Spontaneous Orders and the Emergence of Economically Powerful Cities

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Abstract: The importance of cities to economic dynamism and growth cannot be emphasized enough. It is crucial for our understanding of what drives economic growth to understand how cities emerge, develop, and prosper. This paper investigates the emergence of cities from a spontaneous order and urban economics perspective. The analysis focuses on agglomeration effects, externalities and regional clustering as explanations of urban and regional growth. Factors such as local knowledge and dispersion of knowledge are identified as important growth factors. Based on Hayek's famous invocation of the "particular circumstances of time and place," these factors are discussed in a spontaneous-order framework.

Keywords: Cities; dynamic externalities; knowledge flows; spontaneous orders; urban economics.

1: INTRODUCTION

Cities are the engines of economic growth (Jacobs, 1969; Bairoch, 1988). It is in cities that a large share of the innovations and entrepreneurship takes place that fosters economic growth in the long run. Densely populated urban economies in which corporations, occupations, and individuals are close together create an environment in which ideas can flow rapidly from individual to individual. Through their organization cities provides meeting places for face-to-face communication, which further benefits the flows of tacit or local knowledge and thus creates positive agglomeration effects for firms located in an area.

Jacobs (1969) was one of the first scholars to describe the emergence of cities as a spontaneous order rather than from a central planning and organizational perspective.[1] The emergence of cities is spontaneous, as it is "self-ordering, self-sustaining, and self-regulating" (Ikeda, 2004: 253). Jacobs' argument is based on the assumption of ever-increasing social complexity in the formation of multifaceted spontaneous networks that consist of individuals who cover many different fields of knowledge, interests, and activities. The nodes in such networks consist of individuals linked through formal or informal relationships that can be used to transfer knowledge in an effective manner.

By analyzing cities from a spontaneous order perspective, the current paper relates closely to the arguments offered in Gus diZerega's introductory paper "Outlining a New Paradigm" in this issue. diZerega argues that "[u]nlike spontaneous orders, civil society is not coordinated by any single system of feedback signals, but incorporates many, … [.]" That is, civil societies incorporate many different feedback systems and individuals are essentially free to choose which signals they will adhere to. The manner in which this is organized could likely account for some of the differences between cities and explain how cities evolve over time. The evolution of culture is another spontaneous order that evolves over time; it is like the market in that it helps to shape the characteristics of cities.

The novelty in this paper is the combination of ideas from urban economics with a spontaneous-order perspective on civil society and the emergence of economically powerful cities. The two fields could be linked with respect to at least three points:

1   The Jacobian analytical framework of the emergence of cities
2   The importance of knowledge spillovers and local knowledge
3   The role of individuals in knowledge flows (i.e., methodological individualism[2]).

This paper uses the Jacobian analytical framework of cities as a starting point. Within this framework, the analysis focuses on agglomeration effects, dynamic externalities, regional clustering and local knowledge as explanations for cities and regional growth. The relatively high degree of spatial concentration in cities emphasizes features such as local embeddedness, social and professional networks, and face-to-face communication. Thus, as in Austrian economics, the urban economics framework identifies factors such as local knowledge and the dispersion of knowledge as important growth factors. Despite the inclusion of "place" in the phrase "particular circumstances of time and place" by Hayek (1945), Austrian theory almost entirely lacks a spatial dimension. Recently, however, the situation has started to change (Andersson, 2005; 2012; Desrochers, 1998; 2001; Heijman and Leen, 2004) with the development of a new type of Austrian economics that incorporates a spatial dimension to explain the transmission of knowledge, entrepreneurship, innovations, and markets.

In densely populated cities, both individuals and firms can take advantage of positive agglomeration effects and knowledge spillovers which increase the propensity to innovate and thus increase economic welfare (Audretsch, 1998; Malmberg and Maskell, 2002; Storper and Venables, 2004). In fact, theories of dynamic externalities can be used to explain both how cities form and why they grow (Glaeser *et al.*, 1992). This paper builds on these insights and develops an analytical framework that includes both the emergence and growth of cities using a spontaneous order perspective.

The remainder of the paper is structured as follows. Section 2 provides an overview of the development and importance of cities. The following section discusses the importance of spatial proximity in the emergence and development of urban economies. This section provides a theoretical framework that focuses on dynamic externalities,

agglomeration economies and the importance of knowledge flows for knowledge-intensive firms, entrepreneurship, innovations, and city dynamics. Section four discusses the spontaneous order of cities, the Hayekian knowledge problem, and how it can be related to tacit knowledge and face-to-face communication. The final section summarizes and concludes the paper.

2: GLOBAL CITIES AND THEIR ECONOMIC POWER

The importance of cities to economic dynamism and growth cannot be overemphasized. For example, recent data show that nearly 90 percent of total US economic output is produced in cities. American cities also account for approximately 85 percent of all employment (Florida, 2012). This feature is not unique to America; rather urbanization is occurring across the globe. Today, half of the world's population lives in cities, and the United Nations estimates that this will rise to 70 percent in 2050. The economic role of cities seems even greater when the data are disaggregated from the national level. For example, the largest 600 cities, which jointly comprise one-fifth of the world's population, account for 60 percent of the global GDP (McKinsey, 2011).

The group of global cities is not static; rather, the specific cities that constitute the top 600 cities are continually changing. Current economic development in the southern and eastern parts of the world will lead to a shift in economic power. McKinsey (2011) provides a forecast that identifies 136 new cities as new entrants in the top-600 group by 2025. All of them are in the developing world. The economically most important urban development is occurring in China, from which 100 of the new top 600 cities are expected to emerge. Thirteen of the new cities will be in India and another eight cities will be in Latin America. Hence, it is crucial for our understanding of what drives global and regional economic growth to understand how cities emerge, develop, and become economically powerful.

The conventional method of ranking cities involves the use of population size. A common definition of mega-cities includes metropolitan regions with more than 10 million people (Florida *et al.*, 2012). Table 1 presents a ranking of the 10 largest cities in terms of population in 2011 as well as estimates for 2025. The largest urban agglomeration is Tokyo (Japan) with 37 million people, followed by Delhi (India) and Shanghai (China).

Only three of these mega-agglomerations (Tokyo, New York, and Shanghai) qualify for the top-10 ranking lists that

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measure the economic power of global cities (see Table 2). That is, many of the largest cities in terms of population appear to be located in the developing world, with a rapid rate of urbanization. Many of these urban agglomerations suffer from the same socio-economic problems that were present in the developing world during the industrial revolution in the nineteenth century (Dahiya, 2012; Retsinas, 2007). Thus, if we are interested in the most economically powerful cities, we must employ other metrics.

Economic strength is not only a function of population; one must also include factors such as productivity, techno-logical change, human capital (skills), financial develop-ment, the rule of law, and other institutions. Until recently, it has been difficult to compare and rank cities according to their economic power. The main problem has been the lack of high-quality systematic data (Florida, 2012). A number of research institutes and think tanks throughout the world have exerted a significant amount of effort into finding this type of data, and there are now relatively reliable (and com-parable) metrics at hand. Table 2 presents five of these mea-sures; the sixth metric is a weighted average of the first five measures as computed by Florida (2012).

Table 1: The 10 largest urban agglomerations in terms of population, 2011 and 2025

	2011			2025		
Rank	City	Country	Population	City	Country	Population
1	**Tokyo**	Japan	37,200,000	**Tokyo**	Japan	38,600,000
2	Delhi	India	22,650,000	Delhi	India	32,940,000
3	Mexico City	Mexico	20,450,000	**Shanghai**	China	28,400,000
4	**New York**	United States	20,350,000	Mumbai (Bombay)	India	26,560,000
5	**Shanghai**	China	20,210,000	Mexico City	Mexico	24,580,000
6	Sao Paulo	Brazil	19,920,000	**New York**	United States	23,570,000
7	Mumbai (Bombay)	India	19,740,000	Sao Paulo	Brazil	23,170,000
8	Beijing	China	15,590,000	Dhaka	Bangladesh	22,910,000
9	Dhaka	Bangladesh	15,390,000	**Beijing**	China	22,630,000
10	Kolkata (Calcutta)	India	14,400,000	Karachi	Pakistan	20,190,000

Source: United Nations, Department of Economic and Social Affairs, Population Division (2012).
Note: Bold indicates that the city is also present in one of the rankings of the economically most powerful cities in the world (Table 2).

Table 2: The world's most powerful cities

Rank	GEPI[a]	GCCI[b]	GCI[c]	GFCI[d]	GCGDP 2025[e]	Overall ranking[f]	Overall score[f]
1	Tokyo	New York	New York	London	New York	New York	48(5)
2	New York	London	London	New York	Tokyo	London	43(5)
3	London	Singapore	Paris	Hong Kong	Shanghai	Tokyo	37(5)
4	Chicago	Hong Kong; Paris	Tokyo	Singapore	London	Hong Kong; Paris	25(4) 25(4)
5	Paris		Hong Kong	Tokyo	Beijing		
6	Boston	Tokyo	Los Angeles	Zurich	Los Angeles	Chicago	20(5)
7	Hong Kong	Zurich	Chicago	Chicago	Paris	Singapore	15(2)
8	Osaka	Washington	Seoul	Shanghai	Chicago	Shanghai	11(2)
9	Seoul; Washington	Chicago	Brussels	Seoul	Rhein-Ruhr	Los Angeles	10(2)
10		Boston	Washington	Toronto	Shenzhen	Zurich	9(2)

Sources: [a] Martin Prosperity Institute (GEPI=Global Economic Power Index); [b] The Economist (GCCI=Global Cities Competitiveness Index); [c] AT Kearney (GCI=Global Cities Index); [d] Z/Yen (GFCI=Global Financial Centers Index); [e] McKinsey Global Institute (GCGDP=Global Cities Gross Domestic Product)
Note: [f] The last two columns are based on weighted averages of the five other global city rankings. The score shows the total score from the five lists (i.e. 10 points for first place, 9 points for second place etc.). The number in brackets shows the number of rankings in which a city is among the top ten.

The foci of these indices differ, but together they provide a good indication of which cities are the most economically and financially influential.[3] New York ranks in first or second place in each of the five metrics and thus receives the highest overall score. London is the second most powerful city, ahead of Tokyo.

Table 2 shows that although the economic power in the world is shifting towards Asia and especially China, it is likely that it will take a long time before any of the Asian cities (except for Tokyo) rises to the top of any of these measures. Which factors or processes then make these top-ranked cities so economically and financially influential and powerful? A related question is this: why is there such as low correlation between the economically most important cities and the largest cities in terms of population?

3: THEORIES OF KNOWLEDGE FLOWS, DYNAMIC EXTERNALITIES AND CITIES

Theories of city growth are based on the assumption that progress is generated by spatially co-located firms in which the knowledge flows between individuals working in such firms are significant. In this context, cities grow because individuals interact with one another while freely absorbing knowledge. In more rural areas, the interactions and, hence, the knowledge spillovers between individuals are less intense, which is one explanation of why cities generally grow more rapidly than rural areas. The focus on knowledge flows between individuals who work in a locality is evidence that urban economics tend to adopt an individualist methodology.

If we view cities as the engines of economic growth and development and believe that spatial proximity facilitates the transmission of ideas, we should then expect knowledge flows to be especially important in cities. Marshall (1890) defines several factors that generate local advantages such as specialized labor, specialized suppliers, and local knowledge. Local knowledge is disseminated through local networks and other information-based channels.

3.1 Dynamic externalities

Theories of dynamic externalities may be used to explain both how cities form and why they grow (Glaeser *et al.*, 1992). The key determinants of the relevant models are spatial co-location and knowledge spillovers, which improve the growth rate for regional specialized firms relative to regionally isolated firms. The dynamic externality approach consists of three different theories of externalities and knowledge spillovers that differ on several important issues (*ibid.*):

- Marshall-Arrow-Romer (MAR) theory
- Michael Porter's theory
- Jane Jacobs' theory

The MAR approach applies to intra-industry knowledge spillovers, that is, those that occur between firms within *a single* industry. The theory originates from Marshall (1890), who applied it to city formation and industrial districts. It was subsequently formalized by Arrow (1962) and then refined and extended by Romer (1986). In essence, MAR theory argues that industry specialization leads to increasing knowledge spillovers among firms, which facilitates long-term growth for both the specialized industry and the city in general. However, because of incomplete property rights, knowledge of new innovations will spread to neighboring firms without compensation. Because the outflow of knowledge is not fully compensated, the returns on investments are reduced and, hence, incentives to innovate are also smaller. Thus the rates of innovation and growth benefit from reduced competition between firms that immediately copy new products (Romer, 1990). Based on this, MAR theorists argue that local concentration is beneficial for the rate of innovation and growth, because it enables cooperating firms to internalize their innovations.

In contrast, Porter (1990) disagrees with MAR and argues that local competition is more beneficial for co-located firms because innovations are easier to adapt in a competitive environment; therefore "externalities are maximized in cities with geographically specialized, competitive industries" (Glaeser *et al.*, 1992: 1128). In competitive environments, innovations are more rapidly adopted, and innovations improve more rapidly. In Porter's theory, firms that do not develop technologically will not keep up with their competitors, even though such firms cannot internalize all the returns from their innovation.

Jacobs (1969) disagrees with both MAR and Porter. She argues that industrial diversity (compared with industrial specialization) generates more beneficial conditions for entrepreneurship and innovations, because the most important knowledge flows are obtained from outside a city's core industry. However, Jacobs agrees with Porter (1990) that local competition generates a better climate for the adaptation of innovations than local monopolies (as MAR theorists contend). The empirical literature on dynamic externalities is inconclusive on the issue.

3.2 Internal and external knowledge capacity

A consensus in the literature on agglomeration economies is that firms benefit from internal learning, but that external knowledge in urban regions is also of great importance. Empirical research indicates that regional external knowledge flows generate benefits that nearly equal intra-firm investments (Keller, 2010; Lööf and Nabavi, 2012). Consistent with the arguments proposed by Jacobs (1961), urban economists demonstrate that geography is relevant. Although the largest multinationals and the most innovative firms are closely linked to the "global stock of knowledge," it is still the case that these firms predominately conduct their innovation processes in a few key regions (Rugmann, 2000).

Empirical innovation research shows that both innovation and knowledge spillovers are spatially localized and concentrated (Feldman and Kogler, 2010; Johansson *et al.*, 2012). For example, large metropolitan areas produce disproportionally more patents than do smaller regions. The results suggest that spatial co-location in large entrepreneurial cities generates increasing returns on innovations, unlike in smaller cities. However, co-located firms with higher levels of internal knowledge capacity are likely to reap more benefits from positive externalities than others (Johansson *et al.*, 2012). That is, a firm must have relatively high levels of internal knowledge capacity in order to absorb the external knowledge flows in a region. Using Swedish register-based data, Johansson *et al.* (2012) argue that there are significant differences between innovative and non-innovative firms in their ability to absorb and assimilate external knowledge. Being located in a region with high levels of external knowledge increases the productivity and long-term growth of innovative firms, whereas there is no corresponding effect for non-innovative firms. That is, to take advantage of external knowledge flows, a firm must possess a large internal knowledge base.

How (or why) does spatial proximity affect innovations and firm productivity? Firms benefit from being located close to a dense market that provides a variety of knowledge resources and a labor force consisting of a wide spectrum of qualifications and competences. Diversity in the supply of knowledge and human capital provides the foundation for knowledge exchange and creative interaction between firms and individuals in a region. Thus, agglomeration effects increase the rates of return on human capital and innovation (Gleaser and Ponzetto, 2010), which then raise the overall urban economic growth rate. In densely populated areas knowledge spillovers make it profitable for firms to be located near one another because they can benefit from the knowledge and innovation activities of other firms (Fujita and Thisse, 2002). In such settings, a firm can also take advantage of knowledge spillovers from specialized business services and other sources of external knowledge.

4: THE SPONTANEOUS ORDER OF CITIES

The economic importance of cities to global economic development implies that national level data can be quite misleading. One important effect of globalization is that national political borders become less relevant in economic terms; in this economic climate, firms choose locations based on expected profitability and individuals choose to live in places in which they have access to opportunities. Thus, both capital and labor choose the locations with the highest returns, opportunities, and productivity. Empirical research shows that regional economic growth is highly persistent (Fritsch and Wyrwich, 2012; Decressin and Fatás, 1995). Cities or regions that have a high level of economic growth generally have a long history of entrepreneurship and innovation.

Jacobs (1961; 1969) argues that diversified cities/urban economies are optimal environments for innovation and entrepreneurship. Through innovations, job and wealth creation, entrepreneurship generates long-term increases in living standards (Acs and Audretsch, 1988; Cagetti and de Nardi, 2006). Empirical research also shows that both innovation and entrepreneurship benefit immensely from face-to-face communication and spatial proximity.

Jacobs initially studied cities with a focus on the internal structure of neighborhoods and how such structures support meetings between individuals. She applied an ecological analytical framework that has subsequently been drawn upon to support a more explicit spontaneous-order argument (diZerega, this issue). In Jacobs' original framework, a city is defined as "a settlement that consistently generates economic growth from its own local economy" (Jacobs, 1969: 262).

4.1 Spontaneous orders, knowledge and cities

Spontaneous order is the idea that when individuals strive "to achieve their own purposes and plans [this] can through the guiding signals and incentives of the price system result in a socially desirable allocation and distribution of resources" (Boettke, 2013: 2). The concept corresponds to terms such as emergent order, self-organizing systems and mutual causality (diZerega, 2004: 446). Economic theory includes all purposive human action, and hence it is not possible to isolate or dispatch the economic realm of human action. Spontaneous orders are coordinated by "order-specific

feedback," which together with agglomeration effects and location-specific attributes act as constraints. The modern understanding of spontaneous orders stems from Polanyi (1961) and Hayek (1970); it refers to the way independent individuals pursue plans in order to accumulate order-specific assets. In the market economy, actors aim to maximize their economic wealth while in a democracy they maximize votes according to election rules (Andersson, 2013). Other spontaneous orders have yet other order-specific rules which constrain actors when they attempt to maximize order-specific assets. In civil society, actors need to take into account the constraints of different co-existing orders while maximizing utility or different order-specific resources.

Hayek uses spontaneous order theory to explain and praise the market and to argue that moral traditions are generated by evolution. A spontaneous order is created by the decisions of individual actors and is thus a by-product with no specific aim or goal. Individuals can use the abstract signals, such as prices or evolved rules, generated by an order to pursue their own goals. For example, prices in a market system give rise to rational expectations and enable individuals to act on information that they do not explicitly possess. Because no single individual or group is in control of all of the information that is needed to determine prices or the evolution of culture, no individual in society is capable of planning all economic activities or determining how the culture will evolve. In a market economy, "planning" is instead conducted by all the firms and individuals that operate in the market. For cities, the relevant prices include land rents, wages and other input prices. The decision to locate in a specific region can be seen as an investment decision where the net present value should be positive, thus implying a net contribution to firm value.

Hayek (1937; 1945; 1948) argues that the market economy is the system that best allocates dispersed knowledge and hence generates the highest level of wealth. Market prices are "a mechanism for communicating information" (Hayek, 1945: 526) and can be viewed as a coordinating mechanism that transfers knowledge across all members of society. Market prices transmit only relevant information to market participants. In this sense the price system facilitates the "division of labor but also a coordinated utilization of resources based on equally divided knowledge" (Hayek, 1945: 528).

Economic problems in society stem from change where the entrepreneur is the driving force of the market process. In her incessant quest for profit, the entrepreneur acts on changing market conditions and pushes the market system towards equilibrium. According to Israel Kirzner (1997: 62),

the Austrian approach "sees equilibrium as a systematic process in which market participants acquire more and more accurate *mutual knowledge* of potential demand and supply attitudes, and ii) sees the driving force behind this systematic process … as *entrepreneurial discovery*." Unlike mainstream neoclassical economics, it sees the competitive process of entrepreneurial discovery as a systematic process that pushes the system towards equilibrium. Here, the entrepreneurial process is a way to gradually discover new knowledge and push back the boundaries of sheer ignorance (Kirzner, 1997). The competitive process engenders mutual awareness of prices as well as output and input qualities and quantities, pushing them towards equilibrium.

Therefore, economically successful societies have a superior ability to adapt to and take advantage of economic changes. Such societies consist of individuals who are alert to entrepreneurial opportunities (Kirzner, 1997) and earn profits from trade and innovation. These are societies with effective knowledge dispersion in which individuals have "the knowledge of the particular circumstances of time and place" (Hayek, 1945: 521). Knowledge spillovers make up one of the building blocks of urban economies that can be used to explain both the emergence and growth of cities. For firms to take part in localized knowledge flows and "changing conditions" based on tacit or specialized knowledge they have to be spatially co-located with other firms. Interesting to note is that it is only firms with relatively high levels of human capital that benefit economically from such external knowledge flows (Lööf and Nabavis, 2013).

Both spontaneous-order theory and urban economic theory show how the dispersion of knowledge affects economic development and growth. In urban economics, one speaks of dynamic externalities, which refer to knowledge spillovers among workers in co-located firms. In the spontaneous order framework there is a greater focus on the market process, where the entrepreneur acts on changing conditions and drives the economy forward. The similarities consist of arguments that invoke individual knowledge or knowledge flows as well as entrepreneurship or innovation. The spread of tacit or specialized knowledge among the members of a society is not costless. To access or take part in the knowledge flows individuals have to meet face-to-face, which is a costly process. Andersson (2005) introduces another implication of a spatial perspective on the entrepreneurial process, namely that the choice of location is an entrepreneurial act which reflects profit opportunities. By being alert to new locations or benefits of co-location, firms that locate in a specific city or region can make entrepreneurial profits in

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the same way that an entrepreneur discovers a new innovation or profits from differences in relative prices. Hence, the inclusion of space in the theory of entrepreneurship makes it more complete (Andersson, 2005).

Kirzner argues that spontaneous orders (as discussed by Boettke, 2013) should be analyzed by assuming a fixed and given framework. For example, given pre-defined moral codes, ethical rules, and legal institutions that define factors such as property rights and the freedom of contract the analysis occurs within a pre-specified institutional framework. According to Kirzner, analysis of the emergence of institutional frameworks is much more difficult, and he is therefore skeptical whether the "existing economic tools" are sufficient for this task.

4.2 Cities consists of more orders than the market
A market economy is the most conventional example of a spontaneous order. But civil society consists of more than just the market. Cities thus also include spontaneous orders such as languages, networks, and cultures. They help people access these orders through face-to-face communication.

The role of culture is briefly touched upon in the discussion of tacit knowledge. Many agglomerations develop special cultures which increase both benefits and costs for participants. The culture of an agglomeration increases the costs of entry. Kiriakos (2011) offers an interesting study of "the cost of not being there." In her analysis she focuses on the cost of not being located in Silicon Valley for Finnish professionals. Interviews with Finnish information technology workers reveal disadvantages of being in Finland instead of in Silicon Valley. Examples that are brought up in the interviews are indirect costs such as not being invited to network meetings or seminars and missing out on business opportunities for the only reason that one has a Finnish address and phone number. The discussion relates to the characteristics of face-to-face communication that are highlighted by Storper and Venables (2004).

The culture of an agglomeration also includes the spontaneous order of language. To take part in and be able to access the tacit knowledge in an industry one has to be able to communicate with the other participants. How this communication develops over time is a spontaneous-order process. The channels for communication may be considered as order-specific links. Within densely populated areas there are many examples of clubs, networks and associations that facilitate the communication of tacit or specialized knowledge. Such entities enable their members to get superior knowledge of new ideas and innovations that are important

for technological change and entrepreneurship. They are also important conduits of new business and employment opportunities. Within these networks specialized cultures and ways of communication evolve over time. Firms invest in these economic networks in order to get superior information about relevant ideas, inventions, and innovations. The links accumulate economic value over time. One can apply the same type of analysis to these networks as to the market. They are enabled by human action but the order is a by-product; there is no unified goal or aim of the networks and their associated cultures or specific languages.

4.3 Dissemination of knowledge
Depending on its characteristics, knowledge can be divided into two main categories: specialized/private knowledge versus ubiquitous/transparent knowledge. For the emergence of cities, the first category is relevant to the discussion of the spontaneous order of cities. In addition, there are two types of specialized knowledge: tacit versus codified (Storper and Venables, 2004). In the context of entrepreneurship and innovation, it is knowledge that is both specialized (private) and tacit that is of primary importance.

The main difference between codified and tacit knowledge is how it is communicated. Codified knowledge can be communicated through symbols such as written texts, whereas tacit knowledge requires direct experience within a given context. Tacit knowledge is a kind of personal knowledge that can only be transferred through social interaction such as face-to-face communication, conversations, debates, imitation and observation. In addition, spatial agglomerations often exhibit a contextual homogeneity or culture which engenders steep geographical distance gradients and increases the benefits from spatial proximity. The consequence is that face-to-face interaction has four major benefits: efficient communication; enhanced trust and incentives in relationships; improved screening and socialization; and extra effort and innovation (Storper and Venables, 2004).

5: CONCLUDING REMARKS

This paper shows that spillovers of tacit knowledge still depend on spatial proximity, despite the global reach of information and communication technology (ICT). Dynamic externalities generate city growth and emergence. Both spontaneous order theories and urban economics focus on the effects of dispersed knowledge and knowledge flows. Both also highlight the importance of entrepreneurship for economic development. The current paper focuses on these

aspects, with the aim of showing how the two fields can gain from each other.

Since the late 1990s, an increasing number of papers aim at bringing the two frameworks together. These papers have enriched the analytical framework and led to a deeper appreciation of the effects of spatial co-location. Another important development is the increasing availability of data that enable urban economic researchers to apply an individualist methodology when analyzing knowledge flows among individuals. These parallel developments have supported an understanding of spatially situated human action that is compatible with Austrian methodology.

NOTES

[1]   Note, however, that Jacobs was not a "theorist of spontaneous orders" although her analytical framework could be understood in terms of spontaneous orders.

[2]   Desrochers (2001, 26) argues that the "traditional geographical perspectives" do not contain an individualist approach but rather applies a "regional innovation system" approach. Because of the access to detailed register-based data on both the individual and firm levels, empirical research on cities and externalities has become increasingly individualist in its methodology.

[3]   Another dimension is given in Acs, Bosma, and Sternberg (2008). They use Global Entrepreneurship Monitor (GEM) data to rank world cities according to i) early stage entrepreneurial activity, ii) entrepreneurial perceptions and, iii) the characteristics of early-stage entrepreneurial activity.

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