

The «Emilian Model» for the Twenty-First Century^(*)

FRANCO MOSCONI, ANDREA MANTOVI

Università degli Studi di Parma
Department of Economics
V. J. F. Kennedy, 6
I – 43125 Parma

E-mail: franco.mosconi@unipr.it

E-mail: andrea.mantovi@unipr.it

[Abstract]

The main purpose of this paper is to update the analysis of the «Emilian model». For decades, this Model has been the topic of many debates well beyond the Italian boundaries, mainly because of its ability to balance efficiency (e.g. productivity) and equity (e.g. social cohesion).

Top ranking Region both at national and European level, the Emilia-Romagna economic system is undergoing a real «Metamorphosis», as pointed out in the 2008 EUNIP contribution. Now, three case studies enable us to shed light on this process of change: the industrial districts - or clusters - of Carpi (textile/clothing), Sassuolo (ceramic tiles), and Reggio Emilia (mechatronics). In particular, this change amounts to the rise of medium-sized enterprises, which are in a better position to manage upstream and downstream activities (e.g., R&D, design, marketing, etc.) involving fixed costs.

A series of remarks about the New Industrial Policy envisaged by D. Rodrik in his seminal papers completes our analysis. In the Knowledge Era we advocate stronger cooperation between local authorities, universities and private firms.

[Keywords]

Industrial districts, Market structure, Growth of firms, Industrial policy, Innovation.

[JEL Classification]

L11, L25, L50, L67

[July, 2010]

(*) Paper prepared for the 12th European Network on Industrial Policy (EUNIP) International Conference, Faculty of Economics and Business, Universitat Rovira i Virgili, Reus (Spain), 9-11 June 2010.

This paper follows in the wake of the previous one – entitled *The Metamorphosis of the «Emilian Model»: A First Assessment* – presented to the 11th EUNIP International Conference [Mosconi 2008]. Let's recall some essential points.

The basic economic reasons remain for an analysis of the changes which have been affecting one of the most celebrated regional development models based on SMEs.

Nowadays, we need to underline how the effects of the crisis of 2008 – a crisis that started within the Anglo-Saxon financial system – has caused a change in the attitude of a substantial part of the European and American *elites*, reassigning a central role to what we used to call «real» economy; and also from this point of view, the economy of Emilia-Romagna is a relevant case study.

In fact, nowadays about one third of its value added is still coming from the industry (manufacturing plus construction) and a number of indicators put it both at the top of the Italian regions and in the restricted group of the key «Regions of Europe», which are about 260-270 according to the official classifications of EUROSTAT.

For decades, the «Emilian model» has been the topic of many debates – both in the economic literature and in the media – well beyond the domestic boundaries. In short, in the Industrial Economics literature the key features of this model, which were initially highlighted about 30 years ago, were the following: (i) a variety of players (the SMEs, often organized in the famous industrial districts, and the cooperatives), (ii) working in a socially inclusive environment and, more generally, in a (iii) context created by local institutions aware of business needs.

Since then, major changes have occurred in the economy, in the society and in the institutions. Increasing empirical evidence prove that this region has not only maintained a satisfactory growth rate level, but has also (and perhaps above all) developed its technological capacity. Evidence of this are the relations between university and business and the number of new hi-tech enterprises; the large number of research centers and of patents; the relevance of the new hi-tech districts; the surplus in the technology balance of payments; the new regional laws promoting research, innovation and technological transfer, and so on.

Given all these basically positive changes and performances, can we venture to say that the «metamorphosis» of the model is now complete? And if the answer is yes, to what extent? This paper – following the 2008 *First Assessment* – intends to offer some tentative answers to this question.

There is a regional scale of competitiveness, which in turn depends on the level of investment that every regional economic system devotes to research and development (R&D); on the number of graduate and post-graduate students; on the rate of hi-tech exports, and so on.

This is the new frontier we need to reach.

What are the industrial policies we need to implement to reach this goal? What business strategies should be pursued in this new context? What kind of partnerships between the business world and the other stakeholders in the territory (for example the financial system and the local authorities) need to be established and/or strengthened? These are only some of the more specific questions – compared to the general one we asked before – we will try to answer to with this paper.

In fact, the fundamental perspective on which we try and focus is the relation between *structure* (static picture) of our sample districts/clusters before the crisis, and *re-structuring* (dynamic) patterns which shall probably consolidate in the course of the recovery.

In Italy a consensus, shared on both academic and professional grounds, has been established about the *necessity* of growth for SMEs. In this respect, the expression «nanism» (*nanismo*) has entered the jargon. Admittedly, such a necessity finds a counterpart in the *actual* ongoing process of restructuring, whose patterns, however, have been seriously affected by the global turmoil, which is the reason why we do not try to assess it in this 'transient' phase. Our point is to look at the sample in light of three basic pieces of evidence: (i) the necessity for growth,

(ii) the (non voluntary) darwinian selection process which seems to operate in this direction, and (iii) the (voluntarily adopted) strategies to exploit economies of both scale and scope which might have driven, and might still drive, the restructuring patterns.

The district of Carpi provides a transparent example of polarization process; Sassuolo shows a tendency towards higher concentration; Reggio Emilia's mechatronics leadership reveals the effort of the leading firms to pursue a strategy of knowledge management.

It is our aim to argue about the *sharpness* of our sample districts as a target of analysis, representing the *complexity* of the Emilian model, and the related *challenges* it posits to visions and practices in modern Industrial policy.

The paper is organized as follows. After the Prologue (§ I), the second section (§ II) will describe some evidence regarding the development path of Emilia-Romagna. In the third section (§ III), we will investigate the main economic reasons that have allowed the «Emilian Model» to undergo a substantial «metamorphosis» from its original framework of the Sixties and Seventies. In the fourth section (§ IV), the paper will focus on the role – be it real or potential – played by the «New» Industrial Policy (NIP) *a' la* Rodrik in focusing on relevant features of the metamorphosis process in Emilia-Romagna. The fifth and last section (§ V) will conclude the paper, summing up its main points.

II – ESSENTIAL FACTS AND FIGURES ON EMILIA-ROMAGNA ECONOMIC STRUCTURE

Let us begin with a sketch of the Emilia-Romagna's productive structure:

(i) with respect to the domestic market, it is worth mentioning that while in Italy 440 people out of 1.000 belonging to the working-age population (15 to 64 years old) work in 'local units', in Emilia-Romagna this figure raises from 440 to 600, the highest in Italy [Regione Emilia-Romagna 2009];

(ii) in the broader European context, and in particular in its main 18 manufacturing regions (out of a total of 266 «Regions of Europe», according to EUROSTAT), we will point out how as many as five Italian regions, including Emilia Romagna, belong to this group and can be found in the top positions, together with numerous German *Länder* and to large Spanish and French regions such as Catalonia and Rhône-Alpes respectively;

(iii) these indicators nicely fit into the image recently coined by Romano Prodi [2009], according to whom the backbone of the European manufacturing industry is encompassed in «*a cylinder that goes from Hamburg to Florence*»;

(iv) this regional economic system at the end of 2008 was still able to yield a trade surplus of almost 19 billion Euro (a comparable region in size and economic structure such as Veneto did not go beyond 11 billion Euro): two thirds of this surplus pertain to mechanical engineering products, about 3 billion Euro to ceramic tiles and almost 2 billion to the fashion industry (textile-clothing and leather-shoes);

(v) as many as 607 «Medium-sized manufacturing enterprises» (*Medie imprese industriali*) are located in Emilia -Romagna: given the criteria chosen by Mediobanca-Unioncamere (a turnover of 13 to 290 million Euro, 50 to 499 employees, autonomous ownership structure), the number of enterprises that belong to this group is not very large: there are about 4.300 of them all over Italy, of which 1.600 are concentrated in the North-East, which comprises Veneto, Friuli Venezia Giulia, Trentino Alto Adige and Emilia-Romagna (what's more, about 130 are located in the province of Modena and 110 in Reggio Emilia)

(vi) notwithstanding these figures, which put Emilia-Romagna among the top Regions of Europe with respect to many indicators (GDP *per capita*, Value added by economic activity: manufacturing, Export Ratio, etc.), the distance that separates it from the top ones – such as Bavaria — with respect to R&D and the interaction with applied research is still considerable.

III – THE ONGOING «METAMORPHOSIS»: THREE CASE STUDIES

The «metamorphosis», though it cannot be considered complete once and for all, today shows the first visible signs of its success (besides, of course, the serious economic effects caused by the crisis of 2008-2009).

The explanation of the metamorphosis of this «model» inevitably intertwines with the changes that have affected the wide network of SMEs – often organized in industrial districts and/or clusters – which has always been a distinctive feature of the economy of Emilia-Romagna (and of the other regions that form the so-called «Third Italy»).

In this light, we now analyze the evolution of some industrial districts– such as Carpi (clothing), Sassuolo (ceramic tiles), and Reggio Emilia (mechatronics) – in order to highlight the actual impact of the following three trends:

- a) the *emerging of a more or less numerous group of «medium-sized manufacturing enterprises»* - i.e., of enterprises that have been able to substantially increase their size (by means of internal growth strategies), while in the district/cluster a strong Darwinian selection was reducing both the number of active enterprises and the total number of workers employed;
- b) as a consequence of the previous point, the *consolidation within the district of various networks and business groups*, where the «*focal firms*» (or *key firms*) are the basic elements in order to expand «the district's horizons to incorporate new technologies, organizational skills, and markets» [Lazerson and Lorenzoni, 1999];
- c) the *implementation of an intense process of firm restructuring* that has led them to focus their business on upstream and downstream activities (e.g., R&D, design, planning, marketing, after-sale activities, etc.), whereas the productive process in a strict sense can instead be partly delocalized or outsourced.

The so-called «Medium-sized manufacturing enterprises» we are talking about here are the enterprises that since the second half of the Nineties has become the key stone on which the Italian manufacturing industry – which is second only to the German industry in Europe – is founded.

The Emilia-Romagna economic system cannot do without these enterprises, both for the positive results they have achieved and for the numerous production chain relations they have established with many small local enterprises.

Since 1996, many small enterprises have been able to grow into medium enterprises: in the North-East their number has increased from 1.200 to 1.600. Their «main activity regards – quoting Mediobanca-Unioncamere [2009] – the typical *made in Italy* sectors», i.e. the mechanical engineering industry, the production of goods for the person and for the house, the food industry. Business strategies aimed to enhance cooperation between SMEs seem to be more and more necessary. In the real world you proceed by trials and error, but the growth can occur in many ways (think of the so-called «Business Networks (*Reti d'Impresa*)» recently launched by Italy's biggest Confederation of industries.

The role of the financial system is another fundamental piece of the puzzle that can represent a possible growth path for enterprises. Good news come from Rome and Milan with the creation of the first private equity fund for the recapitalization and aggregation of SMEs: the charter members include – besides the Ministry of Economy – Banca Intesa-Sanpaolo and UniCredit, large banking groups with a strong presence in the territory of Emilia-Romagna.

The literature on Italy's industrial districts and the related flexible specialization is very wide, the main contributions in our perspective being Prodi [1966], Brusco [1982], Priore and Sabel [1984], Becattini [1987], Porter [1990]. Nobel Laureate Paul Krugman himself, in his well-known textbook *International Economics: Theory and Policy*, (written together with M. Obstfeld), when

describing Alfred Marshall's «theory of the external economies», explicitly mentions the «Italian case» as the one «especially studied for the presence of [these] industrial districts mainly specialized in activities related to traditional industrial sectors (just think of [...] Sassuolo for the ceramic tiles)».

The industrial districts and the clusters of Emilia-Romagna have been studied for quite a long time, not only and not so much for their high number (other Italian regions, such as Veneto, have a higher number of them), as for their performance in terms of efficiency and equity.

The cluster of Sassuolo and all the other districts that lie along the Via Emilia were literally filling with dots the map of Central and Northern Italy published by M. Porter [1990] in his well-known book *The Competitive Advantage of Nations*. A couple of years later, it was the turn of the most authoritative Italian economic newspaper, “Il Sole 24 Ore” [1992], to publish a report on a «journey» through the local productive systems. «Gioielli, bambole, coltelli» (*Dolls, jewelry, knives*) was the title chosen for the report in order to give an idea of the range of products offered. The Emilian Way played a key role even in this case. More recently – that is in the last months – the Federation of the Italian Districts [2010] has published a broad study on this subject, and once more there is no lack of Emilian cases.

In between these two dates (beginning of the Nineties, today) that we have chosen – not arbitrarily we think – there are many other studies made by ISTAT, BANCA D'ITALIA, CENSIS, BANCA INTESA S. PAOLO, FONDAZIONE EDISON, REGIONE EMILIA-ROMAGNA, and the list is certainly incomplete.

Therefore, how can we choose, here and now, which districts of Emilia-Romagna should be the object of a more thorough analysis that can shed light on the characteristics of the ongoing «metamorphosis»?

The following three case studies, although differing from each other in the type of products offered to the market (goods for the person, goods for the house, instrumental goods) share two fundamental characteristics. In fact, these three industrial districts (or clusters) belong to:

- i) *the three leading sectors in the foreign trade of Emilia-Romagna*: the exceptional trade surplus produced by the regional economy in 2008 stemmed for 2/3 from the mechanical engineering sector, for about three billion Euro from ceramic tiles and for about two billion Euro from the fashion industry;
- ii) *the two leading provinces of the manufacturing industry of Emilia-Romagna*: as the Appendix shows, the territories of Modena (where two of the districts taken into exam are located) and Reggio Emilia are the most heavily industrialized in a region that, on the whole, is among the top manufacturing regions of the country and of the whole EU.

While taking into account the great crisis of 2009 and its consequences on the real economy of our region (which have been especially severe in these two provinces – see Appendix), the characteristics we have illustrated above seem to be firm. In other terms, they show long-term trends.

What has been established is a virtuous territory/specializations circle, which has always been – from Alfred Marshall on – a strength of the industrial district. We can therefore reasonably assume that it will stay so also in the global economy which is now slowly recovering from the crisis.

Let's now briefly examine the three clusters we have chosen in the light of the criteria described above.

[CASE STUDY N.1 – CARPI]

Table I shows the changes occurred in the medium-long term in the structure of the «knitwear and clothes» industry of the Carpi district [R&I – Comune di Carpi, 2009]. The changes are quite relevant and mainly concern the number of enterprises (nearly halved) and of employees (also nearly halved), whereas the export

share has suffered substantial and frequent variations (however, it should be noted that it has increased compared to the beginning of the period of reference, even though it is many percentage points below the peak reached in the mid-Nineties).

But what happened to the *total turnover* of the district and to the *turnover by enterprise*?

To shed light on this, first we re-elaborated the data of table 1 then we made the following chart (figure 1). In all its four parts, the objective is to trace the growth curve at a constant rate between the first point (1990) and the last one (2008), regardless of the intermediate path.

Now, for the *aggregate* turnover the equivalent/balanced growth rate is 1.85% (at current values) and 0.18% (at constant values). These rates give us only a preliminary view of the district under exam. If we take into consideration also the intermediate path (see again table 1), we notice that after the problematic decade of the Nineties, in which the turnover dropped dramatically, the 2000s, specifically starting from the years 2002-2003, were characterized by a strong upturn.

Now, taking into consideration the turnover *by enterprise* (see table 2) we can see that the equivalent/balanced rate – still between 1990 and 2008 – is 5.32% (at current values) and 3.64% (at constant values). These rates alone prove that the structure of the district has strengthened with the increase in the average size – in terms of turnover – of the enterprises that operate within it. The situation is more controversial if we take into consideration the average number of employees per enterprise, which has simply gone from 6.2 to 6.4.

However, the prevailing trend of the district – which even the charts (figure 1) can hardly catch – was not the convergence (in business size), but the polarization. In fact, as we have learned from the paper presented at the EUNIP Conference 2008, since the beginning of the 2000s a *new elite* of «Medium-sized industrial Enterprises» has formed in the district. Today this group of 15 enterprises accounts for 51,3% of the total turnover of the district compared to the 30% of 1990. Not accidentally, it is exactly at the beginning of the 2000s that the district of Carpi has started its upturn, as the data on the turnover in the tables and the charts indicate. A common strategy for the enterprises belonging to what we have called the *new elite* is the strengthening of the activities upstream and downstream the production process in a strict sense (think about the success of a brand and the creation of a network of flagship stores in Italy and abroad).

This trend in the process of business reorganization in the age of Euro has been highlighted with regard to the whole Italian industry both by the Research Department of the Bank of Italy [Bugamelli et al. 2008] and by ISAE [2007]. It perfectly explains the case of Carpi, where upgrading the quality of the production is vital to face the competition of the Asian countries in the lower value-added productions of the textile/clothing industry.

The quality upgrading, in turn, increasingly depends on the strength of the upstream and downstream activities, which have two characteristics: first, for their very nature they require qualified human capital; second, they imply the bearing of fixed costs (which often are sunk costs).

To conclude this case study, we would like to underline that the challenge for the years to come mainly stems from these two characteristics. Is the growth in size of the (best) enterprises of the district a necessary and sufficient condition to compete in the new global context? Or do those fixed and sunk costs demand an even bigger business size and, in any case, require new cooperative strategies among enterprises?

[CASE STUDY N. 2 – SASSUOLO]

Sassuolo, with its ceramic tiles' industry, plays a key role in the wide literature on the industrial districts and clusters, as is proven first of all by the two fundamental papers written by Romano Prodi [1966] and Michael E. Porter [1990], and secondly by a large number of studies and on-the-field analysis that followed these two seminal papers.

Focusing, as we have just done with case study n. 1 (Carpi), on the evolution of the structure of this industry over the last 15-20 years, we can identify two stylized facts¹:

¹ Our referring at times to the district of Sassuolo and at times to the Italian tile industry does not limit the significance of our analysis, both past and current. In fact, 79,34% (2008) of the national production concentrates in the provinces of Modena and Reggio Emilia and this percentage, in turn, is represented almost totally by the district of Sassuolo (which comprises also the municipalities of Fiorano, Maranello, Formigine, Castelvetro for Modena, and Scandiano, Rubiera, Casalgrande, Castellarano for Reggio Emilia).

- i) the growth in size of the district tile enterprise is already visible in the Nineties, while in the Eighties the average size had diminished;
- ii) the concentration process has continued in the 2000s (until very recently), although in different ways depending on the variables taken into consideration.

Let's make a short analysis of these two facts.

Table 3 describes in detail the events that occurred in the Eighties (crisis) and the Nineties (reorganization). Research by the Bank of Italy [C. Bentivogli, L. Siciliani 2004] points out that «the size increase trend in the district is even more evident if you consider that... the expansion of local enterprises is done mainly *externally*, through the acquisition of existing enterprises and the creation of groups». The *horizontal* mergers and acquisitions are definitely prevailing, with the concentration mainly concerning the commercial and financial activities, while «the brands are kept separate to distinguish the different types of product». These are very important characteristics, which will later help us explain the current competitive phase. Let's now turn our attention to the second stylized fact.

According to the 4th *Survey on the Italian Industrial Groups and Enterprises Producing Ceramic Tiles* of Sassuolo-based Confindustria Ceramica [A. Serri 2009], «if on one hand the Italian ceramic tile industry confirms its nature of 'advanced but very fragmented sector', on the other the concentration process, though slowly, is going on at least in some of its variables».

The concentration is assessed according to four variables: the total global turnover, the turnover in the Italian market; the volume of sales; the exports from Italy. While we refer you to the Survey for any in-depth analysis, here we want to focus on the first concentration index (global turnover), which yields the following values: "Top5" (top five groups), 42,15%; "Top10", 59,87%; "Top15", 67,28%. Furthermore, these values are slightly increasing (about one percentage point) compared to the situation in 2007.

Two characteristics of this structure, which have also been underscored by Confindustria Ceramica, are worth mentioning in this context. First, the «sector concentration is substantially stronger» if we take into consideration only the turnover in the Italian (domestic) market: here, the prevailing business strategy, especially as far as larger enterprises are concerned, is the one aiming at «an increase in the average price of the products sold». Reasonably, we can assume that – as in the case of the fashion industry – a relevant part of this increase is related to the upgrade in the quality of the production, which in turn is related to the activities of R&D, design, marketing, brand creation, etc. Further research will certainly shed light on this relation.

However, as we said before, there is another structural characteristic of the tiles' district that needs to be highlighted: it concerns the «forms of integration» between the industrial enterprises and the final markets. Although the independent commercial structures are still the majority, according to Confindustria Ceramica «the showrooms directly controlled by the ceramic enterprises», both from Sassuolo and from the rest of Italy, are rapidly increasing. The 4th *Survey* under exam points out that the number of such showrooms «has rapidly exceeded the '500' threshold»² and is now far from marginal in the business strategies of medium and big ceramic enterprises.

We think that there lies another important analogy with the fashion industry analysed in case study n. 1. In fact, each Carpi-based enterprise forming the so called *new elite* (about 15) has developed both its own brand and a chain of international flagship stores of its own. Both these (new) business strategies aim at strengthening the immaterial components of production and the closeness to the most important final markets.

If we want to find a copybook case of excellence in the macro-sector of the goods for the person and for the house, to which both sectors here analysed belong, we can focus our attention on Luxottica. As everybody knows, this is a leading enterprise at world level – in the production of eyeglasses, which starting from its headquarters in Agordo, Veneto, has created (mainly through M&As) two large distribution chains – among the others, in the United States and China – with thousands of shops selling eyeglasses of its own production.

[CASE STUDY N. 3 – REGGIO EMILIA]

What has traditionally been defined as the «mechanical engineering district of Reggio Emilia» has distinguished itself from the other industrial districts (ID) for a peculiarity: while most IDs were (and still

² The regional distribution of these 554 showrooms is the following: Italy (139); Europe (342); North America (47); China (14); Rest of the World (11).

are) specialized in the production of *consumer goods*, the district of Reggio Emilia was (and still is) specialized in the production of *machines and their components* (that is to say, *intermediate goods/inputs*). Besides, the two IDs analyzed in the previous case studies are also specialized in consumer goods (think about the famous Italian cluster “food-fashion-home”).

What’s more, this strong specialization is also evident from the comparison between the district of Reggio and the other Italian districts of the mechanical engineering sector. In fact, the main products of the Reggio Emilia district are *machines and their components*, rather than the *metal products* that are typical of many other areas of Italy.

From the initial specialization in the production of agricultural machinery, Reggio Emilia has passed to a much wider range of products, which in the Nineties came to include pumps, electrical equipment, etc..

The production of intermediate goods has given the district of Reggio Emilia a series of characteristics, two of which are especially important to understand what will be the future development of the years 2000, i.e. the “shift” from mechanics to mechatronics. The production of the district was already capital-intensive and required higher technical skills compared to the other IDs.

This is confirmed by the labour market. According to the Bank of Italy [Pagnini, Puggioni, Quintiliani, 2004], while «the network of productive relations within the district is much less compact in Reggio Emilia compared to the other areas» (meaning that there are less subcontracting relations within the district), «in the case of Reggio the managerial positions are more frequently filled by resources found within the district». The reason for this is the higher need for this sector, compared to the others, to *spread* technical knowledge.

At the time of the Census of 2001 (table 4) – when the growth of the Reggio Emilia district reached its peak – there were 4.581 local manufacturing units that employed over 43.000 workers (i.e. 8% of the total workers in the region).

Reconstructing the events that have shaped the evolution of the mechanical engineering sector of Reggio Emilia is beyond the objectives of this paper (and of the case study we are examining). Our goal is much more circumscribed: we want to portray the case of Reggio Emilia’s mechatronics as a successful way of experimenting new specializations starting from one’s own strengths. And this, in turn, is one of the most important tasks of the new Industrial policy.

Starting from the district structure of the late Nineties/beginning of the 2000s depicted by the 2001 Census, today, according to the data published by the local Associazione degli Industriali [2009], there are more than 200 mechatronic businesses in the province of Reggio Emilia, with a turnover of over three billion Euro and about 13.000 employees. Moreover, a “Club of Mechatronics” was established in 2003 by the Industrialists’ Association. In the words of its current president A. Storchi, it was launched «by a restricted group of entrepreneurs who had the simple aim to encourage the technicians and the enterprises of the territory to enhance their mechatronic knowledge. Today there are nearly 100 members, including businesses and various associations and organizations, not only from Reggio Emilia».

Among the key activities of the Club, we would like to highlight the following: (i) the systematic relations with the University of Modena and Reggio Emilia (graduate course in Mechatronic Engineering, Laboratory of Mechatronics); (ii) the creation of the Italian Mechatronic Prize, which is now in its third edition and is recognized at national level; (iii) the participation in international events (the last one was a trade fair in Tokio, Japan); (iv) the collaboration with other Italian and international mechatronic poles (Turin, Umbria, Puglia, Vicenza, Bergamo, Fiat). As a fifth item, we should add that the *Tecnopoli* that the Emilia Romagna region has assigned to Reggio Emilia within the network of *Tecnopoli* will be devoted to research in the field of Mechatronics.

These are all stylized facts that, without satisfying the need for a more thorough on-field survey to be conducted on this new industry, show that there has been a significant evolution in the manufacturing industry of Emilia Romagna. And they confirm the importance of «an interactive process of strategic cooperation between the private and the public sector» - cooperation that, as we will see in the next paragraph, was strongly advocated by Dani Rodrik [2004].

IV – DANI RODRIK AND THE “NEW” INDUSTRIAL POLICY

All in all, the three cases examined seem to fall within the analysis recently made by Ignazio Visco [2009] on the importance – for the economic growth – of «investment in knowledge» and on the difficulty of our enterprises («too small») in making such investment. Visco writes: «There is no doubt that the small enterprises, in particular in the industrial districts, played a key role in the Italian economy of the Eighties and Nineties, but now they are not able to guarantee the growth of an economy based on innovation, knowledge, research».

Since the beginning of the 2000s, the Italian government has significantly decentralized this policy area to the single regions. The regional government of Emilia-Romagna has launched a considerable number of laws and measures to promote R&D and technological innovation, setting now the main objective of creating what we should label as «technological hubs» (*Tecnopoli*) -i.e., research centers connected to the industrial districts and production chains. At the same time, the reform of the higher professional training policies (which are also among the regional competences through the use of the ESF) appears less courageous.

As is well known, in the so-called Knowledge Era, «Knowledge Management» has become a crucial topic, in a substantial evolution of the classical problem of protecting key information from espionage. Ever faster innovation processes and the increase of complexity make the managing of information about technology a key point, for instance in the search of a balance between soft and hard information, and in the relevance of an environment in which sharing of skills and knowledge represent a key externality, the Silicon Valley being paradigmatic [Thoenig and Verdier, 2010]³.

At the very end, bearing in mind our main focus, we will pose the following question: is the New Industrial Policy (NIP) approach - on the whole - of relevance in our case study (“Emilian model” as a whole) and/or case studies (the three districts and many other we might add to these)?

In a number of stimulating contributions to the debate on Industrial policy, Dani Rodrik [2004, 2007, 2010] updates the classical visions of what industrial policy could and should be all about in the third millennium. Let us sketch the theoretical status of such considerations, which may define a challenging perspective upon our sample of three districts.

Dani Rodrik [2004], somewhat provocatively, posits that «industrial policy is a state of mind more than anything else» (ibid., p. 38). Out of the metaphor, it is the aim of the scholar to point out the relevance of the sequential/evolutionary perspective on the debate about policies, whose effectiveness and efficiency, like most economic issues, can only be assessed (or questioned) *ex post*: «industrial policy is a process of self-discovery in the broader sense» (ibid. p. 38). Furthermore, the relevance of such an instance increases in the context of globalization, in which business grows faster and is more volatile. The scholar argues that the «right model for industrial policy is not that of an autonomous government applying Pugovian taxes, but of strategic collaboration between the private sector and the government with the aim of uncovering where the most significant obstacles to restructuring lie and what type of interventions are most likely to remove them» (ibid. p. 3). Such insight may well be considered as broadly shared; our aim is to point out the pregnancy of such an instance with respect to our sample.

Rodrik [2007] points out that the questionability of the effectiveness of government intervention in the economy is *not* a prerogative of industrial policy. Looking at market failures as the major issue driving public intervention, the scholar envisages the opportunity to *normalize* industrial policy, which is often the subject of debates about *whether or not* should the government intervene; on the contrary, by placing industrial policy on the same level with other fields (such as education, health, etc), the debate could profitably shift to questions about *which* interventions might better address urgent specific problems.

Finally, Rodrik [2010] envisages the complexity of public intervention, both in the assessment of which *imperfections* to target, and in assessing which *policies* might *fit* such targets. The scholar quotes the ‘experimental’ Chinese way to industrial policy of the eighties, during which the

³ As a matter of fact, the web site of the “Club della Meccatronica” points out the fundamental vision: «To set up a network for sharing skills and knowledge».

Chinese government resorted to a somewhat heterodox approach of trial and error, in order to find out which policies could be better suited to each sector (agriculture, industry, commerce). He points out the analogy of such macro-approach with the micro-approach applied by Thomas Watson (founder of IBM) in the well known formula «the fastest way to success is to double your failure rate». Needless to say, such experimental approach may not properly suit advanced economies like the European ones. Yet, the parallel set forth by Rodrik may be considered as a point of principle. On the one hand, the entrepreneur bears a certain amount of risk tolerance to fail in some project, as a coherent way to growth; on the other hand, the bureaucrats surrender their faith in universal formulas (think of the *Washington consensus*) and resort to more pragmatic views on specific measures contingent on the imperfection under inquiry. In a brilliant metaphor, to «give up on a Holy Grail that produces development at all place and all times, and instead invest in learning how to navigate these varying realities» (ibid., p. 18).

Evidently, it is not our aim to argue about the extent to which such instances may represent major lines of inquiry for future research on industrial policy. It is instead our (much narrower) aim to argue about the extent to which the “Emilian model” might represent a *frame* for challenging such insights, given that our sample clusters stand at the *forefront* of competition in three key sectors, given that experimentation is hardly conceivable in the context of a highly developed economy like the Emilian one, and, finally, given that the space for policies is narrow in a highly developed economy.

V – CONCLUSIONS

If we were in a world of city-states, at the end of 2008 the one called Emilia-Romagna would still have been able to achieve a trade surplus of 18.7 billion Euro, higher than the surplus of Veneto, Friuli Venezia Giulia and Trentino-Alto Adige together (about 17 billion Euro).

The position reached by the economy of Emilia-Romagna in the second half of the XX century is more than comfortable: it is outstanding. The widespread industrialization process, based on SMEs and districts, has been so successful that it has produced a model well-known also abroad, i.e. the «Emilian model», in which equity and efficiency instances have reached a balance, sustained by a net of fruitful relations among private sector, cooperatives and local Institutions.

Will this still be true after the economic crisis? How will Emilia-Romagna, one of the richest regions in Italy and in the whole EU, (re)position itself in the global economy? We had better not take anything for granted in the years to come, which we can define as the years of the *great divide*: on one side, Italy, the EU and all the other advanced economies (a modest 1-3 per cent annual growth in the years to come); on the other the emerging and developing countries (with an impressive growth rate between 4 and 10 per cent).

Emilia-Romagna will also have to deal with this situation, given that 70 per cent of its exports were, in 2008, towards other European countries, whereas only 13 per cent went to Asia, slightly more than 10 per cent to the Americas, and very small percentages to Africa and Oceania.

The good performance of Emilia-Romagna in foreign markets was made possible by the leading role of its regional manufacturing system, first of all in the mechanical engineering sector, but also in the production of goods for the person (e.g., fashion) and for the house (e.g., ceramic tiles). As we have just seen in this paper, these are the typical products of three famous industrial districts (or clusters) which have long since developed in the region (Carpi, Sassuolo, and Reggio Emilia).

Now, the region and the districts themselves are certainly undergoing a metamorphosis. First, in Emilia-Romagna there is a significant group of «Medium-sized industrial enterprises»: 607 out of 1.600 in the North-East and out of 4.300 in the whole country. Second, there is a steady improvement in the quality of Italian products: more technology in the mechanical engineering industry; more brands in the clothing industry; higher quality in the tile industry.

This is the path to follow, at the same time experimenting more and more with new specializations such as pharmaceuticals, life sciences and the ICTs. But in view of undertaking more decisively the journey along these (new) «Silk Roads», will this be enough?

It's time for far-sighted industrial policies and innovative business strategies. And it's time to recover the spirit of genuine cooperation between the public sector and the business community which years ago molded a vision of the future and laid the foundation for major projects.

Among the things that need to be done let's list, only by way of example, the choices that must take priority for a real development of the material and immaterial infrastructures, also from a trans-regional point of view; a thorough reform of the professional training system; the mergers and/or aggregations («networks») among SMEs aimed at enhancing their ability to develop strategic functions that nowadays are essential, such as R&D, planning, designing and marketing; a more systematic partnership among the four universities of Emilia-Romagna: Bologna's Alma Mater, Ferrara, Modena-Reggio Emilia and Parma – all of them with a long history and with a good performance in national rankings – starting from, but not limiting it to, post-graduate courses (Masters, Doctorate Schools and Business Incubators)⁴.

Tout se tien. In fact, we should not forget that the above-mentioned «upstream» and «downstream» strategic functions of the productive process – to be enhanced – require by definition high-skilled workforce. In this respect, the role of Universities is producing ever higher levels of human capital and knowledge.

There lies the origin of a possible new virtuous circle. Only then will we be able to say that Emilia-Romagna has successfully completed its (ongoing) «metamorphosis».

⁴ Furthermore, the city of Piacenza hosts the two local Headquarters of Politecnico di Milano and Università Cattolica di Milano.

REFERENCES [TO BE COMPLETED]

Associazione degli Industriali di Reggio Emilia, 2009

Becattini G., 1987

Bentivogli C., Scillitani L., 2004

Brusco S., 1982

Federazione dei Distretti Italiani, 2010

Krugman P., M. Obstfeld, 2005

Il Sole 24 Ore, 1992

ISAE, 2007

Lazerson M., Lorenzoni G., 1999

Mediobanca-Unioncamere, 2009

Mosconi F., 2008

Pagnini M., Puggioni A., Quintiliani F., 2004

Porter M. E. [1990].

Priore and Sabel [1984],

Prodi R., 1966

---, 2009

Regione Emilia-Romagna, 2009

R&I – Comune di Carpi, 2009

Rodrik D., 2004

---, 2007

---, 2010

Serri A. (Confindustria Ceramica), 2009

Thoenig M., Verdier T., 2010

Visco I., 2009

TABLES AND FIGURES

Table 1 – The knitwear and clothing sector in the district of Carpi in the period 1999-2009

(values refer to the total number of enterprises)

	1990	1996	2000	2005	2008
Turnover (millions Euro)					
current prices	1.042	1.094	1.027	1.170	1.455
constant prices (year 2000)	1.237	1.168	1.027	1.070	1.277
Export share	22,4	38,4	37,5	30,6	29,3
Active enterprises	2.258	2.000	1.735	1.256	1.211
Workers	14.005	11.137	9.627	8.062	7.802

Source: R&I - Survey on the textile-clothing sector in the district of Carpi

Table 2 – The evolution of the district of Carpi

	1990	2008
Turnover by enterprise		
- current prices (€)	461.000	1.201.500
- constant prices (€)	548.000	1.054.600
Workers	6,2	6,4

Source: Authors' own elaboration based on R&I data

Figure 1 – Carpi District: the rate of balanced/equivalent growth, 1990-2008

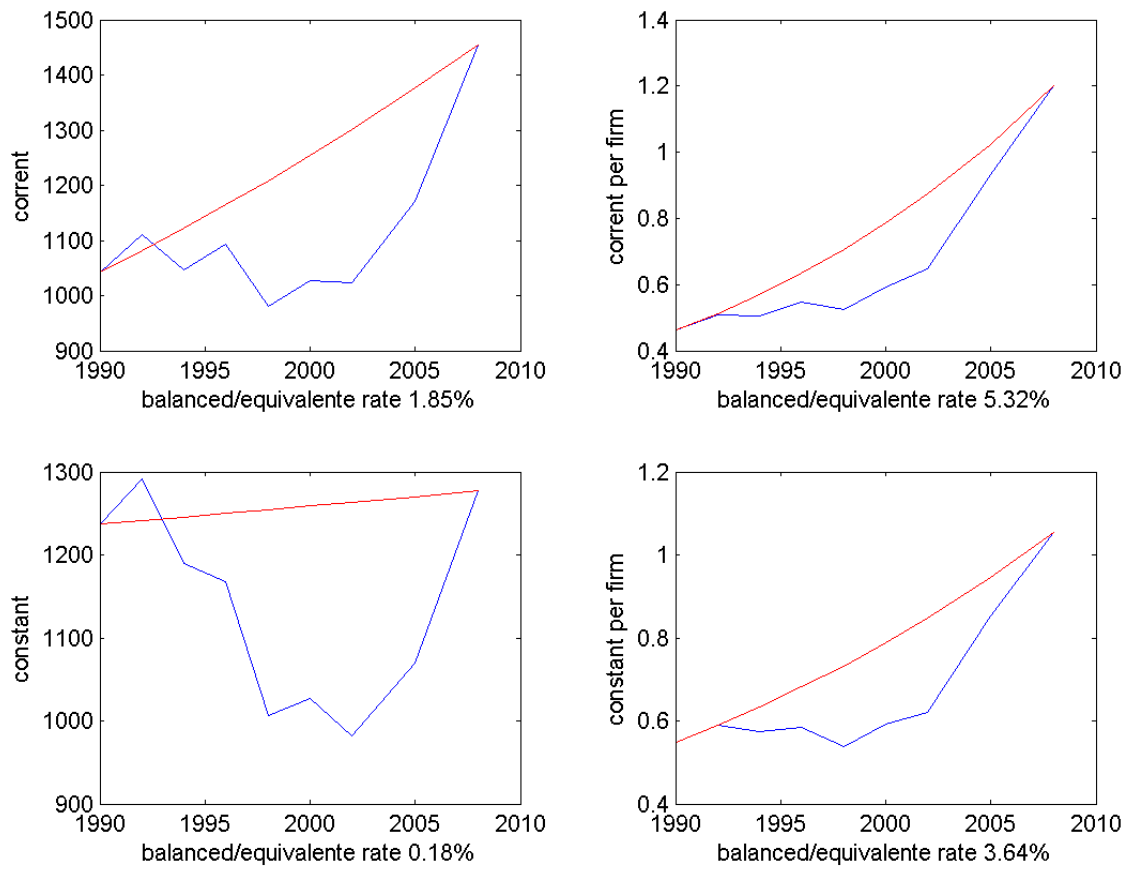


Table 3 – Enterprises and workers in the ceramic sector in the district of Sassuolo (%)

Classes of workers	District of Sassuolo		
	1981	1991	2001
<i>Enterprises</i>			
1-19	25,9	37,1	54,9
20-49	24,1	27,7	17,8
50-99	24,7	16,4	11,4
100-499	22,5	16,7	12,3
500 and above	2,8	2,2	3,6
Total	100,0	100,0	100,0
<i>Workers</i>			
1-19	2,1	4,1	4,8
20-49	8,1	12,0	7,5
50-99	17,5	15,3	10,4
100-499	40,3	42,7	37,1
500 e oltre	32,0	25,9	40,3
Total	100,0	100,0	100,0

Source: Istat Surveys

Table 4 – Local units and workers in the manufacturing sector in the district of Reggio Emilia

By branch of economic activity (units and percentage values), 2001

Sectors	Reggio Emilia		
	Local units	Workers	Workers per local unit
Food, beverages and tobacco industries	587	5.200	8,9
Textile and clothing industries	551	4.671	8,5
Leather industries	21	90	4,3
Wood and wooden products industry	209	795	3,8
Pulp and paper production; printing and publishing industry	210	1.736	8,3
Coke production, petroleum refining, nuclear treatment	2	31	15,5
Production of chemicals and artificial synthetic fibers	52	755	14,5
Manufacturing of rubber and plastic products	178	1.970	11,1
Manufacturing of non-metalliferous mineral products	184	3.264	17,7
Metal working and manufacturing of metal products	1.070	7.866	7,4
Machines and mechanical equipment manufacturing; installation and repairing	650	10.246	15,8
Manufacturing of electronic machines and electronic and optical equipment	516	4.196	8,1
Manufacturing of means of transport	51	805	15,8
Other manufacturing industries	300	1.648	5,5
Total	4.581	43.273	9,4

Source: Istat, *Survey on Industry and Services, 2001*

APPENDIX
MODENA AND REGGIO EMILIA:
TWO STRONG ECONOMIES OPEN TO WORLD TRADE

This appendix offers a synthesis aimed at establishing the weight of the provinces of Modena and Reggio Emilia (both taken individually and aggregated) in the regional and national economy..

The appendix presents two main results:

- A. In the light of the economic indicators taken into consideration, Modena and Reggio Emilia are immediately behind the regional capital Bologna and, after this latter, they are the most economically influential provinces of the Emilia-Romagna region.
- B. The “great area” constituted by the provinces of Modena and Reggio Emilia as a whole accounts for about one third of the regional economy.

A.I - MODENA AND REGGIO EMILIA: A COMPARATIVE ANALYSIS

The study conducted on the territories of Modena and Reggio Emilia and on the “great area” constituted by the aggregate of the two provinces has examined 5 key dimensions of the socio-economic structure of the territory.

A) Demographic situation

Leaving out the capital of the region, which has 976.175 inhabitants (Istat data as of 1st January 2009) Modena (688.286 inhabitants) and Reggio Emilia (519.458) are the most densely-populated provinces of the region and together comprise about 30% of the population of Emilia Romagna.

B) Labour market

B.1) Employed persons

Modena and Reggio Emilia together account for slightly less than one third (28.5%) of the total number of employed persons in Emilia Romagna (Istat, 2008).

The sum of the 319.000 workers of Modena and the 246.000 of Reggio Emilia yields a percentage of 28.5% on the total employed persons in the Region (1.980.000).

Table A.1 - Employed persons in Emilia Romagna Provinces – 2008

Province	Employed persons
Bologna	452.000
Ferrara	160.000
Forlì-Cesena	169.000
Modena	319.000
Parma	200.000
Piacenza	125.000
Ravenna	175.000
Reggio Emilia	246.000
Rimini	135.000
Emilia Romagna	1.980.000

Source: Unioncamere Emilia Romagna (<http://www.rer.camcom.it/>)

B.2) Workforce

The weight of the “great area” constituted by the provinces of Modena and Reggio Emilia is basically the same (28.4%) considering their workforce compared to the overall workforce of Emilia Romagna. The sum of the total workforce of Modena (330.000 people) and Reggio (252.000) yields 28.4% of the total workforce of the region (2.045.000).

Table A.2 - Workforce in Emilia Romagna Provinces- 2008

Provincia	Forza Lavoro
Bologna	462.000
Ferrara	168.00
Forlì-Cesena	178.00
Modena	330.000
Parma	205.00
Piacenza	127.00
Ravenna	181.000
Reggio Emilia	252.000
Rimini	143.000
Emilia Romagna	2.045.000

Source: Unioncamere Emilia Romagna (<http://www.rer.camcom.it/>)

C) Number of enterprises for branch of economic activity

Slightly less than one third (28.3%) of the enterprises operating in Emilia Romagna is located in the territory of Modena and Reggio Emilia (our own estimate based on Unioncamere Emilia Romagna data).

- a) In some economic sectors, the two provinces rank first with regard to the number of enterprises located in their territory, thus surpassing the far bigger and more populated Bologna. This is the case of Modena as far as the manufacturing industry is concerned and of Reggio Emilia with regard to the construction industry.
- b) In general, Modena and Reggio Emilia rank second and third respectively in terms of enterprises located in their territory that operate in the various economic sectors, proving once more that, immediately after the regional capital, they play a key role in the economy of the region.
- c) As far as the aggregate of the two provinces is concerned, in the industrial sector Modena and Reggio together account for more than one third of the number of enterprises in the region (percentage that falls below 30% in the service sector and in the agricultural sector).

D) Value added per sector

The Value Added for the main economic activities during the last five years shows the importance of the two provinces in the regional economy, in which they account for approximately 30% of the overall value added produced.

However, this percentage increases significantly when we take into consideration the value added produced in the industry sector and, in particular, in industry in a strict sense, with values exceeding 37% (see next tab. A.4). (Source: Camere di Commercio di Mo e Re, Istituto Tagliacarne, Unioncamere Emilia Romagna, and Istat)

E) Foreign trade

Exports and imports: absolute values, province comparisons and trends

According to the most updated data regarding 2009 (June 2009 – Istat, foreign trade data warehouse) Modena is the second province in Emilia Romagna (and the seventh province in Italy) for export value and Reggio Emilia is the third province in the region (and the eleventh in Italy).

Considering 2008 on the whole (provisional data – Istat, foreign trade data warehouse),

The data on exports show that:

- ✓ Modena exported goods for a total value of Euro 10.890.525.445;
- ✓ Reggio Emilia exported goods for a total value of Euro 8.442.080.744;
- ✓ The value of exports in the same period in Emilia Romagna was higher only for the province of Bologna (Euro 11.065.855.515).

The data on imports show that:

- ✓ Modena imported goods for a total value of Euro 4.624.908.400;
- ✓ Reggio Emilia imported goods for a total value of Euro 3.735.922.926;
- ✓ The value of imports in the same period in Emilia Romagna was higher only for the provinces of Bologna (Euro 6.380.077.689) and Parma (Euro 4.822.915.061).

Therefore, in 2008 Modena and Reggio Emilia taken as an aggregate represented 40.73% of the regional exports and 29.08% of the imports.

A.II - SUMMING UP

Table A.3 (see next page) summarizes the most important data that have emerged from the analysis in the previous section, highlighting the weight of the provinces of Modena and Reggio Emilia and of their aggregate in the regional economy.

Table A.3 – An Overview

	Weight of the provinces of Modena and Reggio Emilia in the regional economy (%)	Weight of Modena in the regional economy (%)	Weight of Reggio Emilia in the regional economy (%)
Population (2009)	28.25%	16.10%	12.15%
Employed Persons (2008)	28.54%	16.11%	12.42%
Workforce (2008)	28.45%	16.14%	12.32%
Per capita Income (2008)		2° in Regione	3° in Regione
Number of Enterprises (industry) (2008)	34.39%	17.85%	16.54%
Number of Enterprises (Agriculture) (2008)	24.46%	13.64%	10.83%
Number of Enterprises (Service sector) (2008)	26.09%	15.59%	10.49%
Added value (industry) (2007)	36.54%	21.04%	15.50%
Added value (Agriculture) (2007)	24.24%	12.73%	11.51%
Added value (Service sector) (2007)	25.16%	14.77%	10.39%
Exports' value (2008)	40.73%	22.94%	17.78%
Imports' value (2008)	29.08%	16.09%	12.99%

This analysis has therefore pointed out that Modena and Reggio Emilia, if considered as a “great area” including both provinces, basically account for a third of the regional economy.

*
* *