

## CONCLUSIONS

From the 1970s onwards, a scenario of significant political, technological and socioeconomic restructuring has led to a resurgence in the debate on the role of regional economies in the international economy, and on how their actual performance can be benchmarked in light of regional economic theory. Since the 1970s we have witnessed a series of remarkable transformations. The crisis of the Breton Woods system, the subsequent move to a system of flexible exchange rates that was consolidated in 1973, and the tendency towards a more de-regulated international monetary system created an international environment of higher volatility and turbulence in international financial markets. This scenario was intensified by a series of rapid and intense technological advances that allowed for the introduction of real time operations in international financial and capital markets, and the creation of new instruments and products (derivatives, the Eurodollar market, etc.). In light of this increasingly complex and volatile international scenario, nation government were encountering difficulties to fine tune their traditional macroeconomic policy recipes in terms of a trade-off between unemployment and inflation. Instead, the consistent rise of oil prices and unemployment levels fuelled a rather new situation of stagflation (stagnation combined with inflation) for which the standard fiscal and monetary policy instruments of macroeconomic policy proved surprisingly unprepared. Finally, an intense process of productive restructuring created a situation characterized by a transition from large scale mass production of homogeneous goods (Fordism) towards more flexible, demand driven production systems.

The compounded effect of the above mentioned transformations triggered a renewed multidisciplinary debate on the roles of nations and regions (and in particular metropolitan regions) within the global economy. The renewed interest in regional economics, for example, lead to a more in depth discussion on the spatial and territorial dimensions of economies, in addition to the more traditional research that was undertaken on macro and microeconomic issues. In Italy, for instance, “industrial districts” were discovered and a fruitful debate was open about their efficiency and their capacity to compete on the international market.<sup>95</sup> Moreover, there was an increasing awareness on the need for a multidisciplinary approach. As a consequence, since the 1980s, an embryonic multidisciplinary field in regional studies has developed, providing a diversity of methodological approaches and empirical case studies, all focusing on the central role of regional economic processes. A first example of this tendency was the

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95 . The debate in Italy firstly focussed on the capacity of small firms to survive. One of the possible strategies taken into account by policy makers was to promote merging among SMEs to increase firms’ average dimension and then their efficiency (Brusco, Righi, 1989).

literature on innovation and learning systems, whereby the issue of spatial proximity played a central role in triggering innovation in regions.<sup>96</sup> A second example of this tendency occurred within the urban planning and urban sociology literature, where it was increasingly acknowledged that the built environment was intensively influenced by urban and metropolitan economic processes.<sup>97</sup>

The present essay tries to retrace regional economics and locational theory and reaches the conclusion that such a field has not yet produced a single approach that can explain and reproduce the complex (exogenous and endogenous) dynamics underpinning regional competitiveness. In other words, there is no single model that is able to describe the device generating agglomeration dynamics in a given region. Neo-classic approaches, for instance, can only describe one of the infinite number of patterns in which the system may evolve. Because of the interaction of different forces, even small changes in some variables are able to change the system from one pattern to another (an emergent structure). Such dynamic shows three main features (Arthur 2005). First of all, the system has a constant incentive to evolve (while according to static economics, agents should not have any incentive to move from the equilibrium once it is achieved). Second, the evolutionary path of the system is not given and even small variations can change the intensity or the direction of the vector field. Finally, while in static economics agents try to form their expectations about an outcome that is a function of their very expectations (a self-referential situation), in the dynamic approach such condition is considered a very special event.

Nonetheless, as discussed in the essay, in spite of the rise of complexity, it is still possible to assess regional dynamics along *four important dimensions*. These dimensions should not be looked upon as a standard list, (or a manual), but rather as elements of a lens through which one can look at regional economies within the specific *historical, political, and institutional context*. Moreover, these elements are interconnected and, if articulated by a set of policies, may trigger a virtual regional economic development trajectory.<sup>98</sup> These four dimensions are: *the role of labour pooling, interdependencies among firms, technological externalities, and, finally, the governance system*.

As already analyzed by classical authors such as Marshall (1890) and Jacobs (1969), one of the potential advantages of regions and metropolitan areas is the presence of a well functioning labour market, which enables the intermediation between demand and an ample and diversified supply of all types of labour skills. Agglomerations tend to favour processes of *labour pooling*, whereby the quality and quantity of available labour both reduce the transaction costs associated with hiring and firing, and increase the

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96 . See, for example, Nelson and Winter (1977) and Dosi (1984), and, more recently, Storper and Venables (2003).

97 . The most famous fore-runner within the field of urban and regional planning of course being the book written by Jacobs (1969).

98 . On the idea of virtual development trajectories that allow regions to escape from vicious cycles based on low cost cut throat competition, see Pike and Sengenberger (1999).

potential of positive learning and spill over effects within local and regional labour markets. Possible indicators of the presence of positive labour pooling effects can be found through labour market statistics on unemployment levels, the time period during which people remain unemployed, hiring and firing statistics, skills levels, skills mismatches and unemployment levels associated with age and training, among others. Through the approach presented in the essay it is possible to assess the capacity of some given regional sectors (or supply chains) to absorb the local supply of labour thanks to their success on the (international) market (a demand side effect).

The dynamic and synergic patterns of interdependencies among firms that are part of a specific production chain located within a given region (or metropolitan region) represent the second dimension of regional economic competitiveness. The basic concept of clustering, or the existence of industrial districts, has likewise been pioneered in its preliminary forms by Marshall (1890). That is, based on the existence of a dense network of related producers, economies of scale and scope can be obtained by the collectivity of enterprises which, in the absence of spatial proximity, would not have been realized (the so-called positive externalities). The more recent literature on regional economics has looked for complements to this classical concept of *Marshallian districts*. More particularly, according to Schmitz (1998), this *static* (or *passive*) *dimension of clustering*, characterized by the presence of a dense network of producers, is a necessary but not a sufficient condition for creating dynamic regional competitiveness. According to him, we should also look at patterns of *active cooperation and interaction* among producers that are constantly trying to overcome challenges of the global economy. An active strategy of cooperation among enterprises and other stakeholders within regional economies might then lead to what is labelled by him as *collective efficiency*. It should also be noted that the concept of positive externalities, as triggered by inter-firm interdependencies and interactions, should be interpreted within the broader perspective of the workings of the region as a whole. In that respect, it is important to analyze how the more dynamic, export oriented segments are linked to the more inward, domestic (regional market) oriented niches of the regional economy, specifically in order to maximize the developmental impact of growth (Aoki, 2002).<sup>99</sup>

The third dimension of regional competitiveness relates to the economy's capacity to trigger positive technological externalities through the generation and dissemination of science, technology and innovation. The essay considers this issue to be a particular form of the above mentioned spatial positive externalities among regional agents, but

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99. In case of weak linkages between the two compartments, the income and employment multipliers associated with the growth of dynamic outward oriented sectors will at best be limited. Taking the scenario of weak linkages between the dynamic and inward oriented segments of the regional economy one step further, there is a need to develop more in depth knowledge on the interactions between formal and informal sectors, or, alternatively, between the larger, internationalized segments of the regional economy (which are more evident in the case of metropolitan regions) and the compartment that is composed of smaller and medium sized enterprises

specifically focused on the characteristics that allow for the creation of regional and local innovation systems.

The basic logic behind this dimension is the fact that spatial proximity favours rapid learning and diffusion effects, which get incorporated by firms, and subsequently locked into the regional space economy. The intense generation and dissemination of innovation allows regions to move away from vicious cycles based on mere cost competition (Pike and Sengenberger, 1999). There are several indicators that could be used to measure the presence of technological spill-over effects and regional innovation systems. First, and similar to clustering as such, it should be observed that regional innovation systems are composed of passive and active dimensions (Schmitz, 1998). The passive dimension is related to the physical infrastructure and the available learning and innovation institutions, such as technical schools and training centres, university hospitals, universities and academic centres, specialized research centres and the (private or public) existing capacity to implement Research and Development, as reflected in the presence of specialized industrial or governmental laboratory infrastructure. However, as in the discussion on industry clustering, the mere presence of a physical network aimed at Research and Development and the delivery of innovation is a necessary but not a sufficient condition to move towards dynamic and competitive innovation systems. The active dimensions of innovation systems are strategic, and related to the concrete process of interaction and mobilization of stakeholders within regions aimed at the technological learning and modernization, for example through the articulation between university and business.<sup>100</sup> Moreover, local governments might also be actively involved in the stimulation of innovation systems through incubator systems, technological parks and financial incentives. Nevertheless, it is important to evaluate how effectively these instruments have been leveraging more concrete partnerships aimed at science, technology and innovation in regional economies. In addition, it should be observed that Research and Development is only one possible (i.e. the more tangible) source of innovation in economies. However, the more dynamic and active learning systems are characterized by a series of diversified (both tangible and intangible) sources of innovation that originate within regional economic systems themselves, for example through interactions within the production chains (relations between technical suppliers and customers), through university-business linkages or through other networks of local stakeholders. In terms of analyzing and benchmarking this specific profile of innovation systems, over and above the role of Research and Development expenditures, more emphasis will also have to be put on so-called tacit or non codified sources of knowledge and learning. Finally, it should be observed that while the passive dimensions of innovation systems can be relatively easily measured in official statistics on the available research capacity (universities etc.), its active components will have to be captured

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100 . The results of intense linkages between firms and universities can be measured, among others, by the number of applications for patents, and the actual efficiency with which requests for patent get approved and operated. An additional dimension refers to the institutional and legal framework that facilitates interaction among private enterprises and universities (innovation laws etc.).

through qualitative diagnosis (case studies and on field research) on the presence, intensity and effectiveness of interactions among local stakeholders.<sup>101</sup>

The fourth dimension in appraising the regional competitiveness of regions is the governance performance. The essay does not have the aim of providing a lengthy analysis of the concept of governance itself, yet to assess the importance of a correct mechanism to manage the policy setting and implementation process; i.e. how well government and other stakeholders are able to combine the previously discussed dimensions of regional competitiveness (labour pooling, firm networking and clustering, regional innovation systems, provision of liveable communities through the built environment) into a reasonably working region that is productive and fair for the majority of its citizens.<sup>102</sup> In other words, within regional economies it is necessary to define collective rules ensuring that positive dynamics (increasing returns) can develop through the interaction of the agents operating in it.

This requires a movement away from strictly neo-classical analyses of regional economic development and socio-spatial transformation, which tend to see problems of territorial development, including those between and within regions, “as no more than the spatial manifestation of an adjustment-failure on the part of the factors of production” (Danson, et al. 2000). Advocates of *new regionalism*, including many researchers and policy-makers at the OECD, World Bank, and EU, increasingly reject this laissez-faire reading and instead update (albeit substantially) the older Keynesian view that governments have a key role to play in disrupting territorial disequilibria. However, unlike previous experiences with regional policy, the role of the state is now considered far more circumscribed by international financial institutions and multi-national corporations, i.e. by macro-structural conditions attending advanced globalization.

Accordingly, governance efforts must shift away from top-down, command-oriented, and sectoral (“siloeed”) approaches to place-based models of governance. These models typically imply a stronger, yet more flexible, networked and supportive, role for *regional-scale government*, although the specific form this takes will vary. Public intervention in such a scenario cannot simply be thought of as a mechanism for allocating resources within the economy but must assume the role of guide and director of processes. It must take the shape, on the one hand, of a set of actions aimed at defining and guaranteeing individual access rights and, on the other, of interventions aimed at developing the exchange capacities of markets and business systems (Bianchi, 1995). An explanation may be sought in the fact that local communities increasingly interact with the rest of the world in a continuous process of integration and globalization without necessarily responding to stimuli from the central state. Given such conditions, the central public authority is no longer able to guarantee the development of the local

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101 . For an introduction on the mechanism of dynamic learning economies see Storper and Walker (1989), Storper (1997) and Scott and Storper (1986).

102 . For a more detailed discussion on the issue of city regional and metropolitan governance in the international scenario see for example Rojas et al. (2005).

community (Bianchi, 1995), and it is also increasingly obvious to many researchers and policy-makers that the current phase of global economic restructuring requires now new answers to the “regional question” (Amin and Thrift, 1995; Thrift and Olds, 1996; Storper, 1998; Allen and Cochrane, 2007).<sup>103</sup>

Given the strong interactions among local (and global) actors characterising regional context, linear-type response mechanisms (the logic behind traditional macroeconomic policies) are no more verified. Policy-makers must equip themselves with a set of objective instruments and programming actions able to cope with non-linearity and the consequences of complexity. In this vein the essay presents a *response function* to model the propagation mechanism of economic policy in a situation of complexity. The response function, in turn, depends on the distribution and the type of interaction between agents within the market. So the result is that a thick network of coordinating agents who exchange the information they possess on the local needs will set, implement, and evaluate more efficiently place-based policies than a single policy-maker that does not interact with the territory and with local agents so lacking the needed information to address correctly local challenges.<sup>104</sup>

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The theoretical framework discussed above has been used to assess the international competitiveness, and the working, of the urban region of Madrid, the capital-city of Spain. Urban regions, and in particular those above 1.5 million inhabitants, represent the engines of growth of the world economy: they produce the bulk of national wealth, act as command places of globalisation, and are home to the larger part of world population (OECD 2006). Broadly arguing, these trends have enhanced the importance of territories in respect of nations, and studying large urban regions is an alternative way to assess the effects of globalisation. In fact, some phenomena like migration, innovation, pollution, and even crime have all acquired a clear territorial feature. Thus, beside macroeconomic policies (often implemented by super-national institutions, as in the case of the EU), these issues need to be tackled through place-based strategies. This being said, Madrid represents an excellent case to be assessed. It represents almost 20% of Spain’s economy, and its population (13% of the national one) has been constantly increasing because of the large influx of migrants coming in large part from South America. Moreover, the

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103 . It is worth noting that the present essay while recognising the importance of the regional governance device, does not assume that regions have detached themselves from the national space-economy and national regulatory regime. On the contrary, the governance performance will depend on the capacity of different tiers of government to get coordinated and to share all the information they have to set the policy with the highest possibility of achieving the expected outcome.

104 . The information base for this new generation of regional economic development policies will be more complex, dynamic and diversified. As a consequence, there is an international tendency to complement national and regional sector based economic statistics with decentralized economic observatories, characterized by the incorporation of additional dimensions (innovation systems, labor pooling, clustering etc.), over and above an intense participation of non-governmental stakeholders in the elaboration, maintenance and evaluation of these information systems.

regional government of the Community of Madrid has been producing input output tables in 1999, 2000, and 2002, thus there is a large availability of data. And, last but not least, the functional urban region of Madrid is consistent with its political (administrative) geography.<sup>105</sup>

Given these conditions, the essay has tried to evaluate the international competitiveness of Madrid. In particular, it has tried to understand whether there is accordance between positive socio-economic trends and local development. In this context, the hypothesis is that to enhance its competitiveness in a sustainable way a given region has to improve its capacity to agglomerate factors of production, i.e. to generate positive externalities. If a region does not respect such conditions, its international competitiveness will not improve, and the possible increase of negative externalities may actually affect local performance on the medium term. Therefore, the essay has studied the working of the regional labour market, the strength of linkages among Madrid-based firms, and the capacity of the region of producing and using innovation. A minor part of the analysis has also been focused on the regional governance performance.

The Madrid metropolitan region is among OECD best performers in terms of job creation. Unemployment rate was 6.5% in 2006. Most remarkable condition is that such performance has been achieved with a steady and large influx of immigrants (almost 400 000 between 2000 and 2006). Migrants' labour supply has been absorbed mainly by construction and low-tech services. Therefore, sectors in *overtime* have filled their vacancies with workers that were not part of the regional labour market (Cfr. Aoki, 2002).<sup>106</sup> Other Madrid-based industries (especially medium-high tech services) have filled their vacancies with a large quantity of fixed-term workers (which in Madrid are 28% of the total). Because of these conditions, wage level in Madrid is still relatively low compared with other European urban regions, so growth is not generating inflation.

However, this positive dynamic is challenged by three related issues. First of all, the regional workforce is utilised in an extensive way rather than intensive. Immigrants, for example, are hired without taking into account their skills and their level of education. This condition is quite common in all the OECD regions. Immigrants, because of the change of language and culture, are exposed to a loss of their human capital (Borjas, 1986). Nonetheless, in the case of Madrid the bulk of immigrants come from Hispanic countries, so it is possible to argue that this loss of human capital is dramatically reduced or does not take place at all. Concentrating them in low-tech sectors may actually represent a waste of human capital that, instead, could be used to improve regional competitiveness in tradable knowledge-intensive sectors. Following a similar logic, a large part of young educated Spaniards are hired with fixed-term contracts, and without taking into account their specific skills (i.e. education). Often, fixed term contracts are

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105 . The assessment of the metropolitan region of Madrid is the result of 18 months of focused, and partly on field, research. The author is also the coordinator of the OECD Territorial Review of Madrid, published by the OECD in 2007.

106 . See pag. 20 of this essay

not transformed in open-end contracts, and workers keep on changing jobs without following a coherent path. The result is the reduction of their on-the-job skills. As in the case of immigrants, the human capital Spaniards embody is not used to enhance local specialisation in science-based sectors. Therefore, the job-education mismatch (both in the case of migrants and Spaniards) causes a reduction of regional labour productivity.

Second, non-tradable low-tech sectors such as construction and domestic services have absorbed the bulk of the local labour supply. Such sectors have increased their weight (i.e. their share of regional GDP) within the regional economy that, in turn, has been reducing its specialisation in export-oriented science-based industries. Accordingly, a large part of Madrid's development depends on local demand, which has been constantly increasing because of the large demographic growth registered over the last decade. Nowadays, shortage of valuable land pushes housing prices up. In this condition the city cannot keep on growing at the same pace. The concentration of new comers in deprived (cheap) areas may generate strong negative externalities. In such situation, local demand is likely to become steady in the near future. At the same time, Madrid is losing important high tech niches on the global market (as in the case of electronics, for instance), and it could be very difficult to re-enter in such niches.

Therefore, although Madrid is a *hub and spokes* economy (Markusen et al., 1999) and is home to some important clusters in knowledge intensive sectors, linkages among export oriented segments and the more inward, domestic oriented niches of the regional economy are relatively weak. Surprisingly enough, mature manufacturing scores the highest rate when assessing backward and forward linkages. In this condition the income and employment multipliers associated with the growth of dynamic outward oriented sectors (i.e. the developmental impact of growth) will at best be limited. The financial sector in the city of Madrid is a good example of limited transmission effects. While the financial sector in Madrid has proven to be rather successful in terms of linking into an international network, its local impact in terms of employment and income generation is limited, as demonstrated by the weak backward and forward linkages of such sector within the regional economy.

Obviously the weak interaction with science based sectors reduces regional innovation capacity, which represents the third challenge for Madrid. The regional capacity to trigger positive technological externalities through the generation and dissemination of science, technology and innovation is limited by the lack of active coordination and collaboration between scientific institutions and firms. In other words, while the passive dimension, i.e. the availability of physical infrastructure and science based institutions (especially public), can be considered as good as in leading OECD metro-regions, Madrid suffers for the weakness of its active dimension. That is, despite of a substantial number of good universities, research centres and university hospitals, and a significant number of policy initiatives aimed at the creation of research parks and technological incubators, the city region has shown a decreasing trend of patent applications (a proxy for innovation) when compared with the national trend. Therefore, the reduced importance of knowledge intensive sectors within the metropolitan economy,

and the weak linkages between these industries and the rest of the economy reduces regional innovation capacity.

Although Madrid governance performance has not been extensively discussed in the present essay, the metropolitan region is home to one of the most advanced governance devices in the OECD. Local authorities, the Community of Madrid and the Municipality of Madrid, have a large range of powers and exclusive responsibilities, and the functional region of Madrid is consistent with its political geography (administrative boundaries). This means that the *right* authority, with an almost complete knowledge of the region, can set a given policy at the *right* territorial scale. The authority will also be there to receive the feedbacks from the policy (i.e. to evaluate the impact) and to change it, if needed. In this condition local policies are likely to be effective and to respect local complexity.

In some fields Madrid regional authorities have respected this “algorithm” and have effectively produced public goods such as transportation facilities, and housing. In this way, for instance, the region has been able to absorb the large influx of migrants, with a limited increase of negative externalities, such as congestion and crime. In some other fields, however, local authorities are still trying to find an effective policy answer. It is the case of the large job-skill mismatch, and the weak active dimension of regional innovation capacity, which affect regional productivity. To address such problem local authorities need to implement a collective strategic vision endorsed across stakeholders, including the national government, to enhance synergies and avoid duplications, and to involve civil society to increase social consensus.