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6th April: EVIDENCE AND ANALYSIS

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Outline of Margherita Russo's talk, 6th April, 2017

Among the many questions to be addressed in the opening of OIS 2017, in my talk, I will focus on two related topics: (1) Are cities well placed to create conditions for innovation and inclusive growth? (2) What is the role for education in enhancing innovation and entrepreneurship?

1 Are cities well placed to create conditions for innovation and inclusive growth?

With regard to the first topic, I shall focus on three main issues: (A) qualitative change; (B) role of cities in networks; (C) systemic efficiency.

A. Growth vs development

First of all: we discuss of inclusive "growth", but – back to Schumpeter (1912) and Hirschman (1958, 1968) - I would suggest to refer to "development", as this term highlights a change in quality and not only in quantity.

B. Which cities and which roles?

Secondly, which are the "cities" that would function as well 'placed to create conditions for innovation and inclusive development'?

"City", all over the world and even in Europe, is an entity with enormous heterogeneity in size, of several orders of magnitude in terms of population. In particular, as Andrea Bonaccorsi will argue in his talk, size is a dimension that matters in analyzing opportunities for innovation. We know that there is a virtuous circle in cities as locus of innovation that is associated to "attraction", generated by both the increasing size of population and the variety of competences, attitudes, cultural assets, demand of goods and services of people attracted, that in turn produces a greater variety in the supply of material and immaterial goods and services.

With regard to Italy, we observe that the top ten cities (with more than 300 thousand inhabitants) have only 14% of total population. Two-thirds of Italian population lives in municipalities with less than 50 thousand inhabitants and one-third lives in municipalities with less than 10 thousand inhabitants. The long tail of the distribution of municipalities (and an incredible number of them has less than one thousand inhabitants) the following question arises: "*inclusiveness for whom?*". When we appreciate the great opportunities that concentration of population allows for innovation and we explore the implication of innovation for inclusiveness, we should consider that only a limited share of population generates and benefits of those effects.

With this regard, four complementary considerations should be explored: concentration, remoteness, innovation, and competition.

The first one is the negative effect of concentration in terms of abandonment of territory, and its critical *deterioration because of the lack of care*. Not just of the natural environment and material infrastructures, but also of the incredibly rich cultural assets, that is a peculiar character of Italy, for instance.

The second one is the network effect that should be enhanced among cities to reduce *remoteness*, as a cognitive and cultural condition, not only as a physical distance from centers. Remoteness is expressed in terms of lower openness and attitude to change, and lower preparedness to appreciate opportunities that would be generated by innovation. We all agree that network among cities produces systemic benefits, but we should consider all ranking in the networks: upwards and downwards: eg., not only of Turin in a network with Milan, New York and San Francisco, but also of Turin in networks with cities like Modena (160 thousand inhabitants) and Camerino (6 thousand inhabitants). Networks among peers (cities of the same rank) is relevant when they may share in this way some practice, or even create common services to be supplied. We should create incentives to foster networks among heterogeneous cities to produce more inclusiveness, reducing the cognitive and cultural remoteness.

The third consideration is *innovation*, as a mind setting for reducing both concentration and remoteness drawbacks, and then enhancing inclusiveness. When Europe set innovation and social inclusion as the horizon for 2020, forced a shift in thinking of the potentials of *technical, organizational and social innovations*. But generally those innovations are considered as they were active within cities, not across cities. We know that, on the supply side, technical innovations, and in particular the ones in the digital era, are mainly developed for large cities, which are the privileged markets for 'smartness', nowadays induced as a goal of many cities (as Shelton and Clark explain in their contribution in Q59 FGB). A great cultural shift is becoming urgent: a focus on place-based actions must be complemented with actions within heterogeneous networks of cities/places. In this way, a more reflexivity will be proposed to citizens living both in the center and in the more physical distant places. Citizens in those networks will become protagonists of inclusiveness for all, policy makers will have to consider the systemic effects of their decisions not only for the improvement of the living conditions of their inhabitants, but for the network of cities as a whole. For not being overwhelmed by the global dimension, networks of network of practices could become a way out to control for the drawbacks of concentration.

C. Competition vs Systemic efficiency

The notion of *competition* among cities is strictly related to the first two issues. In an economic framework, competition is the mechanism enhancing the efficient use of scarce resources. In the framework of networks of networks above outlined, competition is not a city-level matter, but a system issue. Obviously, at city-level, inefficiencies should be removed, or reduced at most, but what should be relevant is exactly the systemic efficiency, not the cities' efficiency, considered as if they were in isolation. A heterogeneous network perspective would help in creating awareness of which are the relevant resources, the critical agents involved and the appropriate social innovation fostering both systemic efficiency and inclusiveness.

2. What is the role for education in enhancing innovation and entrepreneurship?

As well documented in the relevant literature (from the one on human capital to the most recent contributions of Hanushek and Woessmann, 2012), education is crucial factor for supporting the development paths of countries. When we specifically focus on education as a lever for an open innovation eco-system, we are addressing a bunch of complementary issues. Ingredients are not enough: components of the eco-systems, such as education institutions of different levels, enterprises of different size, specialization and performance, do not produce innovation and openness on their own nature. What does it mean "education"? Do we mean the education institutions, i.e, their organization and hierarchy, historical setting of competences, their teachers and students, their goals within their socio-economic environment? Organizational issues matter in fostering that role of education. Which are the conditions - i.e. the roles and permissions within and between organizations, and the processes of interaction among different organization - in which those elements operate? Which are the relevant agents, the relevant scaffolding structures and processes to support that role of education?

In the present session, there is no time to answer the many questions around the role of education and I refer to other contributions in which, in collaboration with Paola Mengoli, I have suggested some answers to those questions. Here I would recall a practice in which an interaction space was created within an action-research program to enhance the role of education in supporting an open innovation eco-system. The details of that action-research are presented in FGB Q59). In the remaining of my talk, I will summarize the experience of its pilot action – marked by the design and implementation of a hybrid space, named 'Museolaboratorio' combining research and education - and its outreach.

'Officina Emilia's Museolaboratorio', in Modena, was an interaction space aiming at creating an effective setting to simulate a working environment, evocative of the past, present and future manufacturing conditions in the field of mechanics processing. The rationale of that action-research was the production of a concrete support for the local education system (from pre-primary to k-12 education) to cope with radical changes in the competences required by the mechanical industrial district in the province of Modena.

This is a very dynamic manufacturing area, world-wide known for car production of Maserati and Ferrari, but also an important hub for the production of many different types of processes and components of machineries for industrial sectors (from ceramic tile production to biomedical devices, and packaging). At the beginning of the 2000 we observed that the previous close relationships between the local industry and the education system (that was a strong components for the success of the ecosystem, mediated by families, local institutions and associations) was no longer effective. Even the notion of working in the manufacturing sector (that once was a reason for proudness in the local community) was no longer appealing.

The many mechanisms of transmission of technical competences within the entire society were very weak; the education institutions were not able to cope with the new challenges and changes (from students' composition due to migration, to the proper mastering of new technologies); neither the national nor the regional education policy were effective in addressing those problems.

The design and implementation of the action-research required multi-disciplinary competences to design, install, manage, conduct and assess the function of both the material infrastructure (the Museolaboratorio), and the activities realized in it – from laboratories, to artistic performances, workshops and master classes.

In four years, tens of labs were experienced with five thousand students and their teachers, who were involved both as co-developers of specific labs and participant observers of the labs with their students.

Along the development of the hybrid space, the Museolaboratorio, and the tens of modules of interactive labs for classes of students many pieces of ad hoc information was created and multiple relationships were fostered. Multimedia documents were necessary to enhance the evocative dimension of the socio technical environment; investigation on the history of technology, its economic impact and specific forms of organization and development in the local economy were produced to support the knowledge of the very dynamic mechanical industrial district in the province of Modena. Relationships with the local SMEs and medium and large companies in the district were crucial to support the first hand documentation and to create concrete examples for the simulation and for the observation of the real working environment, learnt in the simulation in the Museolaboratorio. Relationships with teachers and education institutions were crucial for experiencing sense making of the action-research.

The assessment of the labs produced a positive evaluation and highlighted the most effective mechanisms and conditions to support the ongoing changes with actions along the entire education system and with the involvement of all the different actors (teachers, principals, students, entrepreneurs, policy makers, researchers in the academia).

The creation of the required competences, connections, information, practices and assessment was a long process during almost 15 years.

In only a bunch of hours, the Museolaboratorio was dismantled. The University, paying for the rent of its premises, had no longer the financial resources for its operation and it was no longer supported by the local coalition - Chamber of Commerce, Bank Foundation, local and regional Government - that for some years had sponsored the action-research, as a practice in line with their vision to strengthen the local education system. Missing links across that coalition, together with the power of local policy orientation was enough for crowding out what was starting to mature as a practice in the local eco-system.

In conclusion, time is a crucial component to produce effective changes, as the ones outlined in the practice of Officina Emilia, but monitoring of changes in policy makers vision is another crucial component for re-orienting processes.