is explicitly detected by way of three questions:

- “Does the firm make use of external labs or firms in order to complete its own processing cycle?”;

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- “If so, specify for which activities (as listed) tasks are outsourced to firms or labs that do not belong to the firm’s group. Please specify also if the external firms are located in Italy or abroad”;
 - “If you rely on external labs or firms, then specify, for each production phase, the share of the total output that is produced internally and the share that is sourced from external firms”.

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-----TABLE 2 HERE-----

27 All the 100 firms included in the sample have consistently answered these questions. Moreover,
28 given that firms were also asked to define the phases in which they operate, we decided to exclude
29 from the sample all the firms that declared to outsource activity in a production phase in which the
30 firm does not report to operate. In other words, we consider as outsourcees only firms which, after
31 having reported to operate in some given phases, also declare to outsource at least one of these same
32 phases, even when the percentage of outsourced activity is 100%. We investigate the determinants
33 of outsourcing and offshoring by means of econometric analysis. Section 6 presents the
34 methodological details of the econometric analysis. Before that, we illustrate the descriptive
35 statistics concerning the outsourcing behaviours of firms in Castel Goffredo.
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53 4. Outsourcing and offshoring in Castel Goffredo: descriptive evidence

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At a first glance, outsourcing emerges as a pervasive phenomenon in the tight district of Castel Goffredo. Indeed, on average almost 60% of firms resort to outsourcing in at least one of the production phases in which they declare to operate. However, outsourcing is not uniformly

1
2
3 distributed across firms: largest firms appear to be by far the most engaged in contracting out. As
4 shown in Table 3, more than 72% of firms with a turnover equal or higher than Euro 0.5 million
5 have contracted out some activity. This share falls abruptly in the case of small and medium firms,
6 where figures range from 33.3% (firms with a turnover between 0.15 and 0.3 million) to 46.1%
7 (firms with a turnover between 0.15 and 0.3 million). In the case of very small firms (firms with a
8 turnover less than 0.15), outsourcing concerns a minority of business units (10.5%). This outcome
9 is in line with the literature arguing that large firms externalise more than very small firms (firms
10 with a turnover less than 0.15), first of all because they have more scope for it, in particular as far as
11 production functions are concerned (MARTINEZ and RUBIERA, 2004). On the other hand, the
12 evidence does not support the assumption that, in districts, also smaller units resort significantly to
13 outsourcing practices, as a means of implementing a heterarchic division of labour (MAZZANTI et
14 al., 2009).

15
16
17 Large and small firms behave differently also with regards to the geographical dimension of
18 outsourcing (Table 3). International outsourcing is very common for larger firms in the district,
19 while absent for small and micro ones. On average a 44% share of large firms outsources some
20 activity abroad, as compared to 6% of small firms and 0% of micro ones. On the contrary, domestic
21 outsourcing represents the rule for SMEs. This outcome is consistent with the peculiar structure of
22 Italian industrial districts, which still largely consist of SMEs embedded in dense local production
23 and social relations.
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51 -----TABLE 3 HERE-----
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55 Nevertheless, it also supports those studies pointing to the increased heterogeneity within industrial
56 districts, in this case with respect to the spatial outreach of the firms' outsourcing strategies and the
57 rationales underlying them. In fact, the evidence suggests that outsourcing strategies of SMEs are
58 most likely driven by the search for complementary assets, which can be found in close proximity
59
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3 among the numerous specialised suppliers within the district. On the contrary, larger firms' decision
4
5 to outsource is apparently more cost-driven, as they establish foreign linkages to source out labour
6
7 intensive stages of production.
8
9

10 In order to explore this hypothesis, we consider the content of the activities performed by firms. The
11
12 focus is on the main stages of the tight's production, and we expect that the degree of outsourcing
13
14 varies according to the type of function considered. It has to be pointed out that not all the firms in
15
16 the district undertake the full range of production functionsⁱ, although manufacturing is present in
17
18 most of them. Indeed a very tiny percentage of firms fully externalise the production functions. If
19
20 we look into the functions that are partly outsourced, the labour intensive ones (i.e. sewing;
21
22 finishing and packaging) rank first and second, standing well above the more capital intensive
23
24 phases. This result suggests that cost motivations are as present in industrial districts as in the
25
26 manufacturing sectors of advanced regions at large (see CUSMANO et al., 2010). It also supports
27
28 the view that, even in a district-like context, outsourcing is more likely to concern routine-based
29
30 activities with low value added, rather than intangible, higher value added activities, which are
31
32 better kept internal (ANTONIOLI, 2009)
33
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41 -----TABLE 4 HERE-----
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46 The evidence illustrated in Table 4 also points to the peculiarity of firms' district strategies: full
47
48 disinvestment is almost never a viable option for the district's firms, while the opposite, full
49
50 internalisation, is not common.
51

52 This evidence is further investigated by looking at the organisational and geographical dimensions
53
54 of outsourcing strategies. Table 5 reports the number of production stages carried out by firms
55
56 (rows) and the percentage of firms that outsource in one or more stages of production (columns).
57
58 What stands out is that firms engaged in more sections tend to externalise in almost all the stages in
59
60 which they operate, often retaining only the production in one stage as fully internal. The only firm

1
2
3 that performs the five stages of production externalises in each one of them, and the other firms
4
5 undertaking more than three stages of production outsource at least two or more of them. Table 5
6
7 also points at a core of highly specialised (mono-function) small firms, half of which do not
8
9 experience outsourcing. These are indeed likely to be the local subcontractors to the largest district
10
11 firms.
12
13

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15 -----TABLE 5 HERE-----
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18
19
20 As far as the geographical breadth of outsourcing is concerned, Table 6 shows that both labour and
21
22 capital intensive phases of production are mostly outsourced locally. However, if we look at the
23
24 absolute number of firms that offshore (outsource at the international level), labour intensive stages
25
26 are more fragmented across boundaries.
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31 -----TABLE 6 HERE-----
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34 35 36 37 38 5. The econometric analysis 39 40

41 42 43 5.1 Models and variables 44 45 46

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48 We model outsourcing as a function of a number of variables reflecting firm-specific
49
50 characteristics. The dependent variables are built by checking the consistency of the three
51
52 mentioned questions of the survey that explicitly deal with the outsourcing choice and are devoted
53
54 to understand respectively: whether the firm outsources part of its activity; which stages of
55
56 production are concerned by the outsourcing decision; which is the proportion of activity
57
58 outsourced for each production stage. Only firms that have outsourced in the stages pertaining to the
59
60 five “pure” manufacturing processes (i.e. texturization, weaving, sewing, dyeing, confection; thus

1
2
3 excluding commercialization and other services) and that have consistently answered to all the three
4
5 questions on outsourcing have been included in the analysis. We use a *generalized ordered logit*
6
7 (Gologit) model for explaining the relation between the independent variables and the probability of
8
9 outsourcing (at least) part of the firm activity, and a *Tobit* model for explaining not only the choice
10
11 of outsourcing, but also the percentage of activity outsourced.
12
13

14
15 The choice of an *ordered* model for explaining the probability of outsourcing is dictated by the
16
17 observation that all the firms in the sample that outsource abroad part of their activity deal also with
18
19 Italian outsourcers, suggesting an ordered classification of firms as: not dealing with any outsourcer
20
21 (category 1); dealing only with Italian outsourcers (category 2); dealing both with Italian
22
23 outsourcers and with foreign outsourcers (category 3). In particular, we choose a *generalized*
24
25 ordered model, in its totally unconstrained version, in order to allow the effects of the explanatory
26
27 variables to vary with the point at which the categories of the dependent variable are dichotomized
28
29 (MADDALA, 1983, p.46). In other words, we obtain different intercepts and different coefficients
30
31 for each category threshold j , according to the Gologit model
32
33
34

$$35$$

$$36$$

$$37 p(c_i \geq j+1) = \frac{\exp \beta'_j x_i}{1 + \exp \beta'_j x_i}$$

$$38$$

$$39$$

40
41 where j can have value equal to 1 or 2 (we have two threshold points j as we have three firm
42
43 categories), and c_i is the category to which firm i belongs. The two series of parameters obtained at
44
45 each estimation of the model correspond respectively to the influence of the independent variables
46
47 first on the choice of outsourcing in Italy (domestic outsourcing, when c_i exceeds the first
48
49 threshold), and then on the choice of outsourcing also abroad (international outsourcing, when c_i
50
51 exceeds the second threshold). The model is estimated by using the STATA routine *gologit2* written
52
53 by WILLIAMS (2006).
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For the Tobit model, we compute the relative amount of outsourced activity (*outact*) by each firm i
as

$$outact_i = 100 \left(\sum_{h=1}^5 act_{ih} out_{ih} \right)$$

where act_{ih} is the activity in the production phase h as share of the overall activity of firm i , while out_{ih} is the amount of outsourced activity in the production phase h as share of the overall activity of firm i in the same production phase. h can refer to any of the five “pure” manufacturing phases. The variable $outact_i$ thus measures the percentage of activity outsourced by firm i in any of the five production phases with respect to the overall activity of firm i . As in the usual Tobit model, we assume that a latent variable y_i is, for each firm, linearly related to the independent variables, and is linked to the percentage of outsourced activity as in the following:

$$y_i = \beta' x_i + u_i$$

$$outact_i = \begin{cases} y_i & \text{if } y_i > 0 \\ 0 & \text{if } y_i \leq 0 \end{cases}$$

The independent variables x_i initially used in both the Gologit and the Tobit models are:

PRODUCTIVITY (*prod*): turnover class, represented by a number between 1 (less than 150,000 euros in 2004) and 12 (more than 250 millions in 2004), over the logarithm of one plus the number of the firm’s employees (including extra-district employees), see Table 2 for the correspondence between turnover class and actual turnover;

LOG NUMBER OF EMPLOYEES (*empl*): logarithm of the total number of employees (including extra-district employees);

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2
3 DEGREE OF VERTICAL INTEGRATION (*integr*): we consider the number of production phases
4
5 in which the firm operates (including the ones in which outsourcing is 100%); apart from the five
6
7 “pure” manufacturing phases we consider here also “commercialization”, although firms operating
8
9 only in this phase have been excluded from the sample;

10
11
12 PROPORTION OF BLUE COLLARS (*blue*): number of blue-collar workers and apprentices in the
13
14 firms (including extra-district employees) over total employment of the firm (including extra-
15
16 district employees);

17
18
19 PRODUCT RANGE (*range*): product range across the following categories of goods produced:
20
21 Man, Woman, Child, Underwear. The firm is asked the distribution of its activity over these
22
23 categories. These shares are used to compute a Herfindahl index of concentration. The index is then
24
25 inverted and logarithmed to provide a measure of product range which corresponds to a measure of
26
27 dispersion across the four categories of goods;

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29
30
31 PRODUCT QUALITY (*quality*): quality of the goods produced, defined in increasing quality order
32
33 as: first class, medium refined, fashion, special (*quality* respectively equal to 1, 2, 3, 4). The
34
35 variable is based upon an explicit question of the survey asking the firm which is the percentage of
36
37 the overall production that falls into each of the four quality classes. We then consider only the class
38
39 for which such percentage is higher.

40
41
42
43 PROCESS INNOVATION (*inno*): the firm is asked which is the percentage of old (up to 1998),
44
45 semi-recent (between 1999 and 2002) or recent (2003 or 2004) machineries for each manufacturing
46
47 phase in which it operates. The tools are thus classified into three “novelty” classes; we then
48
49 consider the section in which the firm has declared to operate most and check the “novelty class” in
50
51 which the highest percentage of tools lies (in case of equal percentages, we consider as dominant
52
53 the older instrument class). The variable can thus have three values, 1 or 2 or 3, respectively
54
55 corresponding to a majority of old or semi-recent or recent tools for the production phase in which
56
57 the firm mainly operates.
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3 Of the 205 firms that answered the questions of the 2005 survey, only 100 have consistently
4 answered all the questions relating to outsourcing as well as to all the seven independent variables,
5
6 i.e. the same 100 firms that have been considered in the previous sections. The characteristics of
7
8 this “extended” sample can be compared to the ones of the main sample of 100 firms by means of
9
10 descriptive statistics (Table 7), and a robustness check confirm that our results are not driven by the
11
12 sample selectionⁱⁱ. Finally, we will consider only the firms for which the first three independent
13
14 variables are available plus an additional variable which refers to the firm’s exports. Indeed, after
15
16 building the variable *export* according to the percentage of the final product which is aimed at the
17
18 foreign market, the sample is downsized to 57 firms, as only few firms have provided such
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20 information. Table 8 shows the correlations among the explanatory variables for the two
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22 subsamples.
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33 -----TABLE 7 HERE-----
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41 Within the main sample of 100 firms, 57 firms outsource at least part of their activity: 45 outsource
42 only to Italian firms, 12 outsource both to Italian and to foreign firms, and no one outsources only
43 to foreign firms. Table 9 presents the means of variables for different subsamples of outsourcing
44 firms, distinguishing between domestic and foreign outsourcing. We observe that all the seven
45 independent variables are on average higher for firms that outsource than for the whole sample, and
46 generally higher for firms that outsource abroad. A relevant exception to this is detected for the
47 *quality* variable: firms outsourcing only to Italian contractors are (on average) focussed on higher
48 quality segments than firms outsourcing also abroad. The *innovation* variable is, on the other hand,
49 in line with the general trend: the capital equipment of offshorers is (on average) more recent than it
50 is the case for firms that subcontract only at the national (or local) level.
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-----TABLE 9 HERE-----

5.2 Results

Before illustrating our findings it is worth mentioning that they should be interpreted with some caution, since the cross-sectional design of our data does not allow us to fully control for potential reverse causation effects, which might be relevant for some of the explanatory variables. For example, more productive firms can be expected to outsource more, but the reverse might be also true, firms that outsource ancillary activities might achieve higher productivity. Similar considerations can be applied, though to a lesser extent to most of our explanatory variables. Our data do not allow us to build convincing instruments, thus we cannot control for endogeneity. Therefore, our interpretation is limited to comment the direction of the effect of the explanatory variables, and we interpret results in terms of correlation. While reminding the reader of the important distinction between correlation and causality, we exploit the particular nature of our data (firm-level from a census conducted in a specific industrial district) to retrieve variable relations that should not be neglected when investigating the causal structures behind the phenomenon under study. That constitutes novel facts which are helpful in assessing the extent of applicability of the alternative theories on outsourcing.

Table 10 reports the estimates of the Gologit and Tobit models. In most of the specifications tested, as expected size (*empl*) appears to be a good predictor of outsourcing. Size is particularly significant in the case of international outsourcing, pointing to the fact that in order to engage in foreign subcontracting firms need to have a large pool of resources. This is in line with our expectations and

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2
3 the recent evidence in the literature (TOMIURA, 2005). This latter finding suggests that, in order to
4 extend beyond domestic borders the reach of their value chain, district's firms need to grow in size.
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6 This result provides support to the literature that see in the 'dwarfism' of Italian districts' firms their
7
8 major obstacle to get international, beyond the traditional export channel (ONIDA, 2004;
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10 NARDOZZI, 2004).
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14 Productivity (*prod*) appears to be a good predictor of outsourcing, also when we distinguish
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16 between the direction (Gologit) and check for the amount of outsourcing (Tobit). This would
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18 suggest that firms which are more efficient also tend to outsource more. The rationale can be that
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20 they focus only on those activities for which they have superior skills while getting rid of inefficient
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22 ones. However, the problem of reverse causality calls for caution. Indeed, the evidence on this issue
23
24 is scattered and generally test the reverse direction of causality (OLSEN, 2006). Some studies, for
25
26 example TOMIURA (2005), find a positive link between international outsourcing and
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28 productivity, given that going abroad imply high fixed costs, so only the most efficient firms can
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30 bear them.
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36 The degree of vertical integration (*integr*) shows a clear positive association with domestic
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38 outsourcing, for any specification of the model, and a positive relation can also be detected with the
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40 relative amount of activity outsourced. This outcome is not unexpected, indicating that highly
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42 vertically integrated firms have clearly more scope for outsourcing than firms active in one or few
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44 phases of production. However, the same variable does not seem to have a significant effect on the
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46 choice of offshoring. This suggests that the district dynamics described by early literature is still at
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48 work. In spite of the strong (mainly cost) incentives to go offshoring in traditional manufacturing
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50 sectors, the fragmentation takes place through – and strengthen - the dense input–output system at
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52 the local level (GAROFOLI, 2002).
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57 The significant negative coefficient for the share of blue collar employees (*blue*) indicates that firms
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59 having a smaller proportion of blue collars are those that outsourced the most. This might be the
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result of past outsourcing practices that have focussed on labour intensive phases, significantly

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2
3 reducing the actual share of blue collars. However, it might also be read differently: that firms
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5 having more blue collars, hence that rely on a large pool of in-house manufacturing expertise, tend
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7 to outsource less. In this view, those workers are qualitatively different from unskilled blue collars,
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9 as they might have the tacit knowledge that can be hardly found in firms outside the district. A
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11 definitive interpretation is however not possible in this study, as the data do not allow to disentangle
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13 between the two effects.
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17 The quality segment in which the firm operates (*quality*) is an important determinant of
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19 outsourcing. As expected, firms that are active in the high quality market segment are more likely to
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21 source out to an Italian supplier rather than to an international one. This suggests, on the one side,
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23 that foreign outsourcing is still largely confined to low value added activities, and on the other side
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25 that local (i.e. Italian) suppliers are present and specialised into the high value added functions.
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27 Innovation (*inno*) plays a role in explaining how much firms outsource; firms that are closer to the
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29 technological frontier tend to outsource more, as indicated by the Tobit model.ⁱⁱⁱ This is consistent
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31 with the literature that describes the search for knowledge complementarities as a key driver of
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33 linkage creation and task recombination in the district.
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39 Turning to the export behaviour of the firm, our results confirm what recent empirical studies have
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41 found (CUSMANO et al., 2010; TOMIURA, 2005): export is always positively associated with
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43 international outsourcing. Therefore, having some experience in doing business abroad seems to
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45 considerably lower the cost and uncertainty linked to the search of new subcontractors^{iv}.
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50 -----TABLE 10 HERE-----
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6. Conclusions

The globalisation of markets has widely affected the organization of production in highly dense manufacturing areas. Industrial districts, which have expanded through penetration of international markets, in the last decade or so struggled to cope with the new competitive scenario. In Italy, the evolutionary paths of traditional district areas have diversified, as district firms have adopted different strategic behaviors. In particular, outsourcing strategies, a typical driver of flexible specialization and a defining character of the post-fordist mode of production, have been reshaping the structure of territorial relationships and the spatial boundaries of the district-related value chains. In this paper, we investigated the determinants of outsourcing in a traditional Italian industrial district, i.e. the hosiery district of Castel Goffredo.

The empirical evidence shows that outsourcing is a widely diffused strategy in Castel Goffredo. However, this process has not implied the desertification of the local production structure. Most of the externalization takes place at domestic level (i.e. Italy). Moreover, it clearly appears that outsourcing is a strategy to smooth the production and cope with peaks of demand. Full externalization of functions is indeed a rare event, which, if it occurs, characterizes very specific activities. Most firms contract out labour intensive functions, suggesting that cost motivations are relevant outsourcing strategies across firm typologies. Nevertheless international outsourcing is a limited phenomenon, almost exclusively pertaining to the largest firms in the district. Moreover, we find that the strategy of building international value chains goes hand by hand with other internationalization strategies, such as exporting. Through the delocalization strategies of these large players, which reap the benefit of cheap labour advantage, the district has been evolving along a cost-efficiency path. Though delocalisation seems to be only incipient, in the long run it might imply the dismantlement of local ties with subcontractors and in turn the loss of jobs and competences, as some evidence on the Italian case already indicate (COSTA and FERRI 2007 as

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3 cited in CASTELLANI, 2007; CORO' and VOLPE 2006). Nevertheless, our findings also suggest
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5 that cost-efficiency is not the only (main) driver of district evolution. In fact, it is evident that the
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7 local subcontracting dynamics is still at work, especially in the case of firms specialized in the high-
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9 end segment of the market.
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12 . When these firms outsource, they generally search for domestic suppliers. This suggests that the
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14 local production system still exhibits a competitive edge over foreign suppliers, at least for niches
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16 comprising high value added activities. The preference for local suppliers, rather than distant ones,
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18 when competition is based on quality, seems also to suggest that monitoring and lead times can still
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20 represent important determinants of localization in traditional manufacturing. This evidence
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22 confronted with the current debate on the evolution of industrial districts (RABELLOTTI et al.
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24 2009) suggest that *re-embeddedness* rather than *dis-embeddedness* is still an option for industrial
25
26 districts.
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31 Recent literature argues that the industrial district model is evolving towards a network-based
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33 typology, depending only in part on local agglomerative forces (GORDON and MCCANN, 2000).
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35 This would be a system in which productive linkages and information flow would not be
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37 established exclusively with local partners, but rather with a mix of local and foreign sources
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39 (BATHELT et al., 2004; ZUCHELLA, 2006). In this context "small multinationals" might play an
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41 important role: acting as district activators (SAMMARRA and BELUSSI, 2004) or knowledge
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43 gatekeepers (MORRISON, 2008) they can nurture and revitalise local culture by in-sourcing
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45 external novel ideas. The evidence presented in this study suggests that, in high quality traditional
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47 manufacturing segments, this path of value chains restructuring still maintains a strong territorial
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49 anchorage, where outsourcing is a driver of localized thickening of inter-industrial relationships.
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20 8. References
21

- 22 AASTER (2006) Rapporto calzetteria Castel Goffredo, Centro Servizi Calza, Castel Goffredo.
23
24 ABRAHAM K. and TAYLOR S. (1996) Firms' use of outside contractors, theory and evidence,
25 Journal of Labor Economics 14, 394-424.
26
27
28 AJAYI D.D. (2005) Integration, industrial linkages and production subcontracting, an overview,
29 European Journal of Social Sciences 1, No 1, 42-61
30
31
32
33 ARTHUR B. (1989) Competing Technologies, Increasing Returns, and Lock-In by Historical
34 Events The Economic Journal 99 (394), 116-131
35
36
37
38 AMIGHINI A. and RABELLOTTI R. (2006) How do Italian footwear industrial districts face
39 globalization?, European Planning Studies 14 (4), 485-502
40
41
42
43 ANTONIOLI D. (2009) Industrial relations, techno-organizational innovation and firm economic
44 performance, Economia Politica 1, 21-52
45
46
47
48 BANCA INTESA (2004) Il distretto della calzetteria di Castel Goffredo, Milano.
49
50
51 BATHELT H., MALMBERG A. and MASKELL P. (2004) Clusters and knowledge: local buzz,
52 global pipelines and the process of knowledge creation, Progress in Human Geography 28, 31-56.
53
54
55 BECATTINI G. (1990) The marshallian economic district as a socio economic notion, in F.PYKE,
56
57 BECATTINI G. and SENGENBERGER W. (Eds.) Industrial districts and inter firms cooperation
58 in Italy, pp. 37-51, ILO, Geneva.
59
60

- 1
2
3 BECATTINI G., BELLANDI F., DEI OTTATI G. and SFORZI F. (2003) From industrial districts
4 to local development. An itinerary of research, Edward Elgar Publisher, Cheltenham.
5
6
7
8 BELUSSI F., GOTTARDI G. and RULLANI E. (Eds.) (2003) The Technological Evolution of
9
10 Industrial Districts, Kluwer Academic Press, Amsterdam.
11
12
13 BELUSSI F. and SEDITA S.R. (2009) Life Cycle vs. Multiple Path Dependency in Industrial
14
15 Districts, *European Planning Studies* 17(4), 505 - 528
16
17
18 BEYERS W.B and LINDAHL D.P. (1996) Explaining the demand for producer services: is cost-
19
20 driven externalization the major force, *Papers in Regional Science* 75 (3), 351-374.
21
22
23 BOSCHMA R.A. (2005) Proximity and innovation: a critical assessment, *Regional Studies* 39(1),
24
25 1-14.
26
27
28 BOSCHMA, R.A. and J.G. LAMBOOY (2002) Knowledge, market structure and economic
29
30 coordination: dynamics of industrial districts, *Growth and Change* 33(3), 291-311.
31
32
33 BRUSCO S. (1982) The Emilian model: productive decentralization and social Integration,
34
35 *Cambridge Journal of Economics* 6(2), 235–261.
36
37
38 BRUSONI S., PRENCIPE A. and PAVITT K., (2001) Knowledge specialization, organizational
39
40 coupling, and the boundaries of the firm: why do firms know more than they make?
41
42 *Administrative Science Quarterly* 46 (4), 597–621.
43
44
45 CAINELLI G., IACOBUCCI D. and MORGANTI E. (2006) Spatial agglomeration and business
46
47 groups: New evidence from Italian industrial districts, *Regional Studies* 40(5), 507-518.
48
49
50
51 CAMAGNI R. (1991) *Innovation Networks: Spatial Perspectives*, Belhaven, London.
52
53
54
55 CHESBROUGH H. (2003) *Open Innovation: The New Imperative for Creating and Profiting from*
56
57 *Technology*, Harvard Business School Press, Boston.
58
59
60 CASTELLANI D. (2007) L'internazionalizzazione della produzione in Italia: caratteristiche delle
imprese ed effetti sul sistema economico, *L'Industria* 28 (3), 487-513.
COE N.M. (2000) The externalisation of producer services debate: the UK computer services
sector, *The Services Journal* 20 (2), 64-81.

- 1
2
3 COOKE P. and K.MORGAN (1994) Growth regions under duress: renewal strategies in Baden
4
5 Wurttemberg and Emilia-Romagna, in Amin A. and Nigel Thrift (Eds.) Globalization,
6
7 institutions, and regional development in Europe, pp.91-117, Oxford University Press, Oxford.
8
9
10 CORO` G., VOLPE M. and BONALDO S. (2005) Local Production Systems in Italy between
11
12 fragmentation and international integration, Paper presented at the CNR Working Group Meeting,
13
14 Universita` di Urbino, Urbino.
15
16
17 CORÒ G. and VOLPE M. (2006) Aperture internazionale della produzione nei distretti italiani, in
18
19 Tattara G., Corò G., Volpe G. (Eds.) Andarsene per continuare a crescere, pp. 113-138, Carocci,
20
21 Roma.
22
23
24 CUSMANO L., MANCUSI M.L. and MORRISON A. (2010) Globalisation of production and
25
26 innovation: how outsourcing is reshaping an advanced manufacturing area, *Regional Studies* 44
27
28 (3), 235-252.
29
30
31 FEENSTRA R.C. (1998) Integration of trade and disintegration of production in the global
32
33 economy, *Journal of Economic Perspectives* 12 (4), 31-50.
34
35
36 GAROFOLI G. (2002) Local development in Europe: theoretical models and international
37
38 comparisons, *European Urban and Regional Studies* 9, 225–239.
39
40
41 GEREFFI G. (1999) International trade and industrial upgrading in the apparel commodity chain,
42
43 *Journal of International Economics* 48, 37-70.
44
45
46 GIRMA S. and GÖRG H. (2004) Outsourcing, Foreign Ownership and Productivity: Evidence from
47
48 UK Establishment Data, *Review of International Economics* 12 (5), 817-832.
49
50
51 GORDON R. and P. MCCANN (2000) Industrial Clusters: Complexes, Agglomeration and/or
52
53 Social Networks? *Urban Studies* 37(3), 513-532.
54
55
56 GÖRG H., HANLEY A. and STROBL E. (2004) Outsourcing, foreign ownership, exporting and
57
58 productivity: An empirical investigation with plant level data, Research Paper 2004/98,
59
60 Leverhulme Centre for Research on Globalisation and Economic Policy, University of
Nottingham.

- 1
2
3 GRABHER G. (1993) *The Embedded Firm. On the Socioeconomics of Industrial Networks*,
4
5 Routledge, London and New York.
6
7
8 GROSSMAN G. M. and HELPMAN E. (2002) *Outsourcing in a Global Economy*, NBER Working
9
10 Paper 8728.
11
12
13 HECKMAN J. (1979) Sample Selection Bias as a Specification Error, *Econometrica* 47, 153–161.
14
15
16 HOWELLS J. (2000) *The Nature of Innovation in Services*. Report presented to the OECD
17
18 *Innovation and Productivity in Services Workshop*, Sidney, Australia.
19
20 (<http://www.oecd.org/dsti/sti/industry/indcomp>)
21
22
23 Von HIPPEL E. (1987) Cooperation between rivals: informal know-how trading *Research Policy*
24
25 16, 291–302.
26
27
28 IMRIE R. F. (1986). Work decentralization from large to small firms: a preliminary analysis of
29
30 subcontracting, *Environment and Planning A* 18, 949–965.
31
32
33 KIMURA F. (2002) Subcontracting and the Performance of Small and Medium Firms in Japan,
34
35 *Small Business Economics* 18 (1-3), 163-175
36
37
38 LAZERSON M.H. and LORENZONI G. (1999) The firms feed industrial districts: A return to the
39
40 Italian source, *Industrial and Corporate Change* 8, 235-266.
41
42
43 LUNDEVALL B.-Å. (1992) (Ed.) *National Systems of Innovation: Towards a Theory of Innovation*
44
45 *and Interactive Learning*, Pinter Publishers, London.
46
47
48 MAHNKE V. (2001) The Process of Vertical Dis-Integration: An Evolutionary Perspective on
49
50 Outsourcing, *Journal of Management and Governance* 5, 353–379
51
52
53 MASKELL P. (2001) Towards a knowledge-based theory of the geographical cluster, *Industrial and*
54
55 *corporate change* 10, 919–941
56
57
58 MASKELL P. and MALMBERG A. (1999) *Localised Learning and Industrial Competitiveness*,
59
60 *Cambridge Journal of Economics* 23, 167-185.
MAZZANTI M., MONTRESOR S. and PINI P. (2007) Outsourcing and innovation: evidence for a
local production system of Emilia-Romagna, *Innovation* 9, 324 - 342.

- 1
2
3 MAZZANTI M., MONTRESOR S. and PINI P. (2009) What drives (or hampers) outsourcing?
4
5 Evidence for a local production system of Emilia-Romagna, *Industry & Innovation* 16 (3), 331 -
6
7 365.
8
9
10 MOL M.J. (2005) Does being R&D intensive still discourage outsourcing? Evidence from Dutch
11
12 manufacturing, *Research Policy* 34, 571-582
13
14
15 MORGAN K. (1997) The learning region: institutions, innovation and regional renewal, *Regional*
16
17 *Studies* 31, 4191-503
18
19
20 MORRISON A. (2008), Gatekeepers of knowledge within industrial districts: who they are, how
21
22 they interact, *Regional Studies* 42 (6), 817-835
23
24
25 NARDOZZI, G. (2004) *Miracolo e declino. L'Italia tra concorrenza e protezione*, Editori Laterza,
26
27 Bari.
28
29 OLSEN K.B. (2006), *Productivity Impacts of Offshoring and Outsourcing: A Review*, OECD
30
31 *Science, Technology and Industry Working Papers* 2006/1, OECD Directorate for Science,
32
33 *Technology and Industry*, Paris.
34
35
36 ONIDA F. (2004) *Se il piccolo non cresce. Piccole e medie imprese italiane in affanno*, Il Mulino,
37
38 Bologna.
39
40
41 PANICCIA I. (2002) *Industrial Districts: Evolution and Competitiveness in Italian Firms*, Edward
42
43 Elgar, Cheltenham.
44
45
46 PHELPS N.A. (2004) *Clusters, Dispersion and the Spaces in Between: For an Economic*
47
48 *Geography of the Banal*, *Urban Studies* 41 (5-6), 971- 989.
49
50
51 PHELPS N.A. and OZAWA T. (2003) *Contrasts in agglomeration: proto-industrial, industrial and*
52
53 *post-industrial forms compared*, *Progress in Human Geography* 27 (5), 583-604
54
55
56 PIORE M. and SABEL C. (1984) *The Second Industrial Divide. Possibilities for Prosperity*, , Basic
57
58 Books, New York.
59
60
61 PYKE F., BECATTINI G. and SENGENBERGER W. (1990) *Industrial Districts and Inter-Firm*
62
63 *Cooperation in Italy*, International Institute for Labour Studies, Geneva.

- 1
2
3 RABELLOTTI R. (2004) How globalisation affects Italian industrial districts: the case of Brenta, in
4
5 H. Schmitz (Ed.) *Local Enterprises in the Global Economy: Issues of Governance and Upgrading*,
6
7 pp.140–173, Edward Elgar Publishers, Cheltenham.
8
9
- 10 RABELLOTTI R., CARABELLI A. and HIRSCH G. (2009) Italian Industrial Districts on the
11
12 Move: Where Are They Going?, *European Planning Studies* 17(1),19-41.
13
14
- 15 SAMMARRA A. and BELUSSI, F. (2006) Evolution and relocation in fashion-led Italian districts:
16
17 Evidence from two cases-studies, *Entrepreneurship and Regional Development* 18, 543-562.
18
19
- 20 SCOTT A.J. (1988) Flexible Production Systems and Regional Development: The Rise of New
21
22 Industrial Spaces in North America and Western Europe, *International Journal of Urban and*
23
24 *Regional Research* 12, 171-186
25
26
- 27 SCOTT A.J. (2005) Les moteurs régionaux de l'économie mondiale, *Géographie, économie, société*
28
29 7(3), 231-253.
30
31
- 32 TAYLOR M. J. and THRIFT N. J. (1982) Industrial linkage and the segmented economy: Some
33
34 theoretical proposals, *Environment and Planning A* 14, 1601–1613.
35
36
- 37 TAYMAZ E. and KILIÇASLAN Y. (2005) Determinants of Subcontracting and Regional
38
39 Development: an Empirical Study on Turkish Textile and Engineering Industries, *Regional*
40
41 *Studies* 39(5), 633-645.
42
43
- 44 TEECE D.J. (1986) Profiting from technological innovations, *Research Policy* 15 (6), 285-305.
45
46
- 47 TOMIURA E. (2005) Foreign outsourcing and firm-level characteristics: evidence from Japanese
48
49 manufacturers, *Journal of the Japanese and International Economies* 19, 255-271.
50
51
- 52 Van de VEN W. and Van PRAGG B. (1981) The demand for deductibles in private health
53
54 insurance: A probit model with sample selection, *Journal of Econometrics* 17 (2), 229-252.
55
56
- 57 WILLIAMS R. (2006) Generalized ordered logit / partial proportional odds models for ordinal
58
59 dependent variables, *The Stata Journal* 6 (1), 58–82.
60
- 60 WILLIAMSON O. E. (1985) *The Economic Institutions of Capitalism: Firms, Markets, Relational
Contracting*, Macmillan, New York.

1
2
3 ZUCHELLA A. (2006) Local cluster dynamics: trajectories of mature industrial districts between
4
5 decline and multiple embeddedness, *Journal of Institutional Economics* 2 (1), 21-44.
6
7
8
9
10
11
12
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14
15
16
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Table 1 Women tights production process

Production Phases	Factor intensity	Brief description of the production process of women tights in Castel Goffredo
Texturization	High capital intensity	The production of women's tights takes place along five phases: stretching and texturization, weaving, sewing, dyeing and confection. After stretching the raw nylon yarn, texturization consists in further processing the nylon yarns in order to provide it with elasticity and softness. Such a process is performed by means of specialized machinery such as the twisting machine. During weaving the initial yarn is transformed using a circular rotating machine which allows to combine different types of yarns. The tubes so produced are then put together by means of seams. This is the sewing phase, which can be run by an automated system, or done manually; the latter being more comfortable as layers do not overlap. Larger vertically integrated firms tend to automate this phase. The semi-finished tights are then dyed and treated with conditioners, this is a capital intensive phase involving an intensive use of machineries and containers where stocks can be dipped into. Finally, tights are dried, ironed and packaged (I.e "confection" phase). While packaging may or may not be done by hand, the other sub-phases always involve an intensive use of labour. Apart from these five "pure manufacturing" phases, the firms in the district deal also with commercialization and other services.
Weaving	High labour intensity	
Sewing	High labour intensity	
Dyeing	High capital intensity	
Finishing and Packaging	High labour intensity	
Confection	High labour intensity	

Table 2: Firms by turnover class (% in the sample): 2005 population versus sample of 100 firms

answering all questions.

Turnover class	Turnover (mln. euros)	Population (205 firms)	Sample of 100 firms
1	<0.15	24.88	19
2	0.15 – 0.3	14.15	18
3	0.3 – 0.5	13.17	13
4	0.5 – 2.5	21.95	25
5	2.5 – 5	8.78	11
6	5 – 15	8.78	11
7	15 – 25	1.95	1
8	25 – 50	1.95	1
9	50 – 75	0.00	0
10	75 – 100	0.49	0
11	100 – 250	0.98	1
12	>250	0.49	0

Table 3: Direction of outsourcing, by firm size

Turnover class	Number of firms	Percentage of outsourcers	of which (share)	
			only in Italy	also abroad
1	19	10.53	100%	0%
2	18	33.33	100%	0%
3	13	46.15	100%	0%
4	25	72	94%	6%
>4	25	100	56%	44%
Total	100	57	88%	12%

Table 4: Depth of outsourcing (n=100)

Production Phase	Depth of outsourcing - Number of firms for which the function is:			
	Never performed	Totally outsourced	Partly outsourced (% of outsourcing)	In-house only
Texturization	98	0	1 (10.00)	1
Weaving	60	0	15 (23.60)	25
Sewing	22	1	47(44.87)	30
Dyeing	92	1	2 (9.50)	5
Finishing and Packaging	60	1	21 (51.14)	18

Table 5: Organisational dimension of outsourcing (n=100)

Number of functions performed	Number of firms	Number of firms which outsource in:					
		no functions	1 section	2 functions	3 functions	4 functions	5 functions
1	56	38	18	-	-	-	-
2	26	5	16	5	-	-	-
3	13	0	2	8	3	-	-
4	4	0	0	0	3	1	-
5	1	0	0	0	0	0	1

Table 6: Geographical orientation of outsourcing (n=100)

Production Phase	Number of firms	Percentage of outsourcers	of which (share)	
			only in Italy	also abroad
Texturization	2	50	0%	100%
Weaving	40	95	71%	29%
Sewing	78	62.82	78%	22%
Dyeing	8	75	50%	50%
Finishing and Packaging	40	65	77%	23%

Table 7: Explanatory variables: descriptive statistics

	Sample of 100 firms				Sample of 155 firms				Sample of 57 firms			
	Min	Max	Mean	Std Dev	Min	Max	Mean	Std Dev	Min	Max	Mean	Std Dev
<i>prod</i>	0.34	2.23	1.22	0.45	0.34	2.49	1.23	0.47	0.56	2.23	1.40	0.41
<i>empl</i>	0.00	6.55	2.59	0.96	0.00	6.55	2.22	1.18	0.00	6.55	2.80	1.22
<i>integr</i>	1.00	6.00	1.89	1.29	1.00	6.00	1.75	1.21	1.00	6.00	2.56	1.51
<i>blue</i>	0.20	1.00	0.67	0.16								
<i>range</i>	0.00	0.93	0.23	0.26								
<i>quality</i>	1.00	4.00	2.51	0.83								
<i>inno</i>	1.00	3.00	1.37	0.58								
<i>export</i>									0.00	0.95	0.40	0.33

Table 8: Explanatory variables: correlations

Sample of 100 firms	<i>prod</i>	<i>empl</i>	<i>integr</i>	<i>Blue</i>	<i>range</i>	<i>quality</i>	<i>inno</i>
<i>prod</i>	1.000						
<i>empl</i>	0.342	1.000					
<i>integr</i>	0.452	0.577	1.000				
<i>blue</i>	-0.004	0.273	0.063	1.000			
<i>range</i>	0.116	0.231	0.272	0.102	1.000		
<i>quality</i>	0.095	-0.062	0.006	0.161	0.045	1.000	
<i>inno</i>	0.301	0.124	0.122	0.014	0.179	0.065	1.000

Sample of 155 firms	<i>prod</i>	<i>empl</i>	<i>integr</i>
<i>prod</i>	1.000		
<i>empl</i>	0.159	1.000	
<i>integr</i>	0.382	0.555	1.000

Sample of 57 firms	<i>prod</i>	<i>empl</i>	<i>integr</i>	<i>Export</i>
<i>prod</i>	1.000			
<i>empl</i>	0.138	1.000		
<i>integr</i>	0.311	0.622	1.000	
<i>export</i>	0.286	0.408	0.410	1.000

Table 9: Averages of the explanatory variables for firms subsampled according to their outsourcing choice

	Whole sample	Outsourcing	Outsourcing only to Italy	Outsourcing also abroad
<i>prod</i>	1.22	1.43	1.37	1.65
<i>empl</i>	2.59	2.98	2.80	3.67
<i>integr</i>	1.89	2.47	2.24	3.33
<i>blue</i>	0.67	0.66	0.65	0.69
<i>range</i>	0.23	0.26	0.26	0.28
<i>quality</i>	2.51	2.67	2.73	2.42
<i>inno</i>	1.37	1.47	1.40	1.75

Table 10: Regression results

	Sample of 100 firms			Sample of 155 firms			Sample of 57 firms		
	GOLOGIT		TOBIT	GOLOGIT		TOBIT	GOLOGIT		TOBIT
	(domestic)	(international)	(%of out.)	(domestic)	(international)	(%of out.)	(domestic)	(international)	(%of out.)
<i>prod</i>	1.79*	4.90**	10.02*	2.08***	3.85***	27.46***	2.30*	4.52**	38.86***
	(0.97)	(1.93)	(5.54)	(0.59)	(1.23)	(5.89)	(1.18)	(1.95)	(9.56)
<i>empl</i>	2.15***	2.03**	11.11***	0.97***	1.37***	7.30***	1.40*	1.01*	5.88
	(0.68)	(0.85)	(2.89)	(0.30)	(0.50)	(2.48)	(0.75)	(0.59)	(3.67)
<i>integr</i>	2.97***	0.05	1.79	2.69***	0.06	4.44*	1.97**	-0.14	-0.95
	(0.84)	(0.31)	(1.90)	(0.57)	(0.26)	(2.29)	(0.83)	(0.35)	(2.94)
<i>blue</i>	-5.63**	-0.68	-55.44***						
	(2.63)	(3.19)	(14.26)						
<i>range</i>	-1.14	-2.15	-2.52						
	(1.58)	(1.79)	(7.87)						

1										
2	<i>quality</i>	1.51***	-0.43	5.23**						
3										
4		(0.51)	(0.72)	(2.56)						
5										
6										
7										
8	<i>inno</i>	0.60	0.55	6.75*						
9										
10		(0.68)	(0.71)	(3.53)						
11										
12										
13										
14	<i>export</i>					1.31	4.22**	2.67		
15										
16						(1.82)	(1.83)	(12.06)		
17										
18										
19										
20	Constant	-11.89***	-14.50***	-26.45**	-8.50***	-12.11***	-62.75***	-9.05***	-13.40***	-57.39***
21										
22		(3.01)	(4.78)	(12.19)	(1.36)	(2.99)	(9.99)	(3.25)	(4.74)	(16.39)
23										
24										
25										
26	chi2-statistic		102.38	54.38		137.26	66.41		54.41	22.08
27										
28	Prob > chi2		0.00	0.00		0.00	0.00		0.00	0.00
29										

All independent variables have been used in logarithms; standard errors are given in parenthesis. * 10% significance; ** 5% significance; ***1% significance

ⁱ In particular, we notice that two capital intensive functions, i.e. texturization and dyeing, are performed by a limited number of firms in the district.

ⁱⁱ With the robustness check we show that sample selection does not have an impact on our findings. Following HECKMAN (1970) we apply a probit model with selection (Van de VEN and Van PRAGG, 1981) that explicitly takes into account the possibility of a selection bias. Findings can be provided upon request.

ⁱⁱⁱ Further analyses, in which we use production phases instead of firms as unit of analysis, show that the same innovative firms tend to outsource production phases in which machineries are less recent. For the sake of space constraints, we do not present such results in the present paper.

^{iv} We restrict the analysis on the 57 firms that have answered the questions on exports. The analysis shows (right panel of table 8) that exporting raises the probability of outsourcing abroad even after controlling for firm size.