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# RE-EXAMINING THE RELATIONSHIP: URBAN ECONOMIC PERFORMANCE AND EXTERNAL ECONOMIES

*Debates on the prominent role of cities in the globally integrated economy create an unequivocal impression that, firstly, cities are engines of national and global economies, and, secondly, urban economic growth ultimately depends on cities' embeddedness in diverse networks. This discussion has resulted in the implementation of urban policies seeking to generate economic growth by improving the cities' position within multidimensional interurban relations worldwide. Network connectivity undoubtedly affects urban performance. However, so far, the dialectical relations between urban economic growth and network economies have created much room for critical reflection. The paper addresses this issue and problematizes the current state of research on the interplay of external economies and urban economic growth both as a theoretical concept and as a possible translation into urban policies.*

*Russia presents a distinct case of urbanization not only due to the combination of internal factors but also to the government's approach to cities in the history of national urbanization. Nowadays the Russian government seeks to reconsider the role of cities in national economy and accelerate their development. The analysis has revealed that the interplay between network economies and urban economic performance hinges on the distinct local context. Thus, considering the factors that determine Russia's spatial and economic development, it is essential to study the growth potential of the main urban agglomerations and amplification of network economies between middle and small size cities to maintain the whole national system of cities. The complementarity of these versions of spatial development would contribute to the search for the path of further spatial and economic development in Russia.*

**Keywords:** urban economic performance, external economies, globalization, network connectivity, urban policy, Russia

## Introduction

In the age of globalization, economic growth is believed to be driven mainly by cities [1; 2]. The recognition of the role urban centers play makes even clearer to what extent sociological account of the urban phenomena is needed. The question about the drivers of economic growth engendered so many theories that it is difficult to determine what factors are actually responsible for cities' prosperity. Edward Glaeser claims that "a central paradox of our times is that in cities, industrial agglomeration remains remarkably vital despite ever easier movement of goods and knowledge over space" [3]. Meanwhile, other scholars argue that "the network paradigm has been highly influential in spatial analysis in the globalization era. However, in spite of the attention being given to boosting city connectivity little is known about whether this directly translates to improved city economic performance and, if so, how well connected a city needs to be to benefit from this" [4]. In other words, it still remains unclear whether external economies contribute to urban economic performance and if yes, then how.

A growing body of literature paints a somewhat positivist picture, presenting cities' incorporation into economic networks as a factor which will explicitly improve urban competitiveness and lead to economic growth at local and national levels [5-8]. So far, however, no one has explained how network connectivity enhances efficiency of urban economies. There is a view that better network connectivity leads to mushroom growth, regardless of cities' characteristics or locations, but the influence of network connectivity on urban economic performance seems to vary from city to city and this dependence seems to be far from being linear [4, 9].

This paper aims to provide an overview of the existing theoretical and empirical research on external economies and their impact on urban economic growth. Research to date has tended to explain urban

economic growth as an internal process, casting aside external factors of urban growth such as network connectivity. Surprisingly, two sets of studies – research on urban economics and drivers of urban economic growth and research on network economies and network connectivity – often follow parallel paths. Thus, this paper connects these two areas by discussing the scientific relevance and the practical pertinence of the proposed topic.

This paper focuses on application of the existing research data on external economies and urban economic performance in the Russian context. In the Soviet period, the Russian system of cities was widely expanded. The logic that underpinned the development of Soviet cities was considerably different from the current market and global conditions. So far, in Russia there has been no articulate strategy of urban development. Moreover, little research has been done on how external economies affect the economic performance of Russian cities and towns.

This paper is organized as follows. First, I give an overview of agglomeration economies and their conceptual transformation in the era of globalization. Second, I examine the concept of network as an emerging model of economic growth and as emerging spatiality. In these two sections I seek to demonstrate the interconnection between external economies and urban economic growth. And finally, in the last section, I show how these theories can be applied in the Russian context.

### **Agglomeration economies and urban economic performance**

#### AGGLOMERATION ECONOMIES AT A LOCAL SCALE

In modern scientific and political discourse, cities are quite frequently considered as engines of growth in the national and international economy. It may seem paradoxical that the main preconditions and drivers of urban economic growth are hard to observe. Attempts to explain mechanisms of urban economic performance are riddled with inconsistencies and the future of cities is difficult to predict. On the one hand, the World Bank's report on urban competitiveness states that many cities "exhibit success amidst adversity", being "landlocked and in a lagging region of the country" [10]. On the other hand, contemporary European spatial strategies promote urban connectivity and centrality in a globally networked economy as a way to boost urban economic growth [4; 11].

A vast amount of research literature identifies and describes a broad spectrum of drivers of urban economic growth [1, 12-14]. In the research on urban economies and urban economic growth we can distinguish subfields dealing with agglomeration economies; the structure of urban economies (diversification versus specialization); human capital; and the quality and structure of institutions [15]. All factors of urban growth are interconnected in a deep and complex way and none of them can fully account for urban economic prosperity. Moreover, determinants of urban growth can change over time. As Glaeser argues, in the era of globalization, the primary engines of urban economic development "have shifted from mass-production industries and low-skill service jobs to a more sophisticated technology and knowledge-based systems of production and services" [1]. Although this is the prevailing view on urban economic success in the era of knowledge economy, it is a well-established fact that to be successful cities do not always need to overhaul their economies. A prosperous city, using the existing endowments (industrial, social, and geographical), could help its firms and industries create new jobs, improve productivity, and increase the income of citizens over time [10].

The economic growth of cities can well be explained by the concept of agglomeration economies, which is associated with proximity to production and which creates a favorable set of conditions (economic, institutional and social) for supporting and promoting economic growth [14; 16; 17]. Agglomeration economy is far from being a simple concept: on the contrary, it comprises different levels and economic phenomena and is determined by a variety of factors [17].

There are variegated classification schemes of agglomeration economies. According to the traditional approach, an agglomeration economy incorporates three distinct types of economies: large-scale economies [18]; internal localization economies for given sectors [19]; and urbanization economies corresponding to services for business and individuals [11; 20]. Parr also distinguishes between internal and external agglomeration economies viewed from the perspectives of scale, scope, and complexity [17]. He

argues that “the internal economies do not stem solely from the scale of production, but may also be dependent on consideration of scope and complexity” [17, p. 720]. External economies cannot be controlled by an individual firm and typically result from the collective action of firms; at the same time such economies are also correlated with various types of externalities.

Explaining the complexity of different types of agglomeration economies, Parr points out “parallelism” of their structures, which means that “for each agglomeration economy based on the internal economy, there is a corresponding agglomeration economy based on an external economy” [17, p. 720]. The complexity of structure, scope, and their profound interdependence bring me to the conclusion that the impact of agglomeration economies on urban economic growth does not constitute a linear correlation. Thus, it is necessary to discover the complexity of this spatial-economic phenomenon, including externalities.

Not denying the fact of a universal relationship between agglomeration economies and economic growth, it should be noted, however, that it is not always easy to find any empirical explanation for this correlation. David et al. conducted a thorough analysis of recent empirical studies on the importance of agglomeration economies and have shown that their results are contradictory [9, p. 238]. The authors claim that “the relevant question ... is where and when the relationship (between economic growth and agglomeration economies) has been strong enough to argue for the reinforcement of the most agglomerated regions. There are good reasons to believe that the relationship is unstable in space and time” [9, p. 239]. Moreover, the authors conclude that in the European context, where the city system is quite dense, at least in the first decade of the twentieth century there was no unequivocal relationship between size, level of internalization (connectivity) and economic growth of cities [9]. Therefore, in a very tight urban network small and medium-sized towns and cities would benefit from larger ones, while in a sparse urban network, big cities would probably demonstrate a linear correlation between their size and economic performance. However, this correlation can also depend on the local context. This fact is particularly important since it helps us re-estimate and reconsider those spatial policies which seek to stimulate the concentration of production forces in particular cities in the hope that it would enhance economic growth.

#### RESCALING EXTERNAL ECONOMIES IN THE GLOBAL ERA

In the face of globalization, external economies, whose positive outcomes are associated with economic benefits (positive externalities) derived from outside sources, have acquired particular scientific and practical significance [4; 17; 21]. Externalities, which were explained by Alfred Marshall as early as in the 1920s, include a specialized pool of labor, development of specialized knowledge base, and inter-firm knowledge spillover. However, the extension of externalities and their impact on urban economic growth remain “a black box,” since in permanently changing economic conditions, external economies expand and embrace more scales [11; 17; 22]. Thus, researchers not only need to examine agglomeration economies on many scales but also consider the interconnections between them.

According to Boix, traditional research on agglomeration economies does not explain the existence of external economies, which are generated through interurban interactions [23]. Moulaert and Djellal argue that agglomeration economies, which have traditionally been associated with urban concentrations, have to be reconsidered regarding alternative scales and spatial reconfigurations [24]. Parr has defined three types of spatiality of externalities of agglomeration economies: interurban space, regional space, and a city-region or metropolis-based region [17].

Indeed, in the era of globally integrated economies, it cannot be denied that agglomeration economies rise from the level of firms (micro-level), to meso- and macro levels, which, in their turn, function inside diverse (city) networks [11; 23; 25]. However, what requires particular attention is how the juncture between different scales occurs, how it could be grasped conceptually and, finally, how it manifests itself in economic growth. Meijers expresses doubt that agglomeration economies may be considered only as a local phenomenon and take the shape of network externalities [26]. Indeed, in the last decades, “the network paradigm” has gained influence in economic and spatial analysis.

### Network paradigm: economies and cities

Networks as distinctive elements of contemporary globalization present a major challenge for modern science [27]. As a matter of fact, “network” is a complex notion, which can be considered as a theory, as a paradigm and as a research approach in various disciplines (sociology, politics, mathematics, and economics). The concept of networking as creation and intensification of links between actors of different nature is widely used to explain social, economic, and political changes in the globalizing world. In this paper, I focus on the economic and spatial aspects of networking. I consider networks as an emerging model of economic growth and as emerging spatiality of the globalizing world. Thus, I seek to explore the intersection of these two concepts and find empirical evidence demonstrating the interdependence between spatial networks and urban economic growth.

#### NETWORK ECONOMY

A network is a particular kind of (spatial) arrangement that consists of a collection of linked elements which typically exhibit a decentered and non-hierarchical form [28]. Networking between economic actors is evolving rapidly within the framework of knowledge economy. The seminal work of Manuel Castells “The Rise of the Network Society” informed our understanding of the networking process [29]. A network economy could be interpreted as a new order of economic relations between economic agents based on cooperation. The broad concept of network economy is “a new economy pattern enabled by information technology and the global market” [30]. Although a significant body of literature associates network economy with a rise of internet technologies, understanding of network externalities requires us to take a broader perspective on the nature of network economy.

In the scientific context, an economy is seen as a web of links between various agents depending on experience and evolving through the learning process [31]. Thus, the recognition of cooperation “as an original organizational and behavioral form for individuals and companies” becomes vital for a network economy [25, p. 109]. Moreover, Cabus and Vanhaverbeke in their critical analysis of the theory of network economy argue that “new forms of corporate organizations and new cooperative strategies between producers, suppliers, and clients have replaced Fordist hierarchical structure” [32, p. 26]. Comprehension of network economies lies in progressive externalization of the production structure, which forms a production chain functioning as a networked enterprise [32].

Moreover, it is still unclear whether there is a correlation between agglomeration economies and network economies. Considering agglomeration and network economies as various types of external economies, some authors make an assumption that network economies complement agglomeration economies [32].

A distinct feature of these two types of external economies is their territorial manifestation. The clustering nature of agglomeration economies affects the social aspect of collective processes and is critical for further development of these economies. In other words, the spatial aspect is connected with the possibility to accumulate knowledge in a local context and thus it is crucial for the development of an agglomeration economy. Agglomeration economies, in their turn, are also important for the local culture and social capital, which increases competitiveness of firms.

Conversely, network economies are generated by networks themselves and do not necessarily invoke spatial clustering. I argue that this relative indifference of network economies to spatial flux is crucial for understanding spatiality of a network economy and its potential impact on the urban economic growth. Thus, agglomeration economies would be linked to urban economic growth. Network economies are often *only* “the competition of price and quality” in which innovation does not correlate with the place but with individuals and firms who shape these networks [32; 33]. It is difficult to prove the contribution that network economy makes to spatial development since this complex concept is based on the idea of relative geography which deals with the space of flows rather than with the space of places.

Spatiality of a network economy is a complex issue. Nevertheless, in the last decades, the urban network paradigm has attracted significant attention in urban studies seeking to shed light not only on the new organization of space but also on the potential influence of new spatial forms (networks) on economic

performance of various territorial units. Thus, I shall further consider conceptualization of a city network and its possible correlation with network economies and urban economic performance.

### CITY NETWORKS

The network approach to urban studies has a long history primarily because “how else cities would be organized except as networks” [34]. City networks have a distinctive nature of high complexity, reflected in a set of relations between various actors, seen as links between places where these same actors are located [35]. The relative nature of city networks should be emphasized. Cities themselves do not produce networks; cities are the places from which networks originate. A network of cities is a constellation of linkages among different agents (economic, social, political, and cultural).

Conceptualization of a city network largely depends on the scope and purpose of research. Camagni argues that a concept of a city network as a system of relationships and flows of a mainly horizontal and non-hierarchical nature could be applied to an empirical realm for interconnections between the city and its hinterland and, above all, between the city and other nearby cities of similar size [25]. Boix considers city networks as structures where the nodes are cities connected by links of different nature and supposes that the principal characteristic of city networks is the simultaneous existence of hierarchical and non-hierarchical structures in the form of cooperation between cities [23]. Taylor argues that (world) city networks are three-level structures which include “cities as the nodes, the world economy as the supra-nodal network level, and advanced-produce firms forming a critical sub-nodal level” [36]. It appears that structures and scales on which city networks exist present significant diversity and should be specified on a case-by-case basis.

Cities are never considered as isolated units since they are connected in a variety of ways: via physical infrastructure, capital flows, production chains, knowledge and innovation flows, and through multiple actors. However, what is unique for the current phase of development is that networked economies have pushed cities to intensify their interconnections with each other. As a result, conditions have been created for formation of various network patterns (patterns of interaction); various models of network behavior have been revealed, and the spatial mosaic of the urban world has been changed.

The city network paradigm is rooted in the assumption that economic globalization profoundly reshapes the spatial patterns of the economy and gives substantial advantages to the most connected places on different types of networks [4]. Multiple studies have demonstrated that, throughout history, cities’ success or failure in many respects depended on the ability of the city to adjust to complex economic, political, social changes and to be embedded in mutual external relations [8; 25; 34]. It is above all urban development that relies on the ability of the city to absorb and to treat a set of complex networks.

So far, however, we still fail to explain how network connectivity renders urban economies more efficient. There is evidence that networks of cities could generate network economies that influence urban growth, and thus network behavior could be considered as an emerging model for urban economic growth [21; 25]. Capello measured the impacts that city network behavior has on city performance and identified three distinctive elements of city networks [21]. Firstly, it is the network element, which means that relationships among cities no longer have to be based on territorial relationships but can acquire a non-territorial and long-distance character, free from the constraints imposed by geographic proximity. Secondly, there is the network externality element, based on the exploiting scales economies in complementarity relationships and synergic effects in cooperative activities. Thirdly, there is the co-operation element, when collective behavior among cities leads to the achievement of urban economies of scale, without implying the growth of each single center but distributing the consequent advantage among partners [21]. In a follow-up to this research, Camagni has added that a potential network surplus may be different when exploited by each partner city, according to the various behavioral partners and selected strategies [25]. In another study on Lombardy region, Camagni shows that city networks are not ubiquitous but, on the contrary, very selective in space and do not show up in the long distance and that the capital city has a super-gravitational effect [25]. It should be noted that both Capello and Camagni do not deny the possible contribution of interurban communication to urban economic performance. For them, city networks are more a phenomenon of space restructuring rather than a model of economic growth.

On the other hand, there is an obvious lack of empirical research to prove that the city's embeddedness in city networks positively influences economic growth. Likewise, there is no reliable substantiation showing that the increasing network connectivity will automatically improve urban economic growth. To our knowledge, only a few studies have empirically tested the impact that the city's position within networks has on its economic performance. Neal has demonstrated that the centrality of city networks has a positive impact on employment rates, but not vice versa [37]. Another group of authors has conducted a reciprocal comparison of urban networks promoted by Dutch spatial policy and the geography of firms' economic networks in Flanders. As a result, they have found that the nature of network economy "can in fact not be translated in terms of urban networks but terms of relationships between firms located in territories with dynamic industrial communities" [32]. Although what has been said above does not diminish the role of cities, what really matters is that cities are just contextual places rather than central nodes of network economies. Pain with co-authors tested the relationship between network connectivity and economic performance between 2000 and 2008 for cities with over 500,000 inhabitants in Europe and the US. They did not reveal any generalized relationships between the connectivity of European and American cities and their level of urban economic growth [4]. Therefore, the latest empirical research has found no direct correlation between global, regional, or national network connectivity and urban economic growth.

In the light of the above, the question remains open: what is the objective of an urban policy stimulating interurban connectivity? Our analysis of the research literature leads me to the conclusion that a city network is a new spatial phenomenon, a new organizational form of urban structure (both within and out of cities) rather than an economic phenomenon. Nevertheless, conceptualization of urban networks is widely used by politicians to develop an efficient territorial structure and promote urban economic growth.

### **Cities and urban policies in Russia**

"As is commonly the case with the geography of a complex economic unit, the present makes no sense until it is related to the evolutionary process which has produced it." Peter Hall, retrieved from [15]

On the basis of the reviewed literature, I intend to apply the above-described theoretical and empirical knowledge to the Russian context. Firstly, I shall describe the spatial and historical characteristics of the Russian system of cities. Next, I am going to discuss the possibilities of application of the existing theoretical and empirical knowledge to the development of a spatial and urban policy.

Contemporary Russia is a highly-urbanized country with the average level of urbanization 74%. It numbers over 1,100 cities, with Moscow concentrating approximately 8% of the population. The national system of cities is determined by the superiority of the capital city. Fifteen cities have the population of more than one million people. Despite the fact that Russia is a country of small cities (85% of cities have the population of less than 100,000), more than 70% of the population lives in big cities.

The vast size of the country, its severe climatic conditions, long wars of conquest, and militarization of the national policy have a significant impact on the urbanization process in Russia. Moreover, Russia has a history of an "isolated country" [38]. This set of factors influenced the development of urban spaces in Russia, making its history of urbanization profoundly different from that of the West. Thus, it is necessary to apply the empirical results gained from the research of the Western context and use them to carry out locally embedded empirical research, which would contribute to better understanding of the theoretical as well as practical aspect of the question.

Citation from Peter Hall's book at the beginning of this section encourages us to take a closer look at the past. I argue that this dimension is critical for the analysis of Russian cities for both scientific and policy-making purposes. The history of space urbanization is crucial for the current state of urban policies in Russia. Due to the Soviet central-planning approach, many Russian cities have locations that were often chosen for the purposes of the country's rapid industrialization and accelerated military development, which made these cities uncompetitive under the new market conditions. The relatively young character of Russian urbanization (more than 60% of Russian cities were created in the twentieth century) distinguishes it from European experience. In Europe, many cities were founded hundreds of years ago while the new ones were mainly created as satellites of core cities to benefit from the effect of agglomeration economies.

A significant number of Russian cities have had a limited time to establish efficient interurban relations and to develop a high-quality urban environment which would attract and stimulate further urban development.

The next feature of the Russian city system is associated with its relatively closed character. Many cities were created for the central-planned industrial system, in which connections between cities were planned from above and transport costs were not important for the efficient trade-off. Nevertheless, this fact does not mean that post-Soviet cities are not able to integrate into transnational relations, it only means that these cities were created following a different logic and they have to take their own paths of urban transformation. Recent research demonstrates that Russian cities are not fully incorporated into world city networks and that Moscow remains the only global city in the entire FSU region [8].

Currently, there is insufficient research on network connectivity and transformations of urban economies and urban economic growth in Russia. It would be particularly interesting to investigate the fact that the collapse of the USSR led to changing patterns of urban complementarities and to spatial and functional integration within Russia. The evolution dictated by the conditions of the global economy has impacted the city hierarchy inherited from Soviet times and the distribution of functions within city networks. Although the transformation of Russian city systems has been well documented [39-41], this research does not focus on the question as to what extent the new city networks result from network economies. Regarding the Russian context, a hypothesis on the correlation between urban economic growth and global network connectivity has not yet been tested.

#### PROSPECTS FOR RUSSIAN URBAN POLICIES

Currently Russia has no detailed urban policy. Previous critical reflection on the state of urban policy in the post-Socialist context has shown that the lack of unified national urban policy is a policy in itself [42]. However, there have recently been some positive changes in this respect. It becomes apparent that the urban question has now attracted significant attention in the Russian political discourse, which may lead to development of the national urban policy.

Several options may be put forward regarding the subsequent urban development. Firstly, it is the accelerated development of large cities (urban agglomerations). Secondly, the expansion of a network of interconnected medium-sized cities and towns. As the above-described research has shown, it is a complex subject. Glaeser et al. have found three primary factors that determine the trade-off between major cities and urban networks. There is a connection between urban size and amenities, housing supply elasticity and returns to scale in idea creation [43]. It should be emphasized that the correlation of these factors requires empirical studies of the place-specific context before any serious policy decision are taken. There is no universal model explaining urban economic growth as an internal or external process.

The results of numerous studies presented above can be useful for elaboration of urban policies in the Russian context. The agglomeration economy has a strong spatial flux and in itself creates a cultural and innovative environment for business. Thus, densification of the major cities would be beneficial for boosting not only urban but also national economic growth. On the other hand, if there is a land shortage it would make sense to enhance city networks. This strategy is widely applied in the European context as land in historical cities is highly limited. As for Russian conditions, in order to set the right targets for spatial development it is essential to analyse the potential land use for housing construction and the regulation of housing supply. Urban agglomerations serve as magnets for highly skilled labor and, therefore, are a fruitful ground for innovation. Even if one could argue that innovation does not correlate with the place, individuals and firms have to be located somewhere in the space, and, according to the available research data [43], they tend to choose large cities.

Therefore, initial analysis of the Russian urban context shows that big cities can be a win-win solution to the problem of enhancing economic performance. In case of urban network generation, particular attention should be paid to improvement of transport corridors and communication technology between potential nodes of city networks. Moreover, considering that Russia occupies a vast territory, which is developed extremely unevenly, the combination of big cities and city networks should be applied depending on the particular characteristics of the region.

Another important aspect is the position of Moscow within the national system of cities and the world city network. Moscow is a distinguished center for Russia as well as for the whole post-Soviet space, and it is the global city. Moscow is promoted as a global city and the applied policies aim to increase its competitiveness in the contemporary urban world. The results of the research on the world city network contradict the widely-held assumptions that connectivity is an important factor of urban economic growth. As it has been stated above, the level of the city's connectivity may be simply an indicator of the city's economic vibrancy; however, connectivity does not directly correlate with urban economic growth [4]. It should be noted that local characteristics of cities, such as labor market and political environment, may be crucial for urban economic growth, while the inter-urban connectivity is only a proxy for economic growth.

### Conclusion

In the face of globalization, in the era of knowledge economies, the research on the city network paradigm serves as a promising source for exploring the mechanisms of urban economic growth. However, the complexity of urban economic growth is connected not only with the sophistication of the very nature of cities but also with the fact that in a fast-paced world, factors determining urban performance change steadily. One could observe that the classical concepts of agglomeration economies are supplemented with network economies. Thus, the turbulence in current urban and regional economic studies leave much room for theoretical and methodological discussions.

The analysis of recent studies in this sphere has led us to the conclusion that at present there is still a shortage of empirical research explaining or even confirming the benefits of network economies for urban economic growth. Similarly, there is no reliable evidence showing that the increasing urban network connectivity automatically results in economic growth. However, there is a growing demand for such studies, which is demonstrated by the rise of political and economic debates concerning the increasing globalization of the urban economy, on the one hand, and, on the other, various models and patterns of correlations between network connectivity and urban economic growth.

The capturing a value of network connectivity is the open scientific task which has to support the urban policy blindly following the posture that economic growth and network connectivity are deeply intertwined. However, the mechanism of urban economic growth would be different for various cities. The recent analysis has shown that each context (geographical, economic, historical) provides different outcomes in terms of the correlation between network connectivity and urban economic performance. The dialectical relations between network economies and the internal economy have yet to be discovered.

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