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THE DEVELOPMENT OF LARGE CITIES IN THE CONTEXT OF FISCAL FEDERALISM IN RUSSIA

Master's Thesis by the 2nd year student Management and Urban Development

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I, Dmitry Kirillovich Vasiliev, 2nd year student of “Master in Urban Management and Development”, declare that in my final qualifying work on the topic "The Development of Large Cities and Fiscal Federalism in Russia", submitted to the support service undergraduate programs for subsequent transfer to the state attestation commission for public defense, does not contain elements of plagiarism. All direct borrowings from printed and electronic sources, as well as from previously defended term papers and final qualification works, candidate and doctoral dissertations have the appropriate links.

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INTRODUCTION

The issues of managing the state-federal system have been and will be related for Russia throughout the entire period of its formation and development. In the topic of public administration, at the moment, one of the most vital issues is the problem of managing fiscal federalism for the development of the country as a whole (Shvetsov, 2020). Moreover, the look at urban development within the framework of fiscal federalism is of relatively vast interest. In the world of academic literature, extensive attention is paid to various problems of federalism (Elazar 1996, Erk 2006). Part of the research is closely associated to the role of federalism in state territorial administration and development (Gunlicks, 1994; Amoretti & Bermeo, 2004; Bownan & Pagano, 1994). In western literature, particular attention is paid to fiscal federalism (Whiltshire, 1986; Lavaggi, 1991), one of the main principles of which is to preserve a balance in the budgets of revenues and expenditures at different government levels (Stenberg, 1994; Mikesell, 1994). The context of the Russian Federation in this direction is an extremely interesting and developing area for research (Baklaeva, 2016), in particular, because, due to the size of the country and the heterogeneity of its regions, federalism in Russia is inevitable (Zhuravskaya, 2010). The relevance of this issue is enhanced by the fact that there are conflicting opinions among the authors about the existing system of fiscal federalism in Russia. As a result, this paper is aimed at studying the impact of fiscal federalism on regional development in Russia.

Research problem: in various academic works, a contradiction has been revealed regarding the influence of the model of fiscal federalism on the urban development of the Russian Federation agglomerations. On the one hand, scientists (Prud'homme, 1994; Tanzi 1996; Fukasuku & de Mello, 1998; Fishman & Gatti, 2002; Tanzi, 2002) argue that in countries with transitional or developing economies, the application of decentralized fiscal federalism is dangerous and can lead to macroeconomic instability, corruption and disturb the urban development of agglomerations. Other authors (Weingast, 1995; Enikolopov & Zhuravskaya, 2003; Zhuravskaya, 2010; Baklaeva, 2016; Ermakova 2020; Shvetsov, 2020) believe that in such a developing country like Russia, centralized fiscal federalism is ineffective and needs to be changed towards decentralized to enforce the development of urban agglomerations.

The purpose (goal) of this work is to analyze the impact of fiscal federalism on the development of the Russian Federation agglomerations.

To achieve this goal, the following **tasks** were formulated:

- Study the theoretical foundations of the development of urban agglomerations and fiscal federalism.

- Develop a model to study the impact of fiscal federalism on the development of urban agglomerations.
- Analyze the impact of fiscal federalism on the economic and urban development of Russian regions.

The object of the research is the state policy of regional urban development of the Russian Federation.

The subject of this research is the economics of fiscal federalism of the Russian Federation.

Research questions:

- How does the existing system of fiscal federalism in the Russian Federation affect the urban development of the regions?
- How does the current economic development affect urban development and inequality among the constituent entities of the Russian Federation?
- How does the existing system of fiscal federalism in the Russian Federation influence the future urban development of the regions?

Expected results of the paper are the following:

- Understanding the interrelations between fiscal federalism and urban agglomerations.
- Defining the influence of the existing centralized model of fiscal federalism on the urban agglomerations in Russia.
- Formulation of recommendations for the further management of fiscal federalism for the development of urban agglomerations in Russia.

CHAPTER 1. THEORETICAL BASIS OF URBAN AGGLOMERATION DEVELOPMENT AND FISCAL FEDERALISM

This work is based on a theoretical and methodological basis in the field of urban economics and development. Thus, it is necessary to analyze the key works of the authors in this direction. In their book (R. Capello, & Peter Nijkamp, 2004), the authors analyze the literature and reveal key research areas in urban economics and development. The authors identify five key areas of urban economics research: agglomeration, accessibility, spatial interactions, urban hierarchy, competitiveness, and competitiveness. Further, the policy issues block is additionally included in them.

	Spatial Principles				
	Agglomeration	Accessibility	Spatial Interaction	Urban Hierarchy	Competitiveness
Tendencies in Theories					
More realism in theoretical approaches	Efficient city size rather than optimal city size Spatial equilibrium models considering both environmental and agglomeration externalities Relational rather than physical proximity as a source of urban externality	Endogenous bid rent functions Inter-city location models Absolute vs. differential urban rent Income differences in location choices Externalities in residential location Randomly distributed idiosyncratic tastes Non-uniform generalised cost of travel with respect to location Externalities in land use and social optimum in land use	Search for economic rationale of gravity models Spatial interaction models considering both competing destinations and intervening opportunity factors Computational intelligence approaches to spatial interaction modelling	Aspatial logics behind urban systems	Endogenous growth determinants

	Spatial Principles				
	Agglomeration	Accessibility	Spatial Interaction	Urban Hierarchy	Competitiveness
Dynamic rather than static approaches	Dynamic urbanisation economies	Dynamic locational choice decisions		Dynamic urban hierarchy models	Cumulative and circular effects in urban growth
Tendencies in modelling and methods					
More refined and advanced techniques	(Bio)ecologically based models	Discrete models of choice (logit and probit models)	Entropy models Neural networks		Multiple equilibria models Non-deterministic growth models Path-dependent growth models
Interest in quantitative measures	Measurement of dynamic urban economies measured	Measurement of differential vs. absolute rent measured		Measurement of dynamic urban network externalities measured	Measurement of knowledge spillover measured Measurement of endogenous growth determinants measured

Fig. 1. *Parts of tendencies in theories of Urban Development*

As suggested by authors, various reviews and reflections have noted a tendency to analyze regional science as a unique and attractive discipline, highlighting positive, negative, successful, and problematic trends, theoretical as well as empirical and practical, in its life cycle. The general

attempt to determine the success and failure of theoretical and methodological advances in science has a distinct regional dimension; Regional economics, or regional scientific methods and models are mostly covered in these flashbacks, which often view the urban dimension as a by-product of regional science. When it comes to location theory or land use and mobility models, the focus is on the urban scale, but surprisingly few felt the need to develop regional scientific methodologies in successive sub-disciplines (including urban) to highlight the role they played during the evolution of regional science.

Chapters' characteristics	Spatial principles					
	Part 1 *Agglomeration*	Part 2 *Accessibility*	Part 3 *Spatial Interaction*	Part 4 *Urban Hierarchy*	Part 5 *Competitiveness*	Part 6 *Policy Issues*
Review chapters on advances in theories/models/ techniques	Static vs. dynamic urbanisation economies (McCann)	Land use, transportation and urban development (Button, Nijkamp and Rietveld; Lundqvist)	Entropy models and neural networks (Fischer and Reggiani)	Advanced models of the central place theory (Peng)	Endogenous growth determinants (Berliant and Wang; Donaghy)	Local public finance (Friedrich and Nam)
Chapters dealing with more realism in theoretical approaches and dynamic rather than static approaches	Efficient city size rather than optimal city size (Capello) Spatial equilibrium models considering both environmental and agglomeration externalities (Nijkamp and Verhoef) Dynamic urbanisa-tion economies (Camagni)	Polycentric urban development (Sohn, Hewings and Kim) Dual earners and housing demand (Rouwendal and Van der Straaten) Externalities in land use and social optimum in land use (Sheppard)	Different commuting costs on spatial interaction (van Ommeren) Presence of externalities like ethnic concentration and human capital formation on migration flows (de Graaff and de Groot)	Dynamic urban hierarchy models (Abdel-Rahman) Aspatial logics behind urban systems (Camagni and Capello)	Economies of scale and different degrees of knowledge diffusion and of labour and capital mobility (Bröcker) Cumulative and circular effects in urban growth (Acs) Changes in urban forms and in urban functions (Stough)	Urban quality life and public policy (Mullingan, Carruthers and Cahill) Policy issues in the urban South (Geyer) Urban policy in a global economy (Andersson, Chatterjee and Lakshmanan)

Fig. 2. *Summary of the theoretical research base on Urban Development*

This paper can be most closely related to the areas of agglomeration, competitiveness, and policy issues. It is in these areas that the interaction of urban development and fiscal federalism is most clearly revealed.

Concept of urban agglomeration

From a scientific point of view, modern agglomeration is a multidisciplinary phenomenon, which is studied for the purpose of targeted regulation, which is possible from several points of view, namely geographic, economic, architectural, planning and organizational management positions. One traditional school examines urban agglomeration from economic viewpoints such as the Central Place theory and Zipf's Law, focusing on economic efficiency and regional integration (Rossi-Hansberg & Wright, 2007). Another theme is to look at urban agglomeration from the standpoint of planning and expansion, which has led to the development of ideas like differential urbanization, concentric models, and new urbanism (Elliott, 1997; Ye, Chen, Duan, &

Yang, 2017). In addition, there are other parts on the urban environment, urban government, and other social concerns in the literature (Fu Y., Zhang X., 2020`).

In his book Garden Cities of Tomorrow, published in 1898, British urban researcher, pioneer of modern urban planning, and social campaigner Ebenezer Howard proposed the notion of the "town cluster." This notion differed from the common urban spatial focus. Howard tried to look at the geographical arrangement and internal dynamics of cities and their surrounding countryside as a whole. Then, in 1920, researchers in the former Soviet Union proposed a number of hypotheses to explain the clustering of cities, including urban agglomeration. In addition, the British Census Bureau coined the term "Aggregates of Local Authority Area" to designate urban agglomeration/conurbation in 1931. This idea was very similar to "Metropolitan Regions," as defined by the United States Census Bureau, "urban region," as defined by New Zealand, and "population agglomérée," as defined by France. All of these phrases referred to a cluster of urbanized regions with a high population density, urban functions, and urban scenery. Friedman developed his idea of economic development stages (1973) devised a model to explain economic development and the geographical manifestations of that development. The model was ideally adapted to studying various stages and processes in the evolution of urban agglomerations. The term "urban agglomeration," or "urban cluster region," was defined as follows in Initial Exploration of China's Urbanization: "an urban agglomeration, or urban cluster region, is a clustered urban system with different hierarchies and types of cities that frequently appear in highly developed, commercialized, and urbanized regions" (Dong, 1989). In their book China's Urban Agglomeration, Yao, Chen, and Zhu (2006) described urban agglomeration as a "aggregate" of cities within certain geographic boundaries. Various terms have been used for “urban agglomeration” by scholars at different stages of socioeconomic and human development. These terms include urban regions, urban clusters, concentrated urban areas, urban economic zones, metropolitan areas, and others.

In summary of the previously discussed definitions and descriptions, this study proposes that urban agglomerations can be defined and described from six distinct perspectives: ecological; certain minimum population counts of the core city are reached; functional interconnectivity and accessibility; specific minimum population and residential locations in the peripheral areas are reached; statistical and quantitative; the distance from the core city to the most per capita income is reached (Fang, Yu, 2017).

All of the above definitions and descriptions apply to an urban agglomeration centered on a metropolitan region with one or two centers and a slew of outlying cities and townships that are

socially, economically, or both intimately linked. The many terminology for urban agglomerations indicate either the initial spatial shape (such as urban clusters) or the emergence of a completely developed and integrated new urban spatial organization (Fang, Yu, 2017).

General views of urban agglomeration studies and corresponding representative scholars from 1898 – 2015.

Year	Basic opinions of urban agglomeration definition	Representative scholars
1898	Equivalent to town cluster	Ebenezer Howard
1915	Equivalent to conurbation	Patrick Geddes
1918	Is an urban organism	E. Saarinen
1920	Is an urban economic zone	Bograd
1931	Is a concentrated urban area, and aggregates of Local administrative areas	Fawcett
1933	Is a city cluster	W. Christaller
1939	Is a city cluster	M. Jefferson
1942	Is an aggregate of cities	R. Vining
1957	Megalopolis (clusters of megacities)	J. Gottmann
1964	Megalopolis is the newly evolved urban forms	J. Friedman
1968	Is urban expansion area	T. Hagerstrand
1970	Equivalent to Ecumunopolis	C.A. Doxiadis
1980	Is a multi-economic-center urban area	J. Song
1980	Equivalent to Metropolitan Inter-locking Region, MIR	Y. Zhou
1980	Equivalent to Desakota (integrated urban-rural area)	T.G. McGee
1980	Equivalent to Dispersed Metropolis	K. Lynch
1983	Equivalent to Metropolis Belt	H. Yu and Y. Ning
1985	Megalopolis and integrated core-peripherals	D.A. Rondinelli
1985	Comprehensive and integrated urban spatial organization	J.B. Mcloughlin
1986	Fundamental spatial units for transnational companies' longitudinal division of labor	J. Friedman
1989	New form of integrated urban-rural (Desakota) combination	T.G. McGee
1989	A concentrated urban area with clear systematic hierachy	L. Dong
1991	Metropolitan belt	N. Pyrgiotis and K.R. Kunzmann
1992	Systematic hierarchical combination	G. Cui
1992	Integrated urban cluster	S. Yao
1995	Metropolitan belt	K. Tomita
1997	A spatial manifestation of regional post-industrialization and post-modernization production and life styles	Kipnis
1997	Integrated groups of cities	K. Qi and J. Duan
1999	Integrated cluster of cities	C. Gu
1999	A new regional integrated form	Q. Wu
2000	Concentrated city and township area	X. Hu
2001	Urbanized areas that are within daily commutable radius	Portnov and Erell
2001	Global city-region	Allen J. Scott
2002	Result from rapid urbanization and mid-point to megalopolis	X. Wang
2005	Highly integrated groups of cities, and a new economic unit for global division of labor	C. Fang
2007	A concentrated region of population and economy	P. Ni
2015	Highly integrated groups of cities that share common interest and fate	C. Fang

Fig. 3. *Central views of urban agglomeration studies (Fang, Yu, 2017)*

Definitions of urban agglomeration may be found in Russian literature as well as regulating legal actions. As a result, an urban agglomeration is defined in the Spatial Development Strategy as a "group of compactly located territories and settlements between them with a total population" (500-1000 thousand people - a large agglomeration; more than 1 million people - the largest agglomeration), linked by the shared use of infrastructure facilities and bound together by extensive economic and social ties. The term is defined as "the territory of an urban district or an urban district with intracity division, or a city of federal significance, united with the territories of other municipalities by stable social, and economic ties" in the second main legal document related to urban agglomerations, the "Bill on urban agglomerations" (Bukhvald E., 2021).

It is generally acknowledged that urban agglomerations are complex, dynamic, and vast systems, regardless of how they are defined. Indistinct borders and tiered diffusing capability are common characteristics of such systems, making statistically characterizing an urban agglomeration a daunting undertaking. Numerous research, on the other hand, continue to look at the geographical

borders of urban agglomerations from a number of perspectives. The urban field gravity model, urban economic regionalization, and administrative boundary modification have all been attempted.

Various approaches to define urban agglomeration quantitatively.

Time period	Individuals or Agencies	Definition summary
1910	US Census Bureau	Defined by population count and density
1957	Gottmann	Defined by five criteria covering population, trade, transportation, and internationalization
1960	Japan Department of Administrative Management	Defined by population/administration and commuting pattern
1990	US Census Bureau	Defined by population count, density, structure, growth and commuting pattern
1995	Zhou and Shi	Defined by five criteria covering population, globalization, spatial structure and commuting pattern
2001	Yao et al.	Defined by ten standards covering population, population structure, spatial structure and interaction, transportation network, population movement and industrialization
2005	Miao and Wang	Defined by six criteria covering population, commuting pattern, spatial extent and common recognition
2009–2011	Fang et al.	Defined by ten criteria covering population, size of city, economic development, industrialization, transportation network and commuting pattern. Concept of concentric spatial organization was proposed based on commuting time
2015	Ning	Defined by six criteria covering population, transportation, size of the cities, and historical coherence and common identity
2015	Wu et al.	Defined by extracting features from remote sensing images

Fig. 4. *Various approaches to define urban agglomeration quantitatively (Fang, Yu, 2017)*

When all of the aforementioned criteria are considered together, certain similar motifs emerge. To begin with, all definitions agree that an urban agglomeration must have a certain population size and number of cities. Second, any urban agglomeration is built on a web of intertwined socioeconomic ties. Finally, an urban agglomeration is frequently a full urban system with a well-thought-out self-sustaining hierarchical structure. Fourth, substantial driving factors must be present for urban agglomerations to arise and flourish in the future (Fang, Yu, 2017).

Because of its simplicity, clarity, and compromise between wide and restricted definitions, "a concentrated zone of people and economy" was chosen as the definition of the urban agglomeration in this study.

Comparison among the four stages of urban agglomerations.

Stages of urban agglomeration development		First expansion	Second expansion	Third expansion	Fourth expansion
Name	City	Metropolitan area	Metropolitan area belt	Large metropolitan area belt	Megalopolis
Spatial scope	Small	Sub-regional	Regional	Cross-regional	National/international
Radius	Municipal	Metropolitan	Inter-metropolitan	Sub-national	National/international
Number of cities	1	1	1	Three or more	3 cores with multiple peripherals
Population	5–10 million	5–10 million	10–15 million	More than 20 million	More than 30 million
Spatial structure	1 city	1 city and its immediate peripherals	1 city and influencing peripherals	3 or more cities and their peripherals	At least 2 large metropolitan area belts and all the cities
Transportation network	Inner city network, weak inter-city connectivity	Stronger inter-city connectivity	Complete inter-city connectivity	Complete inter-metropolitan connectivity	Extensive connectivity within and among metropolitan areas
Industrial integration	Very weak inter-city integration	Weak inter-city integration	Some inter-city integration	Strong inter-city integration	Fully integrated industrial systems
Regional structure	Single core	Single core layered structure	Single core radiating layered structure	Single or multi-core axis-layered network structure	Multi-core nebula highly interconnected network structure
Expansion mode	Point expansion	Point-circle expansion	Point-axis expansion	Axis-belt expansion	Beaded network radiating expansion
Development stages	Infancy stage	Initial stage	Medium stage	Mature stage	Ultimate stage
Function	Municipal growth center	Sub-regional growth center	Regional growth center	National growth center	International growth center

Fig. 5. *Comparison among the four stages of urban agglomeration (Fang, Yu, 2017)*

Agglomeration passes through four stages of growth. The agglomeration begins as a collection of closely spaced urbanized regions linked mostly by industrial links. There is no unified market for labor, land, real estate, or other resources in such so-called "industrial agglomerations," preventing them from being categorized as established agglomerations. The pendulum migration movements oriented towards the agglomeration's center strengthen in the second stage, and the agglomeration's single labor market emerges. The third stage, known as developed agglomeration, is marked by the emergence of a single functionally interconnected space, as well as the transfer of a number of functions (production, entertainment, and consumption) from the agglomeration's core (core) to the periphery, to satellite cities, the development of suburbs (suburbs), the formation of a single agglomeration market, and the agglomeration's becoming an important node in the territorial structure of the economy. The integration of agglomeration into global economic processes, the development of intelligent urban infrastructure, the emergence of a new concept of public space (the so-called "third place"), and the emergence of the so-called "new resource portfolio": human capital, technological and managerial innovations, post-industrial economy of technology, capacious and dynamic markets characterize the stage of post-industrial agglomeration (Neshchadin, Prilepin, 2014).

Thus, in this work, urban development is understood as the process of increasing the population and the economy, within which territorial expansion is also carried out.

Urban agglomeration has been deemed an efficient strategy to combine regional development benefits, promote social equity, and assist overall development efficiency since the

beginning of the twenty-first century, as more study on regional integration has been undertaken (Finka, Kluvankova, 2015).

The growth of agglomerations is influenced by regional development, and vice versa. Depending on the agglomeration's organization, it may include or exclude an area. For example, agglomerations in Japan (the Tokyo metropolitan area) and China (the Shanghai agglomeration) encompass multiple areas, the number of which fluctuates depending on estimates. Other examples include a few agglomerations in Russia (Nizhny Novgorod agglomeration, Perm agglomeration, Omsk agglomeration), which represent the most active and rapidly expanding area of the related regions.

Agglomerations have various legal and administrative authorities in different nations. According to Chinese authors (Li et al., 2021), China has begun to form a multi-centre governance city network system with central cities and urban agglomerations at its core, focusing on the construction of trans-regional spatial organizations represented by the Beijing-Tianjin-Hebei region, Yangtze River economic belt, and Guangdong-Hong Kong-Macao Greater Bay area. Meanwhile, in Russia, regions have more administrative authority, and the region's economic position has an impact on the population's level of living. Small and medium-sized urban communities, as well as systematic cross-regional population mobility, are significant characteristics of urban sustainable development. Multi-core urban regions are progressively emerging as a kind of agglomeration as many cities in the same region become increasingly intertwined. Any regional changes have an impact on the agglomeration that is a part of or encompasses this region. As a result, the growth of agglomerations is influenced by the growth of regions.

Traditionally, there are two types of urban agglomerations:

- monocentric (with one center or socio-economic "core" of the agglomeration);
- polycentric agglomerations (with several similar centers).

These forms of agglomerations are progressively convergent in current times. This is because, in modern times, new, relatively big territorial economic centers are progressively forming around formerly dominating concentrations of economic activity, taking over some of the former center's roles in the economic, and occasionally even in the administrative plan (Bukhvald, 2021).

There are differing viewpoints on the laws of agglomeration in both international and indigenous economic study. In certain circumstances, this process is viewed as completely natural

and objective, with a profoundly positive economic and societal impact. As a result, the idea of "forming an agglomeration" under the impact of government measures is viewed as questionable in this situation (Lin'kova, Mokeev, 2020). However, another viewpoint (Bukhvald, 2021) contends that the natural-objective nature of the agglomeration trend based on rising production concentration and settlement urbanization, as well as its positive economic significance, is fully evident. All of this, however, occurred only up to a particular point in time. As a result, certain components of agglomeration processes have increasingly come under governmental socio-economic control and strategy, notably on the basis of a specific federal statute (Dejnega, 2018; Drozdova, 2016).

Puzanov A.S. (Puzanov, 2019) argues that agglomerations form on their own, without state intervention. It is difficult to create an agglomeration artificially. The state merely needs to put in place legislative structures and processes to simplify the process so that it occurs with the fewest possible shocks while having the maximum economic impact.

In Russia, the process of forming agglomerations has evolved into an objective evolutionary process of urban growth rather than a bureaucratic procedure. As the city developed, so did the diversity of its activities, and its sphere of influence spread to encompass the surrounding areas. The city crossed a post-urban development threshold and became an agglomeration. Many Russian agglomerations were formed along this path, which was mostly spontaneous (Neshchadin, Prilepin, 2014).

Municipal government, according to the authors (Khairullov, Davydova, 2012), is a practical, organizing, and regulating influence of local authorities on the social life of a municipal formation's population in order to streamline, preserve, or transform it, as well as effectively use the territorial potential.

The Russian Federation's Federal Law No. 131 enhances and clarifies the Constitution's provisions. He defines the notion of a municipality and the territorial makeup of each type of municipality. A municipality is defined as an urban or rural settlement, a municipal district, an urban district, an urban district with an intracity division, an intracity area, or an intracity territory of a federally significant city under this legislation (Daova et al., 2019).

Table 1. Types of municipalities and their composition in Russia (Daova et al., 2019)

No.	Name (type) of the municipality	Territorial composition of the municipality
	First level	
1	Rural settlement	One or more rural settlements united by a common territory (townships, villages, stanitsas, villages, farms, kishlaks, auls and other rural settlements)
2	Urban settlement	City or town
3	Intracity area	Intracity municipality on a part of the territory of an urban district with intracity division
Single-tier municipalities		
4	Urban district	One or more settlements united by a common territory that are not municipalities
5	Intra-city territory (intra-city municipality) of a city of federal significance	Part of the territory of the city of federal significance
	Second level	
6	Municipal District	Several settlements or settlements and inter-settlement territories united by a common territory
7	Urban district with intracity division	An urban district in which, in accordance with the law of a constituent entity of the Russian Federation, inner-city districts are formed as inner-city municipalities

For the construction of communities and settlement systems, urban planning is a complex and comprehensive undertaking. It encompasses legislation governing settlement building and reconstruction, social and economic planning, architectural and engineering design, scientific research, and construction production organization. The two main components of urban planning activity are territorial planning and urban planning regulation, both of which are organizationally and technologically related and aimed at ensuring sustainable development of territories with favorable living conditions for humans, limiting the negative effects of economic and other activities on the environment, and ensuring the protection and rational use of natural resources in the interests of current and future generations (Gruzdev, 2017).

Urbanization in Russia's regions, broken down into economic zones: Northwest 86.7 percent, Central 82.9 percent, Far East 75.8%, Ural 74.5 percent, Central Black Earth 61.6 percent, and North Caucasian 55.6 percent are the regions with the highest percentages (Kolomak, 2012). The development and arrangement by large cities of vast areas of inhospitable rural areas with the

organization of agricultural product production and industrial processing, as well as a unique Russian form of seasonal settlement of multimillion groups of citizens in various associations and communities, are the peculiarities of Russian agglomerations (Maleeva, Selyutina, 2014).

Unlike a number of foreign countries, in the Russian Federation, official statistical records of agglomerations (Rosstat) are not kept, and all expert estimates of the composition and number of agglomerations, including the Institute of Geography of the Academy of Sciences, the Central Research Institute of Urban Planning, the Research Institute of Territorial Development and Transport Infrastructure, the Faculty of Geography of Moscow State University, regional and city local authorities and other sources are copyright and vary somewhat. According to estimates given in the Spatial Development Strategy, about 40 large and largest urban agglomerations have formed in the Russian Federation, in most of which the population has been steadily growing since the beginning of the 2000s and has now exceeded 73 million people. However, clear boundaries and composition of agglomerations are not defined in this document.

As a result, the scientific work of the Institute of Geography of the Russian Academy of Sciences was taken as the main document determining the number, size and composition of agglomerations (Antonov, Makhrova, 2019). The authors defined 36 major agglomerations along with core delimitation along, analysis of population sizes and development index dynamics.

Over the last few years, the establishment of agglomerations has firmly established itself as one of our country's primary strategic development priorities. Deputy Chairman of the Economic Council under the President of Russia A.L. Kudrin spoke about the need for the purposeful formation of about 15-20 large urban agglomerations in Russia at the regular "Gaidar Forum" held in January 2017 at the Russian Academy of National Economy and Public Administration under the President of the Russian Federation (RANEPA). According to Alexei Kudrin, cities or agglomerations of cities with a population of around a million people can become "centers of technology and intellectual potential, social capital, and quality of life," allowing Russia to compete more effectively in the global economy, where the main players are increasingly becoming large megacities (Petukhov, Lutsenko, 2017).

In light of the country's vast territorial and socioeconomic variety, it's difficult to be surprised that long-term work on the agglomeration legislation has yet to reach a logical end. Similarly, there is no agreement among experts and management specialists on the number of "genuine" agglomerations in the Russian Federation's economic area, or even on the most serious challenges they confront in their growth.

According to the authors (Bukhvald, 2021), two documents are currently of primary interest for the proper positioning of agglomerations in the management and strategizing of the Russian economy's spatial development: The Russian Federation's Strategy for Spatial Development until 2025 and the recently published draft federal law "On urban agglomerations." Unfortunately, the Russian Federation's Urban Planning Code, which is an important legislation in the field of territorial planning, does not address the country's agglomeration growth.

The Spatial Development Strategy, on the other hand, tackles the problem of agglomerations in a wide sense. To begin, this strategy defines an agglomeration as a collection of closely spaced settlements and territories with a combined population (500-1000 thousand people – a large agglomeration; over 1 million people – the largest agglomeration) linked by shared infrastructure facilities and bound together by extensive economic, labor, and social ties. This definition might lead to two conclusions. First, the difference between big and greatest agglomerations is determined only on the basis of population (as evidenced throughout the document); second, the collection of communities with a total population of fewer than 500 thousand people. It isn't possible to classify it as an agglomeration (the document does not consider other types of agglomerations, except for large and largest ones). Agglomerations are positioned as centers of concentration for scientific, inventive, and technological activity, as well as the most sophisticated educational systems, according to the strategy. According to the paper, one of the most important reasons in the construction of trunk transportation networks in the nation is the necessity to travel between major and greatest urban agglomerations, as well as between them and the administrative capitals of the Russian Federation component bodies. The importance of big and greatest agglomerations as interregional hubs for the provision of services to sectors of the social sphere, particularly by federal entities, is correctly noted in the paper. However, the Strategy's approach to the agglomeration problem is generally balanced. While the text recognizes the good influence of agglomerations on the country's and regions' spatial and socioeconomic development, it also identifies a number of issues. However, it is notable that the Strategy does not provide a logical strategy to maximizing agglomeration processes, particularly in light of the unique characteristics of each nation areas (Bukhvald, 2021).

The "Strategy for the Spatial Development of the Russian Federation 2025," which was produced by the Russian Federation Government and given to the executive authorities, is now one of the most important papers. A strategy is a document that incorporates the basis of state regional development policy, Russian Federation socio-economic development plans, and national security into federal territorial planning papers. The project's main scenario for spatial development include developing circumstances for growing the number and expanding the

geography of economic growth centers. The "cores" of the greatest and largest GAs include Moscow, St. Petersburg, Nizhny Novgorod, Novosibirsk, Kazan, Samara-Togliatti, Voronezh, Rostov-on-Don, etc. It is intended to establish circumstances for the construction of a stable polycentric system of spatial development by expanding the number of economic growth centers. An improvement in the transport connection of economic growth hubs will make it easier for territories to participate in economic growth. One of the most important outcomes of transportation infrastructure development will be the inclusion of big urban agglomerations of urban districts and municipal districts, with populations of up to 7 million people, inside the transport accessibility radius (Musinova, 2019).

It should be emphasized that the agglomeration's revenue and expenditures may be calculated. The makeup of an agglomeration determines its income base. Because the agglomeration is made up of municipalities, its revenues and expenditures are directly influenced by the municipalities. It should also be mentioned that agglomeration powers in the Russian Federation are currently limited, and administrative regulation is given by the regions.

Foreign experience of urban agglomeration development

The increasing absorption of rural communities coincided with the rise of cities, the spread of suburban development, and the establishment of urbanized regions. Cities began to lose their dense appearance and take on the characteristics of large metropolitan regions. According to the 2011 census, urban regions house 82 percent of Canada's population (27 million people), but covering just 4% of the country's land area. In Canada's statistics system, there are now 151 agglomerations (of which 34 are census metropolises and 117 census agglomerations). Three Canadian cities (Vancouver, Calgary, and Toronto) are among the top ten greatest places to live in, according to the Economist Intelligence Unit.

The most important link connecting settlements in Canada is the 1000 km long (and up to 300 km broad) linearly stretched urbanized zone (axis) from Quebec to Windsor, located in the south of the nation along the US border. The agglomerations "Toronto," "Montreal," "Vancouver," "Kitchener," "Hamilton," and "Victoria" have the largest population concentrations in Canada. Other densely populated regions are considerably smaller, yet they do occur around major cities. Individual cities (municipalities) inside their administrative boundaries, as well as agglomerations that have evolved surrounding them, are both registered in Canada's statistics system. For example, the city of Toronto has a population of 2.6 million people, whereas the agglomeration "Toronto" (nearly continuous development) has a population of 5.9 million. As a result, in Canada, an agglomeration is defined as a geographic object (as defined in statistical records) on the one hand,

and as an organizational framework for regulating the union of numerous municipalities on the other (for example, Greater Montreal includes two geographic agglomerations). Census metropolises and census agglomerations are two types of census units defined by Statistics Canada as specifically defined geographic objects. In terms of expertise with agglomeration management approaches, Canada is also intriguing. Various models (both two- and one-level) are offered in Canada, and one may examine the conversions of one model into another using their examples (Biryulina, Yurasova, 2016).

In the United States of America, the growth of urban agglomerations is based on a settlement in the form of a built-up region with a population of more than 10,000 people. The construction of urban agglomerations in the United States began in the 1960s of the twentieth century, when the mayor of Indianapolis decided to connect the city and adjacent villages, allowing for fast expansion. Urban agglomerations are defined by a grid of counties, and they can consist of one or more, with the number of agglomerations increasing over time. A metropolitan area is defined as an urban agglomeration with a population of more than 50 thousand people, whereas a micropolitan area is defined as one with fewer than 50 thousand people. There were 362 metropolitan areas and 560 micropolitan areas in 2010, with a total population of 275 million people. (93 percent of the population of the country). In the United States, metropolitan regions are referred to as "standard metropolitan areas," and their borders are re-evaluated on a regular basis. "Combined urban statistical zones" are formed when standard metropolitan areas are connected (metropolitan areas). The megalopolis, which includes the cities of New York, Washington, Philadelphia, Boston, and Baltimore, can be identified as such a group. The categorization of the population into "metropolitan" and "non-metropolitan" is now used in the production of several types of projections. Furthermore, the term "rural-urban continuum" is commonly employed. The supra-municipal governing entities that have been created in urban agglomerations are alliances of municipal, commercial, and public-sector representatives. The organizations' principal responsibilities include addressing issues such as transportation and communications development, labor market development, water supply and sanitation, environment, and so on. The Association of Southern California Authorities, for example, is in charge of the development and operation of Greater Los Angeles. Another possibility is to have a central settlement supply services to municipalities (Biryulina, Yurasova, 2016).

The extension of industrial output in big cities (Shanghai, Beijing, Guangzhou) to adjacent municipalities was the formation of agglomerations in China. New free trade zones and development zones have been developed, with established incentives for R&D firms. The growth of agglomerations in China is characterized by a large rise in population concentration in the

agglomerations, which leads to a worsening in the people's living circumstances and quality of life. The Yangtze River Delta agglomeration is ranked sixth in the world. In China, a total of 23 agglomerations are presently being created. The creation of agglomerations is regarded as a critical need in China. Agglomerations are the most promising key zones for China's economic development in the future. Among China's strategically significant places, these are the major development zones. According to strategic papers, the number of megacities in a group of Chinese agglomerations should not be fewer than three, with at least one major metropolis in the center. The population must be at least 20 million people, and the urbanization rate must be greater than 50%. Non-commercial industries should account for more than 70% of total production, and the average GDP per capita should be $3,000. The economic density per square meter should be at least 5 million yuan. It should be emphasized that, in international experience, urban agglomerations consist of municipalities of various sizes and degrees of independence, and that the boundaries of urban agglomerations do not match with the administrative-territorial division. Shanghai is an anomaly, where the city hall's power extends to the whole population and nearby rural regions (Biryulina, Yurasova, 2016).

Cities' increasing importance has become a twentieth-century trend. First, there are significant rates of urban population growth, and second, big cities are rapidly expanding. Urbanization patterns in Russia can be ascribed to a number of variables. Russia is a country with a high population density. In 2010, 73.7 percent of the population lived in cities. However, it is also worth noting that the speed with which urbanization processes are occurring is slowing. In 1990, the urban population was 73 percent, and it has varied within 1% during the previous 20 years (Kolomak, 2012).

According to the Russian Federation's Strategy for Spatial Development through 2025, worldwide tendencies in spatial development at the turn of the century include the concentration of people and economy in the greatest forms of settlement, with the largest urban agglomerations taking the lead. Nearly 40 big and greatest urban agglomerations have arisen in the Russian Federation, the population of which has been gradually expanding since the beginning of the 2000s and currently exceeds 73 million people. Several massive economic development centers have emerged in the Russian Federation, each accounting for more than 1% of the overall increase of the Russian Federation's component entities' gross regional product. They include 19 large and the largest urban agglomerations, along with 4 mineral resource centers located in the Republic of Sakha (Yakutia), Sakhalin Oblast, Khanty-Mansi Autonomous Okrug – Yugra, Yamalo-Nenets Autonomous Okrug. The administrative centers of the Russian Federation constituent entities, as well as individual urban settlements, agro-industrial and mineral centers, and territories

specializing in tourism, have formed centers of economic growth on a smaller scale in the constituent entities of the Russian Federation.

Concept of Fiscal Federalism

The following literature assessment will progressively reveal the periods of fiscal federalism's development and creation in Russia, as well as its present status and modifications at the turn of the twenty-first century. The significance of fiscal federalism in state regional development strategy will get special consideration. In addition, the theoretical underpinnings of the study topic will be examined, including arguments for and against the Russian Federation's current fiscal federalism.

The relevance of taxation and budget expenditure in regional development is highlighted in public finance theory (Tiebout 1956, Oates 1972, 1992). The presence of a number of areas complicates these tasks in the context of federalism, bringing fiscal federalism challenges to the forefront (Hanson, 2006).

The term of "fiscal federalism" is problematic in current Russian economic literature when compared to the frequently used concepts of "budget federalism," "fiscal federalism," and "tax federalism." R.A. Musgrave proposed the notion of "fiscal federalism" in his book "The Theory of Public Finance" (Musgrave, 1961). The provisions were withdrawn over forty years later, when the Russian Federation State Duma enacted the RF Fiscal Code in 1998, legally establishing Russian budget federalism, its content, and principles for the first time. As a result, the lack of a basic, legislatively defined construction of the notion of "fiscal federalism" allowed it to be interpreted widely and narrowly, and a complex concept called "fiscal (budget) federalism" to be built from interchangeable synonyms. Simultaneously, there is still no clear meaning of the word "budget federalism." This is simply one of the Russian-language equivalents of "fiscal federalism." Along with it, the Russian literature use the phrases "budget federalism," "fiscal federalism," "financial federalism," and "tax federalism," all of which have the same meaning. The subject and purpose of public finance study reflect these terminological strategies (Peshina, Strekalova, 2016).

Conclusions concerning the comparability of foreign scientists' opinions on the idea of "fiscal federalism" and Russian scientists' views on the concept of "fiscal (budget) federalism" in the public finance management system may be drawn. It may also be said that fiscal federalism is viewed as a special instance of the notion of fiscal federalism in world scientific thinking in Russian scientific thought (Peshina, Strekalova, 2016). A "narrow" view of fiscal federalism leads to the following:

- The lack of theoretical research on the whole range of fiscal federalism concerns and corresponding practical recommendations for its successful functioning and development, as well as the lack of common sense notions in the public finance system that are consistent with world scientific thought;
- To concentrate solely on the shared use of monetary resources (public finance), which is a result of fiscal federalism rather than its cause.;
- To see fiscal (budget) federalism in the short and (or) medium term as interbudgetary (monetary) ties between the federation's subjects, rather than in the wider sense of the federation's territories' (subjects') potential.

In this work, the notion of fiscal federalism is used to the interpretation of international scientific literature rather than a specific case of a general theory as it is applied to the comprehension of Russian literature.

This category of "fiscal federalism" is both economic and legal at the same time, which explains the diverse interpretations and contents of the definitions. The allocation of revenue and expenditure powers between different levels of government, as well as a system of intergovernmental fiscal interactions, include fiscal federalism, which is the vertical financial structure of the public sector (Oates, 1999). Traditional fiscal federalism theory establishes a broad legal framework for the division of functions among different levels of government, as well as appropriate financial tools for carrying out these functions (Richard Musgrave, 1959; Oates, 1972). At its most basic level, this theory contends that the central government should be largely responsible for macroeconomic stabilization and income redistribution in the form of poor help.

The classic economic justification for fiscal decentralization is the potential advantages from more efficient resource allocation in the public sector. Economists have classified "local public goods" as one of the types of public goods. This category of public goods covers public services that are only available to residents of specific jurisdictions. Decentralized levels of government can select the degree of production of such commodities under a federal fiscal system based on local preferences and costs. This diversification of local public service results ensures higher economic development than a centralized outcome based on more uniform public service levels throughout all jurisdictions.

The key principles of fiscal federalism are regional equality in relation to the federal center, clear delineation of powers, the independence of budgets at various levels, the correspondence of financial resources of subnational governing bodies to the functions they perform, formalized

methods of regulating interbudgetary relations, and the existence of procedures to prevent budgetary system conflicts (Lavrov, 1997).

Federalism, along with democracy, horizontal division of powers, and the rule of law, is one of the most successful strategies for retaining market incentives, according to recent study (Qian, Weingast, 1997). Positive market incentives (creating conditions for inflows of investments in a particular region or municipality, providing preferences to innovative companies) are maintained and negative market incentives are reduced in an effective system of federalism that includes significant decentralization of revenue and expenditure powers (by stopping ineffective government programs, closing unprofitable state and municipal enterprises).

The primary substantive aspect is to ensure the unity of interests of all component entities of the Russian Federation at all levels of the budget system, according to Russian literature (Lavrov, 1997; Krokhina, 2002). The contributors have diverse perspectives on the subject at hand. Some describe fiscal federalism as a type of federal state financial framework, while others define it as a set of principles that constitute the budgetary structure, and yet others define it as a quest for a scientifically sound, optimum allocation of expenditures and revenues in each level's budget (Betkaraev, 2009).

Some authors (Baklaeva, 2016) claim that, first and foremost, economic interests must be coordinated in order to achieve the greatest social and economic advantages for the entire country's society. The successful and coordinated growth of the whole economy of the Russian Federation, both in general and regional terms, is guaranteed by the combination of economic interests of subjects at all levels of the Russian Federation (Gershkovich, 2005). All of the foregoing issues point to the necessity for a proper fiscal federalism model that allows the federation's objectives to be combined with the interests of its subjects while maintaining each's independence. Furthermore, to establish an economic system for federal and interregional connections that would allow the inconsistencies between territorial and national duties to be resolved (Baklaeva, 2016).

W. Oates made three points about the general theory in his study. First, the decentralization theorem's fundamentals must be clarified. The theorem is a simple rule that states that "... in the absence of cost savings due to centralized provision of local public goods and inter-legal externalities, the benefits will always be at least as high (and generally higher) if efficient levels of Pareto consumption are achieved in each jurisdiction than if a single, uniform level of consumption is maintained in all jurisdictions." As a result, the theorem creates an assumption enabling decentralized supply of public goods with localized impacts based on economic efficiency. Another point to consider is the scale of wealth increase as a result of fiscal

decentralization. In theory, we may compare the advantages of decentralized public-goods provision against a more uniform, centrally defined level of production. According to the idea, the quantity of these fees is decided by the degree of variability of requirements among jurisdictions as well as any cost disparities. Finally, the advantages of decentralization are drawn from the well-known Tiebout model (Charles Tiebout, 1956). Highly mobile households vote with their feet in this model: they pick the jurisdiction of residency based on the financial package that best meets their preferences. Finally, the Tiebout solution produces the best outcome that closely resembles that of a competitive market. However, while such mobility often enhances the benefits of decentralization, it is not wholly reliant on it (Oates, 1999).

Regional politicians are empowered to act independently in some areas, while acting as dependent agents of the federal center in others. Federative relations are, in fact, an interweaving of interdependencies: regional politicians are empowered to act independently in some areas, while acting as dependent agents of the federal center in other areas. Federalism, on the other hand, necessitates reciprocity, and federal politicians rely on the states and their representatives to some level. Furthermore, regions, particularly major cities, must strike a balance in their interactions with local governments. The balance of relations in each federation is always being re-evaluated; in fact, each generation of politicians suggests that reforming the ties between the center and the regions is required to handle developing challenges to some degree or another. As a result, federalism necessitates not just change but also flexibility. As a result, federalism not only implies, but also necessitates reform, and one of the key advantages of this type of political control is flexibility. These reforms, on the other hand, are extremely sophisticated and complex in effective democratic federations, necessitating a long-term process of negotiations and coordination of interests involving not only the center and regions, but also other interested actors such as judicial institutions, political parties, both chambers of parliament, and others (Busygina, 2018).

Various attempts have been made in Russia since the late twentieth century to construct an appropriate fiscal federalism model. In Russia, the 1990s "Gaidar" reforms resulted in not just economic liberalization and democracy, but also a shift from a highly centralized unitary state to a highly decentralized federal state. The forced political bargain that allowed liberalization and privatization was the handover of significant financial and political autonomy to the regions in exchange for their allegiance. The distribution of budgetary power from the center to the periphery took the shape of haphazard informal bargaining, which became a political instrument (Shleifer & Treisman, 2000; Popov, 2004).

The Federal Treaty on the Division of Responsibilities and Powers was signed on March 31, 1992, between the federal government and the regions (all except Tatarstan and Chechnya). It consists of three distinct agreements between the federal government and three different types of region republics: oblast, krai, and federal city; autonomous oblast, and autonomous district). A few powerful areas began talks with the federal government about bilateral accords that would provide them increased powers and other advantageous political and economic conditions (De Silva et al., 2009).

Decentralization was done mainly for political reasons: first, to promote liberal changes in Russia's center, which were intended to ensure strong growth. Second, regional administrations have been blamed for the lack of economic progress. Because decentralization was politically driven at the time, its economic ramifications were overlooked, severely impacting the country's later economic progress (Zhuravskaya, 2010).

Throughout the 1990s, the federal government and the states made substantial use of several additional accords. Until 1995, the federal center nearly fully negotiated bilateral treaties with ethnic republics (e.g., Bashkortostan, Tatarstan, Kabardino-Balkar Republic) to grant extra authorities to them and even dispute problems of mutual delegation of authority. After 1995, this approach began to extend to different types of regions. By 1998, 46 regions had signed the federal government treaty, contributing to a widening inequality among regions (in favor of ethnic republics and rich areas) as well as between subnational governments and the federal center. After 2000, the federal government's attitude toward treaties shifted substantially. Federal Law 119, enacted on June 24, 1999, established that federal laws take precedence over treaties. The regions and the federal government signed 28 bilateral or tripartite treaty termination acts in 2001–2002. Individual delimitation of powers through treaties was abandoned in the most recent period of Russian federalism growth, and only a few areas, mostly donor regions and ethnic republics, have had comparable agreements in recent years (Yushkov et al., 2017).

Attempts towards decentralization under V.V. Putin's presidency were deemed failed, leading to Russia's own collapse. As a result, the government has been striving to centralize the federal system both politically and economically since the early 2000s (Zhuravskaya, 2010). The creation of seven federal districts, each with numerous areas under their control, to monitor and oversee reform implementation and regional development was a critical step in centralizing the federal system. In addition, the president established power over the regional executive and representation organizations. If regional governors or regional parliaments breach federal constitutional restrictions in their legislative operations, he now has the legal authority to dismiss

them and suspend them (Orttung, 2005). Furthermore, regional elections were eliminated, and governors were nominated directly by the president. The Federation Council was reformed, allowing the center to exert more influence over the regions (Lankina, 2009).

Fiscal federalism reforms accompanied these institutional developments. Under Yeltsin's regime, bilateral contracts with the regions allowed some exceptionally resource-rich firms to keep a large portion of their income in the regional treasury. Putin, on the other hand, repealed these accords and replaced them with new laws that allow the center to keep up to 70% of tax income. The tax and budget rules have been changed to improve the predictability and transparency of federal allocations in the regions in order to meet federal goals for socioeconomic development. Simultaneously, special programs to address regional disparity were devised. The new policy's stated purpose was to eliminate the haphazard and politicized allocation of economic and political resources (Lankina, 2009).

As a result of all of the changes, Russia has developed a type of centralized fiscal federalism with the state center playing a dominant role. The federation and its subjects were given a broad range of shared powers. The federation's powers were also recognised, and the "residual principle" was used to decide the consolidation of the federation's subjects' own powers (Betkaraev, 2009).

A system of incentives for government officials is required for the country's effective growth. Incentives are required to ensure that bureaucrats and politicians work for the people's benefit rather than for personal gain or doing nothing. Creating such an incentive structure for countries with different people and extensive territory is far more difficult than it is for tiny, homogenous governments. As a result, the question of how fiscal federalism should be formed has risen to the fore (Zhuravskaya, 2010). On the one hand, V.V. Putin's centralized fiscal federalism aims to reduce regional inequalities, reduce corruption, and maintain state integrity. Some academics, on the other hand, argue that this fiscal federalism paradigm is ineffective. This contradiction, a research problem, must be considered from different angles.

Furthermore, the question of what constraints exist for Russia in terms of choosing one or another institutional federal system is a major one. There are many different types of federations across the world. Even if Russia succeeds in forming a federation, the choosing of a certain model is hampered by at least two major factors. To begin with, there are significant interregional imbalances. In Russia, there are a disproportionately large number of recipients of payments from the federal budget, necessitating massive amounts of financial redistribution through the center. If modernization is effective, which includes economic decentralization (and, in particular, a commensurate shift in tax policy), there will be fewer such areas, but due to the quality of the land

(a significant number of northern regions) and scattered habitation, quite a few will remain. As a result, the Russian Federation will be required to maintain a certain amount of centralization in the future in order to help weak and troubled areas. Second, an incredibly serious issue, which cannot be overlooked in the Russian scenario, is the ethnic republics. Consider the 1990s, when the slogans of federalism were used as a cover and excuse for spontaneous decentralization, or the widespread seizure of federal tasks and authorities by regions. Intersegmental disparities (mainly interethnic) gained political significance in the case of widespread citizen political action, and voters in ethnic areas were mobilized under slogans of independence or even sovereignty for their region. In this context, it is critical to recognize that the accompanying state weakness and reforms are linked to a significant danger of greater ethnic mobilization, particularly in republics (Busygina, 2018).

As vital as political measures are, given the current circumstances, political changes will scarcely be enough to kick-start Russia's re-federalization. Economic changes appear to be more likely: the federal elite acknowledges the need for more economic development, and growth (particularly long-term growth) is unachievable without economic decentralization, or the distribution of economic powers and regional autonomy. Economic decentralization, on the other hand, has the potential to evolve into a political one, contributing not to a change in processes and the promotion of countless projects, but to a genuine reformation of ties between Russia's center and its regions (though there is no guarantee of this) (Busygina, 2018).

Despite the stated goals and objectives of government programs to clearly define powers and increase incentives for regions and municipalities to build their own revenue base, the centralized budget system has been reinstated in practice since the mid-2000s, and sub-federal budget independence has decreased (Da Silva et al., 2009). The following are the important facts and developments that characterize Russia's current fiscal federalism.

Trend 1. Degradation of the structure of federal budget revenues. In the early 2000s, the federal budget revenue structure was somewhat varied and in accordance with worldwide norm. As a result, income tax accounted for 21% of federal budget revenues in 2003, with personal income tax accounting for 7%, excise taxes accounting for 10%, value added tax accounting for 34%, unified social tax accounting for 14%, customs duties accounting for 18%, and mineral extraction tax accounting for 10%. It's worth noting that taxes on goods and services accounted for 71% of the federal budget's income, or 76 percent of all tax revenue. The structure of the Russian federal budget has been rapidly changing since the middle of the 2000s. The percentage of customs duties in federal budget income has risen dramatically as a result of changes in

budgetary law and rising energy costs, while the share of mineral extraction tax has continuously climbed. VAT, together with customs charges, has remained one of the two primary sources of federal budget revenue since the beginning of the 2000s. By 2014, taxes on goods and services accounted for 83 percent of the federal budget's income, or 96 percent of all tax receipts. Oil and gas rent made up a significant portion of the total: taxes on mineral extraction in the form of hydrocarbons, as well as customs fees on crude oil, natural gas, and processed products. As a result, the deterioration of the structure of federal budget revenues might be considered, which is extremely problematic in terms of the budget system's long-term viability and stability in the face of declining energy prices on global markets. The OECD nations' budgets are distinguished by a revenue structure that is diverse. None of the other OECD nations' federal budget revenues are so reliant on a single source of money, as is the case in modern Russia (Oding et al., 2016).

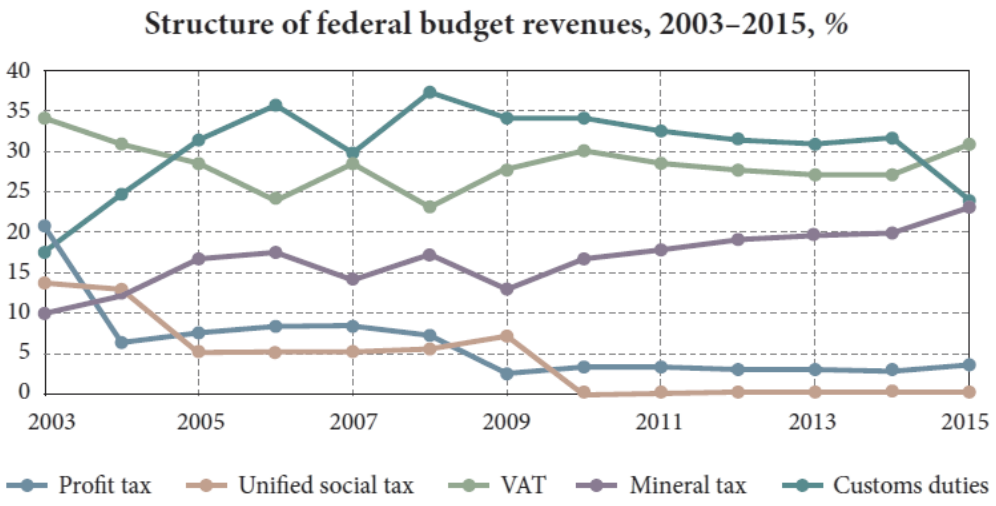

Fig. 6. *Structure of federal budget revenues, 2003-2015 (Yushkov et al., 2017)*

Trend 2. Growing dependence of regions on federal transfers and decreasing discretion in their spending. Between 2000 and 2004, the percentage of interbudgetary transfers of various forms in the revenues of the consolidated budgets of the Russian Federation component entities was less than 10%, but by 2008, it had risen to 20%. The federal center was forced to increase the volume of gratuitous financial support to the Russian Federation component bodies to 27 percent of their consolidated budget receipts during the peak of the financial and economic crisis in 2009, which struck sub-federal budgets hard. In future years, the percentage of transfers fell marginally, although it still accounted for over 20% of sub-federal budget income. This indicator's absolute levels are mostly in accordance with international standards, although there are some concerning patterns. There is a downward trend toward more regional dependence: the percentage of transfers in subnational budget income has stayed steady in most OECD countries over the last ten years, while it has increased by about 10% in Russia. Meanwhile, the proportion of unconditional

payments has declined significantly (from 69 percent in 2005 to 31 percent in 2012), indicating a reduction in regional autonomy. Due to frequent changes in the form of intergovernmental transfers, the Russian system of interbudgetary interactions is not predictable or stable in general. Since the middle of the 2000s, Russia has been developing a system in which the target component accounts for more than 60% of all interbudgetary transfers. As a result, the regions are de facto becoming increasingly reliant on the federal center's judgments in determining the priority areas for budget expenditures. Despite plans to increase the number of subsidies in the total structure of transfers from the federal budget to 47 percent by 2020, the Ministry of Finance forecasts that the level of subsidies in 2016-2017 will not be reduced. The current system of interbudgetary transfers is primarily a mechanism for controlling sub-federal budgets, and it lacks adequate incentives to expand the income base at the local and regional levels. The equalizing role of fiscal federalism clearly outnumbers the stimulating function (Oding et al., 2016).

Trend 3. Violation of the balance of revenue powers and expenditure obligations at the regional and the municipal level. A steady and clear definition of tax and expenditure capabilities across various levels of the budget system is one of the primary objectives, which is repeated in government concepts and plans. The cancellation of mineral extraction tax in the form of hydrocarbons to regional budgets, as well as a modification in the rules for transferring personal income tax to local budgets, are among the most recent unfavorable trends. The situation is much worse at the local level, with transfers from higher-level budgets covering over half of municipal spending. This condition leads to the formation of "dependent feelings" (Buchwald, 2008) and prevents the formulation of appropriate incentives for the budget system's lower levels (Oding et al., 2016).

The majority of the lofty goals outlined in these texts, which correspond to current theory and worldwide practice of fiscal federalism, have yet to be realized. On the one hand, the duplication of issue and task formulations in government ideas and programs, which is an acknowledgement of the inability to complete the primary tasks established in the early 2000s, demonstrates this. On the other hand, a breach of the regional and municipal balance of expenditure responsibilities and revenue powers, the rising reliance of the regions on federal transfers, and the developing issues of the federal budget revenue base. The lack of "road maps" in specific areas of improvement and clear indicators of completion of objectives is the fundamental justification for the lack of substantial progress in the development of fiscal federalism. In this context, the approval of the 2014 State Program, which includes a variety of indicators that allow for progress toward individual goals, is a beneficial development. However, not all indicators are designed to help you do the duties you've been given; some are formal in character, while others offer non-

ambitious quantitative standards that are simple to meet but don't allow you to change the situation. Simultaneously, the lack of ability to influence the revenue base of regional budgets, as well as the danger of a reduction in the volume of federal payments, generates circumstances for a growth in the volume of debt and the deficit of regional and municipal budgets (Oding et al., 2016).

As a conclusion, the Russian federalist pendulum (from Soviet Union-style centralization to decentralization in the early and middle 1990s, and then recentralization in the early 2000s) has shifted into a new condition. Since the beginning of the 2000s, there has been a steady and sustained period of centralization with no return to decentralization. (Yushkov et al., 2017).

Table 2. Intergovernmental relations in Russia: main stages since 1991 (Yushkov et al., 2017)

Stage	**Pendulum of (de)centralization**	**Critical crossroad: back to a centralized state**	**Pervasive centralization**
Years	**1991-2003**	**2003-2005**	**2005-present**
Political aspects	– Spontaneous political decentralization in the early 1990s, – Adoption of the Federal Treaty, the Constitution and bilateral federal regional treaties, – By 1997, all regional governors elected by popular vote, – Federation Council comprised of regional governors and heads of regional legislatures (until 2000), – Establishment of seven federal districts	– Abolition of regional governors 'elections in 2004 and establishment of additional rights of the President to dismiss governors and regional legislatures, – Change in the procedure of State Duma elections that undermined the political power of regions, – De-facto nationalization of local self-government; – Mergers of regions	– Further redistribution of taxes in favor of the federal center, – Strengthening the dependence of regions and municipalities on transfers, – Quasi-decentralization of (mandatory) expenditure responsibilities
Economic aspects	– Spontaneous economic decentralization in 1992–1994, – Introduction of numerous regional and local taxes that contradicted the federal legislation, – Formalization and unification of tax and budget systems since the mid-1990s, – Start of fiscal recentralization after the crisis of 1998	– Adoption of and significant amendments to federal laws regulating powers and responsibilities of subnational governments, – Radical decrease in tax autonomy of regions and municipalities	– Further redistribution of taxes in favor of the federal center, – Strengthening the dependence of regions and municipalities on transfers, – Quasi-decentralization of (mandatory) expenditure responsibilities
Results	The pendulum was moving from Soviet centralization to chaotic decentralization of the early 1990s and back to recentralization at the beginning of 2000s.	The paradigm of intergovernmental relations and its administrative mechanisms overcame a critical shift: only one "veto player" stayed in the game – the federal government.	The new state of the system of intergovernmental relations with unstable centralized equilibrium and the continuing search for the optimal state.

Russian federalism has been a "dormant" institution for the past decade, with scholars and politicians scarcely recalling its existence. It is described as something attractive, but pointlessly beautifying the structure of the "vertical of power," despite the fact that it does not fit into the domestic political paradigm. The authors point out that, first, Russian federalism's prolonged presence in the "gray" zone of political uncertainty, while preserving its legal underpinning, allows it to be considered "alive" rather than "dead." Second, it should be expected that in certain political situations, this half-dead institution will be resurrected (Zakharov, 2008).

The federalization of Russia, which took place after the communists left, was solely for the sake of decentralization. This is understandable, given that its primary goal was to ensure the disintegration of the authoritarian state's typical pyramidal government structure, allowing grassroots initiative to flourish. Federalization and internal democracy, on the other hand, grew more controllable and rudimentary in structure and form with time. With these modifications, the function of federalism became more official (Zakharov, 2008).

The Constitution establishes the fundamental institutions of federalism. As a result, "major" institutional changes aren't required to create a truly federal relationship. Restoring the governorship election system is a vital step toward federalization, but it is one that is both inadequate and half-hearted. Another step may be to propose the return of direct deputies elections to the Federation Council, which existed in Russia in the mid-1990s. However, forming the so-called guarantees of federalism (federalism is not a self-sustaining structure), such as fair and competitive elections, inter-party competition, and a stronger role for parliament and the Constitutional Court, is critical. To put it another way, the fear is about a degree of public competition that is substantially different from what exists now. Regardless of how important political changes are in the current situation, they will almost certainly not be the starting point for Russia's re-federalization. Economic reforms appear to be more contested. The federal elite acknowledges the necessity for increased economic growth, which is hard to achieve without economic decentralization, or the expansion of economic powers and regional autonomy. In turn, economic decentralization can evolve into political decentralization, resulting in a genuine reformation of ties between Russia's center and its regions, rather than the promotion of unending projects and procedural changes (Busygina, 2018).

Before going on to the research gap, it is crucial to explore the question of how a country's fiscal federalism model is characterized. Fundamentally, political and economic variables characterize the fiscal federalism paradigm. Some scholars stress the importance of economic variables (Wallis and Oates, 1998; Panizza, 1999; Letelier, 2005; Freinkman and Plekhanov, 2009;

Alexeev and Mamedov, 2017). Domestic experts, on the other hand, feel that political issues have a significant impact in Russia (Zhuravskaya, 2000; Enikolopov & Zhuravskaya, 2003; Ermakova, 2020).

Theoretical work on fiscal decentralization factors suggests that countries, regions, or agglomerations would be more decentralized if their populations are more diverse across multiple dimensions, lower government levels have access to adequate revenue sources, and relevant public goods can be provided reasonably efficiently at a lower level of government. However, it is critical to note that these theoretical issues are influenced to some extent by the country's political structure, notably the degree of government responsibility to citizens at all levels. The elements covered in agglomerations and regions are projected to effect fiscal decentralization and agglomeration development in the following sections. Only the most significant theoretical ideas are addressed, with some of the less relevant arguments omitted.

A higher *share of urban population* makes it possible to allocate public goods relatively cheaply in a decentralized manner. The influence of urban share, on the other hand, is dependent on whether it is substantial as a result of numerous relatively large urban areas or as a result of a single major metropolis in a region. In the first situation, we predict decentralization to be adversely associated to urban population share, but in the second case, we expect the reverse connection. As a result, predicting the link between urbanization and fiscal decentralization without knowing the urban population distribution across cities of various sizes is challenging.

In theory, *income inequality* has an effect on fiscal decentralization. On the one hand, more wealth disparity means a wider range of tastes, which encourages decentralization. Greater inequality, on the other hand, necessitates redistribution, which is more efficient from the center, promoting centralization.

Social welfare transfers are most likely to promote fiscal centralization because it is generally administratively easier to make transfer from single center. Furthermore, giving transfers of varying proportions in various municipalities encourages transfer receivers to migrate to areas with more generous transfer policies. The goal of social transfers is to reduce socioeconomic disparities across areas of the country. Social transfers are predicted to have a favorable influence on the economy of the region.

The level of economic development measured by *per-capita output* has an ambiguous effect on fiscal decentralization. Higher average wealth is usually linked to a wider range of choices, encouraging decentralization. To put it another way, fiscal decentralization is a necessary

and even desirable benefit (Prug'homme, 1995). Some scholars, on the other hand, argue that residents in wealthier regions are more inclined to detest high inequality and, as a result, are more willing to engage in redistribution, which supports centralization (Wallis, Oates, 1998). We predict richer areas to be more financially autonomous, provided that we control for social benefit transfer.

Dependence on natural resources, for at least two reasons, governments, particularly those that produce considerable economic rent, are predisposed to pursue fiscal centralization. First, natural resource rents are often collected at the regional level rather than in municipalities, resulting in the "flypaper effect," in which windfall earnings and rents are mainly spent by the government level that receives them. The other reason for expecting natural resource dependence to favor fiscal centralization is that a government that has access to natural resource rents is less accountable to its citizens and less reliant on the potentially beneficial incentives that fiscal decentralization would provide for municipalities (Freinkman, Plekhanov, 2009).

The impact of *region's dependence on transfers* from a federal government is similar to that of natural resource rents. It also has the flypaper effect (transfers from the federal center flow mostly to the regional government rather than directly to municipalities) and a lesser reliance on municipal incentives by the regional administration. In consequence, both natural resource earnings and federal payments may be considered as rents that primarily benefit the regional government.

The above economic and political factors influence the definition of the fiscal federalism model. Subsequently, a key question comes to the fore related to which model is best suited for a given country, in particular Russia.

Research gap on the Fiscal Federalism model

Many researchers give reasons for both centralized and decentralized fiscal federalism, but the four points below are the most contentious. *First, the lack of information,* it is much more difficult for large federations to define what people of various strata and ethnic groups need, in comparison with small states. For example, in big and varied countries like Russia, the central government has significantly less knowledge about people's preferences in various sections of the country. The information provided in most cases is insufficient to make centralized supply of public goods effective (Zhuravskaya, 2010).

V. Tanzi (Tanzi, 1996; Tanzi, 2002) presented a counterargument based on the fact that the government may and does appoint officials to local regional organizations, allowing for the identification and distribution of comprehensive information on federal subjects' preferences.

However, a difficulty occurs when the country's political structures are inadequate, resulting in situations when the nominated person offers wrong or no information at all.

Secondly, there is a corruption component. The writers (Fishman & Gatti, 2002; de Mello and Borenstein, 2001) originally said that the danger of corruption emergence and development is higher at the local level than at the national level. As a result, decentralization may lead to corruption in the areas. Local corruption, on the other hand, is impacted by limited political competition and the trustworthiness of local leaders, according to a counterargument (Zhuravskaya, 2003). As a result, building strong political institutions at the national and regional levels will promote political regional competition, reducing corruption and allowing for the most accurate implementation of fiscal federalism decentralization.

The third argument is the inability to effectively control an overly complex system, the so-called "control failure". A major country's central government has a huge state machinery. Controlling a vast bureaucracy effectively is difficult, costly, and not always possible. As a result, the power to deliver public goods should be transferred to lower-level governments in the hopes that they would serve the local population's interests. Russia, unlike Belarus, Mongolia, or Lithuania, cannot be efficiently managed from the center as a company due to its immense size and economic and cultural diversity (Zhuravskaya, 2010).

However, when decentralization is implemented, an issue of regional government quality occurs, which is an indirect counterargument. Decentralization not only distributes authority from the center to the regions, but it also transfers power from central government officials to regional bureaucrats. At the same time, it's worth remembering that the more developed core areas attract more competent workers. As a result, fiscal decentralization has the potential to lower the quality of regional government (Prud'homme, 1994).

The fourth topic under discussion is the context of different countries. The writers discuss the necessity for centralization or decentralization, using several successful and unsuccessful examples from throughout the world. For example, in the 1990s, the authors of (Akai and Sakata, 2002) discovered the favorable influence of fiscal federalism decentralization on US economic development. However, there are cases of negative consequences, such as in China, where decentralization harmed the provinces' economic progress (Zhang & Zou, 1998). Every country's setting is distinctive in some manner, and the Russian Federation requires a more extensive investigation that might serve as the foundation for future research (Zhuravskaya, 2003).

There are a number of additional points to consider as well. Decentralization has a good influence on health and education results in Russian towns, according to E. Zhuravskaya (Zhuravskaya, 2000). J. Sorens' (Sorens, 2014) research looked into the link between fiscal federalism, economic development, and regional inequality in EU countries. The author discovered that the influence of fiscal federalism is dependent on the country's situation; also, the study of other nations' contexts is the most fascinating issue for future research.

After analyzing the academic literature presented above, two hypotheses for research can be put forward:

Hypothesis 1: revenue decentralization in agglomerations is driven by economic factors. Alternative hypothesis is that revenue decentralization is mostly driven by non-economic factors, in particular political factors (Wallis and Oates, 1998; Panizza, 1999; Letelier, 2005; Freinkman and Plekhanov, 2009; Alexeev & Mamedov, 2017).

Hypothesis 2: expenditure decentralization in agglomerations is driven by economic factors. Alternative hypothesis is that expenditure decentralization is mostly driven by non-economic factors, in particular political factors (Wallis and Oates, 1998; Panizza, 1999; Letelier, 2005; Freinkman and Plekhanov, 2009; Alexeev & Mamedov, 2017).

Hypothesis 3: the current level of fiscal decentralization negatively affects the urban development of agglomerations. The alternative hypothesis is that the current level of fiscal decentralization positively affects the urban development of agglomerations and provide economic growth (Sorens, 2014; Ermakova, 2020; Zhuravskaya, 2000; Enikolopov & Zhuravskaya, 2003; Hanson, 2006).

Testing these hypotheses will make it possible to actualize the existing view on the problems of fiscal federalism in Russia, assess its impact on regional development over the past decade.

CHAPTER 2. METHODOLOGY OF THE RESEARCH. DETERMINANTS OF FISCAL FEDERALISM AND URBAN DEVELOPMENT

To determine the most correct research methodology, the works of the authors who investigated fiscal federalism were analyzed. After a thorough analysis of the research, the methodological basis for the master thesis was identified (Zhuravskaya, 2000; Enikolopov, Zhuravskaya, 2003; Jin, Zou, 2005; Hanson, 2006; Sorens, 2014; Alexeev, Mamedov, 2017; Ermakova, 2020). To most clearly explain the models and methodologies of this study, it is necessary to disclose the works on which it is based.

In the year 2000, Ekaterina Zhuravskaya (Zhuravskaya, 2000) analyzed whether it is possible, through fiscal federalism, to stimulate regions for more public goods. The author discovered that the income allocation between regional and municipal governments in Russia does not give local governments with incentives to tax the population or provide public amenities. It has also been demonstrated that tax incentives may be utilized as an incentive for private business development as well as to boost private firm economic growth. Russian fiscal federalism was contrasted to Chinese fiscal federalism, which, according to the author, has better tax incentives in several regions. To test hypotheses and execute the study, secondary quantitative data was employed. As a processing approach, the creation of a regression model was used.

A few years later, E. Zhuravskaya continued her study subject at the junction of three scientific fields: political institutions, public sector economics, and public administration (Enikolopov & Zhuravskaya, 2003). The author looked at the impact of political institutions and fiscal federalism on regional economic statistics. The authors found that the impact of decentralization on economic growth, government quality, and public goods provision is strongly influenced by two aspects of political centralization: the strength of the national party system (measured by the age of the main parties and the fragmentation of government parties) and subordination (local and state leaders are appointed or elected). In developing nations, the authors found considerable support for Ricoeur's theory: strong parties improve the outcomes of fiscal decentralization in terms of economic development, government quality, and supply of public goods. There is additional evidence that subordinating local governments to higher-level governments increases the impact of decentralization on growth, public goods supply, and government quality (in both developed and developing nations) (in developing countries). A quantitative technique was applied in this study, as in the prior one, and the data were likewise analyzed using a regression model.

The research in the context of China is another remarkable work (Jin, Zou, 2005). The authors examined the link between fiscal decentralization and economic development in China throughout two rounds of fiscal decentralization using a panel dataset for 30 provinces. They calculated fiscal federalism by looking at fiscal decentralization and its impact on Chinese provinces' economic growth. There are two factors for fiscal decentralization that have been given (expenditure decentralization and revenue decentralization). The apparent contradiction between theory and evidence in the China case was resolved by considering the institutional arrangements that existed during the two phases of fiscal decentralization, particularly the inconsistency between the assumptions of fiscal decentralization theory and China's institutional reality.

Furthermore, in 2007, an essay (Hanson, 2007) was published in which the author investigated the efficiency of fiscal federalism at the dawn of the twenty-first century in depth. Furthermore, the author points out that limited administrative ability at the subregional level, weak electoral competition, and severely unequal economic development between regions all contribute to larger centralized authority. The author employed quantitative technique and secondary quantitative data. As with the preceding writers, statistical analysis and the creation of a regression model were utilized as data processing methods.

J. Sorens' study (Sorens, 2014) on the influence of fiscal federalism on urban growth and regional economic disparity is one of the recognized publications. Low-income areas only catch up to higher-income regions when they have considerable economic power, according to multilevel spatial regression across key subnational jurisdictions in twenty-five Organization for Economic Co-operation and Development (OECD) nations. The European Union's nations have a high level of convergence, yet there is significant regional disparity within these countries. The study of regional inequality in the context of other nations, according to the author, is an intriguing research topic. The data was evaluated using descriptive statistics and regression analysis in this study, which followed a quantitative technique.

Authors (Alexeev, Mamedov, 2017) employed panel data and various different econometric parameters to estimate the fiscal decentralization drivers in a prior article. They established the formula for expenditure decentralization by region, which will be employed in this paper's empirical study.

A recent book by a Russian author (Ermakova, 2020) was also considered, which looked at the function of taxes in fiscal federalism, as well as regional inequality and urban growth. To boost socio-economic growth, a new motivating model of tax incentives for Russian Federation member entities was established and developed. The author concluded that the financial assistance

system for regions does not operate properly since areas with less economic growth are constantly behind in terms of development because they have less indicators of tax potential. Methods of vertical, horizontal, and comparative analysis of statistical groupings were employed to examine the indicators of the tax potential of distinct regions.

Research design and hypothesis

While fiscal federalism is the whole complex of arrangements and facts that treats the financial relations between the main state and its integrated political subdivisions, the fiscal decentralization represents the autonomy of sub-national governmental units over financing and provision of public goods and services. In such a system, the sub-national governments control their own budget without any intervention from the central government. In the presented context fiscal decentralization could be presented as a characteristic and measurement of fiscal federalism system.

Fiscal decentralization is measured with respect to both expenditure and revenue assignments. As a measure of expenditure decentralization the municipal budgetary expenditure as a share in total regional budgetary expenditure was considered. According to budget statistics of Russian Treasury, municipal subventions are not included in municipal expenditures. As a measure of revenue decentralization the municipal budgetary revenue (excluded municipal subventions) as a share in total regional budgetary revenue was regarded. Both municipal expenditure and revenue are expenditures spent and revenue collected at the municipal level. Using revenue collected at the municipal level as a share in total revenue to proxy the degree of revenue decentralization has the advantage of incorporating the tax collection aspect (Jin, Zou, 2005).

The research model was built based on the studies reviewed and represents an assessment of the impact of agglomerations factors and characteristics on the fiscal federalism model selection, which in turn affects urban and economic development of agglomerations. As a result, the research design could be characterized as a sequential linear structure.

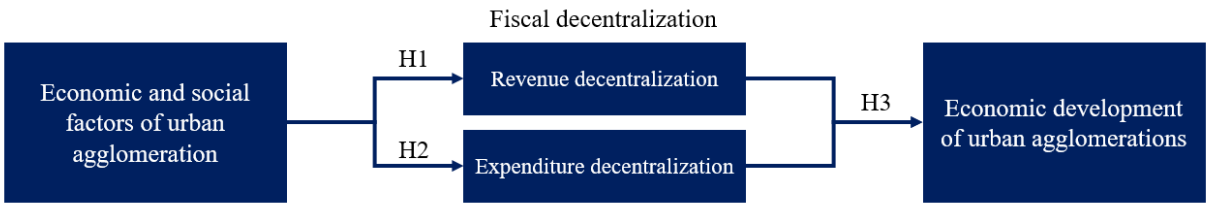

Fig. 1. *The research design of a sequential structure*

Previously, hypotheses were formulated that will be tested in the study:

Hypothesis 1: revenue decentralization in agglomerations is driven by economic factors. Alternative hypothesis is that revenue decentralization is mostly driven by non-economic factors, in particular political factors (Wallis and Oates, 1998; Panizza, 1999; Letelier, 2005; Freinkman and Plekhanov, 2009; Alexeev & Mamedov, 2017).

Hypothesis 2: expenditure decentralization in agglomerations is driven by economic factors. Alternative hypothesis is that expenditure decentralization is mostly driven by non-economic factors, in particular political factors (Wallis and Oates, 1998; Panizza, 1999; Letelier, 2005; Freinkman and Plekhanov, 2009; Alexeev & Mamedov, 2017).

Hypothesis 3: the current level of fiscal decentralization negatively affects the urban development of agglomerations. The alternative hypothesis is that the current level of fiscal decentralization positively affects the urban development of agglomerations and provide economic growth (Sorens, 2014; Ermakova, 2020; Zhuravskaya, 2000; Enikolopov & Zhuravskaya, 2003; Hanson, 2006).

As a result, by analogy with the previously mentioned studies, primary this work used a quantitative methodology, secondary quantitative data and is regarded as quantitative experimental research. The main sources of information were the Federal State Statistics Service and the Ministry of Finance of the Russian Federation, Treasury of the Russian Federation. The data was analyzed for the period from 2010 to 2019 (10 years).

It should be noted that there are no official statistics on agglomerations in the Russian Federation. Despite this, the Institute for Urban Economics Foundation proposed a methodology for calculating the gross urban product and calculated the gross product of the agglomerations of the Russian Federation, however, these data were presented in a short period of time, not suitable for research. There are several issues in the methodology regarding the fact that only one source of income is used as the basis of assessment, and also some indicators cannot be calculated by direct statistical methods. Furthermore, it is worth noting that due to different estimates and the unavailability of data for some municipal districts, it is extremely difficult to manually calculate the gross agglomeration product for municipal districts. Therefore, regional statistics were taken, which can be considered a forced assumption.

To determine the regression model, the scientific works presented in the table below were used.

Table 3. Scientific basis for regression model

Authors	**Variables**	
	Dependable variable	**Explanatory variable**
Alexeev, Mamedov, 2017	Fiscal decentralization	GRP
		Transfer dependence of regional budget
		Population
		Area
		Gini coefficient
		Share of urban population
		Share of ethnics Russians
		Index of homogeneity for ethnic Russians
		Per capita output of mining
		Share of social transfers in personal income
		Carnegie overall democracy index
Zhuravskaya, 2000	Outcome of public goods provision	Incentives proxy (population, total budget revenues, total expenditures per capita, new business formation, infant mortality, unavailability of schools)
		Public expenditures per capita
		Population
		Year (dummy variable)
Enikolopov and Zhuravskaya, 2003	Outcome of public goods provision	Political institutions
		Fiscal decentralization
		Control variables (PPP, GDP per capita, fertility, democratic traditions, current level of democracy).
Jin, Zou, 2005	GDP growth	Fiscal decentralization
		Tax rates
		Set of control variables: capital investments, labor force.

In accordance with the mentioned above articles, the variables for the study were determined, they are presented in the table below:

Table 4. Variables description

Variable	**Description**
GRP	GRP is dependent variable consuming the increase in Gross Regional Product for each of the subject's relative to the measured time period. GRP is calculated as a sum of Gross Regional Products included in agglomeration. During the analysis, the natural logarithm was taken and variable was renamed to "lnvrp".
ExpDec	The dependable variable (regression model 1) is agglomeration's expenditure decentralization that is a first part to represent fiscal decentralization.
RevDec	The dependable variable (regression model 2) is agglomeration's revenue decentralization that is a first part to represent fiscal decentralization.
Control (set of variables)	- Capital investments in a region in rubles. During the analysis, the natural logarithm was taken and variable was renamed to "LnInvest". - Population of a region, number of people. During the analysis, the natural logarithm was taken and variable was renamed to "LnPop". - Ratio (%) of labor force in a region.
AvIncomeCap	Average per capita population income corrected by CPI. During the analysis, the natural logarithm was taken and variable was renamed to "LnAvIncome".
AvEduc	Average level of education, officially calculated index.
Mining	Ratio (%) of the mining component of gross regional product.
Strans	Ratio (%) of public welfare payments and total personal income.

Fiscal decentralization is measured with respect to both expenditure and revenue assignments. Two fiscal decentralization measures are used: expenditure decentralization and revenue decentralization. As a measure of expenditure decentralization (*ExpDec*) the municipal budgetary expenditure as a share in total budgetary expenditure was considered. According to budget statistics of Russian Treasury, municipal subventions are not included in municipal expenditures, hence subventions are not added in formula (Jin, Zou, 2005).

$$Expenditure\ Decentralization = \frac{Municipal\ Expenditure}{Total\ budget\ expenditure}$$

As a measure of revenue decentralization (*RevDec*) the municipal budgetary revenue (excluded municipal subventions) as a share in total budgetary revenue was regarded. Both municipal expenditure and revenue are expenditures spent and revenue collected at the municipal level. Using revenue collected at the municipal level as a share in total revenue to proxy the degree of revenue decentralization has the advantage of incorporating the tax collection aspect (Jin, Zou, 2005).

$$Revenue\ Decentralization = \frac{Municipal\ Revenue - Municipal\ Subventions}{Total\ budget\ revenue}$$

The Institute of Geography of the Russian Academy of Sciences was taken as the main document determining the number, size and composition of agglomerations (Antonov, Makhrova, 2019). The authors defined 36 major agglomerations along with core delimitation along, analysis of population sizes and development index dynamics. Due to the fact that regional statistics were used, the border agglomerations that are part of one region had to be merged. Thus, 33 agglomerations were obtained according to the regional distribution.

Further in the data preparation process, some regions were excluded. Moscow, Moscow region, St. Petersburg, Leningrad region were excluded as regional centers and regions of advanced development, which were actually outliers. Also, were excluded Tymen region, Republic of Tatarstan, Krasnodar Krai, Sverlovsk region, Samara region, Chelyabinsk region, Altai Krai, Krasnoyarsk region and Kemerovo region as outliers. All variables are prepared and have a normal distribution.

Ultimately, the sample size (N=210) of panel data consisted of 21 regions representing agglomerations. The data was analyzed for the period from 2010 to 2019 (10 years). It is worth noting that at the time of writing the study, full statistics for 2020 and 2021 have not been published.

According to the presented hypotheses, the empirical part of the work was carried out in three stages. accordingly, three regression models were built to test each of the hypotheses. To test the influence of economic factors on the fiscal decentralization, the following regressions models were built:

$$y(RevDec) = \alpha + \beta Control + \beta AvIncomeCap + \beta AvEduc + \beta Mining + \beta STrans + \varepsilon$$

$$y(ExpDec) = \alpha + \beta Control + \beta AvIncomeCap + \beta AvEduc + \beta Mining + \beta STrans + \varepsilon$$

To test the impact of the fiscal federalism model on the urban and economic development of agglomerations, the following model was used:

$$y(GRP) = \alpha + \beta RevDec + \beta ExpDec + \beta Control + \beta AvIncomeCap + \beta AvEduc + \beta Mining + \beta STrans + \varepsilon$$

Expected outcomes and findings

The expected results of this study include an assessment of the impact of the current level of fiscal decentralization on the development of urban agglomerations. An analysis of the fiscal decentralization and its impact on the development of urban agglomerations will allow not only assessing the existing economic regional and agglomeration development but also contributing to the academic literature, as well as exploring the context of the Russian Federation. The most specific expectations are conclusions that either confirm or refute the negative impact of the current level of fiscal decentralization on the development of urban agglomerations, as well as determine the vectors of economic development and methods for leveling existing problems.

Potential implications

Academic literature within the Russian context lags behind the global literature in terms of the number and depth of research. Moreover, most of the academic papers were written at the beginning of the last decade. As a result, the main potential implications are the introduction of new research into the modern literature within the Russian context, as well as a relatively new view of urban development and agglomeration from the point of view of fiscal federalism.

CHAPTER 3. EMPIRICAL ANALYSIS OF THE IMPACT OF FISCAL FEDERALISM ON THE ECONOMIC DEVELOPMENT OF THE CONSTITUENT ENTITIES OF THE RUSSIAN FEDERATION.

Descriptive statistics

The sample consisted of data for 21 regions representing agglomerations over a period of 10 years (2010-2019), so there were 210 observations. All variables are numeric and presented below in the table.

Table 5. Descriptive statistics of panel data set

Variable	Obs	Mean	Std. Dev.	Min	Max
RegID	210	17.667	9.21	2	33
year	210	2014.5	2.879	2010	2019
LnVRP	210	13.628	.511	12.475	14.844
RevDec	210	.149	.048	.035	.252
ExpDec	210	.182	.041	.076	.282
LnPop	210	7.664	.436	6.914	8.361
Labor	210	1.199	.519	.433	2.175
LnInvest	210	12.14	.532	10.923	13.531
Mining	210	.132	.157	.002	.597
Strans	210	.213	.037	.111	.287
AvEduc	210	13.06	.172	12.58	13.44
lnAvIncome	210	10.249	.153	9.855	10.584

On average, the level of revenue decentralization can be estimated at 15%, while the minimum figure for the entire period is 3.5% (Primorsky Krai, 2014), and the maximum is 25% (Stabropol Krai, 2011). The average level of 15% can be described as relatively low, since in this case less than a quarter of the budget is generated by the entity itself. The region with the lowest revenue decentralization is Primorsky Krai (4%) all ten years it showed the lowest values. It is worth noting the trend towards volatility, for example, the Volgograd region has a minimum value of 7%, and a maximum of 17% for the entire period. Regions with a relatively high level of revenue decentralization include Stavropol Krai, Orenburg region, Novosibirsk region.

The average level of expenditure decentralization is slightly higher at 18%. The average level of 18% can be described as relatively low, since in this case the regions on average distribute less than a quarter of the budget freely. The lowest indicator was demonstrated by Primorsky Krai (7.5%, 2011), the highest by Orenburg region (28%, 2011). The lowest results also remained for Primorsky Krai, among the leading regions we can single out the Orenburg region, Stavropol Krai, Rostov region.

An interesting fact is that over time, on average, revenue decentralization and expenditure decentralization have been declining. This fact testifies to the movement of state policy towards a centralized model of fiscal federalism.

The average gross regional product of the regions is 875 million rubles, the average labor force is 1.16 million people, the average capital investments amounted to 193 million rubles, the average share of revenue from mining is 13%, and the average share of social transfers in the budget is 22%.

Further, a correlation matrix of all variables was compiled, it is worth highlighting a strong level of correlation for the following variables:

- Revenue decentralization and expenditure decentralization
- Number of labor force and gross regional product
- Capital investments and gross regional product
- Capital investments and labor force
- Population and gross regional product
- Population and labor force
- Population and capital investments

To avoid possible issues of multicollinearity, the variable of capital investments is excluded due to high correlation with labor force and population. For the same reason the variable of labor force is excluded. A high level of correlation was expected from the point of view of economic theory, which also indirectly confirms the high quality of the collected data. More detailed results are presented in the table below.

Table 6. Correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) LnVRP	1.000									
(2) RevDec	0.004	1.000								
	(0.959)									
(3) ExpDec	-0.017	**0.903**	1.000							
	(0.803)	(0.000)								
(4) Labor	**0.828**	**0.192**	**0.164**	1.000						
	(0.000)	(0.005)	(0.018)							
(5) LnInvest	**0.871**	0.056	0.032	**0.814**	1.000					
	(0.000)	(0.423)	(0.646)	(0.000)						
(6) LnPop	**0.836**	**0.195**	**0.203**	**0.928**	**0.798**	1.000				
	(0.000)	(0.004)	(0.003)	(0.000)	(0.000)					
(7) Mining	**0.142**	-0.008	0.022	-0.108	0.131	**-0.206**	1.000			
	(0.040)	(0.910)	(0.751)	(0.120)	(0.059)	(0.003)				
(8) Strans	**-0.358**	-0.085	-0.079	**-0.440**	**-0.522**	**-0.448**	0.026	1.000		
	(0.000)	(0.222)	(0.252)	(0.000)	(0.000)	(0.000)	(0.703)			
(9) AvEduc	**0.137**	**-0.239**	**-0.331**	0.015	0.032	-0.009	-0.009	**0.223**	1.000	
	(0.047)	(0.000)	(0.000)	(0.828)	(0.650)	(0.893)	(0.892)	(0.001)		
(10) lnavincome	**0.513**	-0.058	-0.113	**0.370**	**0.567**	**0.301**	-0.003	**-0.652**	-0.062	1.000
	(0.000)	(0.404)	(0.102)	(0.000)	(0.000)	(0.000)	(0.963)	(0.000)	(0.375)	

Before proceeding to the results of the regression analysis, it is necessary to consider expectations and predictions about results. Under the three stated hypotheses, control variables (Capital investments, number of labor force, population) are expected to be statistically significant and have an impact on revenue decentralization, expenditure decentralization and gross regional product. Moreover, the effect is expected to be positive that an increase in the control variables will increase the dependent variable. Moreover, the control variables will reflect in what degree revenue decentralization, fiscal decentralization are explainable from an economic point of view.

Furthermore, it is expected that the level of education enlarges the efficiency of human capital, which rise revenue of a region. Hence, the level of education is suggested to increase revenue decentralization as well as expenditure decentralization.

Given that Russia is considered a resource-based economy, it is expected that resource-producing agglomerations receive more subventions as well as generate more profits. Hence, it is expected that resource-producing will have positive influence on revenue decentralization along with expenditure decentralization and gross regional product.

Social transfers are expected to have a positive effect on the dependent variables in the models. Since social transfers are aimed at improving the quality of population life, they increase human capital as well, which has a positive effect on the economic potential of the region. Thus, from a theoretical point of view, social transfers will have a beneficial effect.

It is expected that an increase in per capita income will increase the purchasing power of the population, as well as increase their investment, which in turn will positively affect the economic situation of the region. An increase in average per capita income will increase the dependent variables.

In conclusion, perhaps the most crucial expectation is that revenue and expenditure decentralization will shed light on how they affect the gross regional product. Which in turn will show how the shift towards a centralized model of fiscal federalism has affected economic growth.

Regression analysis and results

To test the first hypothesis, a regression model was built. The Hausman test determined that the best model specification would be linear regression with fixed effects. LM test (Breusch-Pagan Lagrange multiplier) has proved that fixed effects model is more appropriate than pooled OLS. The estimated model is presented in the following form:

$$\overline{y(RevDec)} = -0.350 + 0.078 * LnPop + 0.152 * LnAvIncomeCap - 0{,}135 * AvEduc + 0{,}103 * Mining + 0{,}462 * STrans + e$$

The model is statistically significant. At the same time, the overall strength of association of the model is low (R^2 = 30%), model has low explanatory power. More detailed results of the evaluation of the regression model are presented below:

Table 7. Linear regression model for hypothesis 1, FE

RevDec	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
LnPop	.078	.18	0.43	.665	-.277	.434	
Mining	.103	.049	2.10	.037	.006	.2	**
STrans	.462	.226	2.04	.042	.016	.909	**
AvEduc	-.135	.019	-7.30	0	-.172	-.099	***
LnAvIncome	.152	.037	4.08	0	.078	.225	***
Constant	-.35	1.468	-0.24	.812	-3.246	2.547	

Mean dependent var	0.149	SD dependent var	0.048
R-squared	0.296	Number of obs	210
F-test	15.446	Prob > F	0.000
Akaike crit. (AIC)	-948.920	Bayesian crit. (BIC)	-928.837

**** p<.01, ** p<.05, * p<.1*

The presented results allow us to conclude that the main hypothesis is rejected and we accept an alternative hypothesis, which indicates that revenue decentralization is not fully explained by economic factors. There are several facts to support this. Although the model is statistically significant, its overall strength of association is extremely low, indicating that the

independent variables (economic factors) explain the variance of the dependent variable (revenue decentralization) at a very low level. The constant is not statistically significant, which means that the model does not have significant features that were not identified.

The variables responsible for the average level of education (AvEduc), the budget from resource extraction (Mining), share of welfare transfers in total regional budget (STrans) and income per capita (LnAvIncome) turned out to be statistically significant. This means that ceteris paribus the 1% increasing in per capita income will increase revenue decentralization by 0.152. This fact is natural and well explained from the point of view of economic theory. With an increase in income, purchasing power increases, as well as investments, savings of the population. A negative coefficient for the average level of education may seem more contradictory. However, this can be explained by the fact that the federal center seeks to distribute more funds to regions with a higher level of education as more promising regions, which negatively affects revenue decentralization. It can be concluded that ceteris paribus a 1% increasing in the budget from resource extraction will increase expenditure decentralization by 0.103 (% as RevDec is measured in %). In resource rich regions, income increases due to resource extraction. As a consequence, this has a favorable effect on the size of the budget and expenditure decentralization.

Further, a regression model was built to test the second hypothesis. Hausman test and LM test showed that the best model specification is a linear regression model with fixed effects. The estimated model is presented in the following form:

$$\overline{y(ExpDec)} = -1.560 + 0.276 * LnPop + 0.089 * LnAvIncomeCap - 0{,}103 * AvEduc + 0{,}087 * Mining + 0{,}221 * STrans + e$$

The results of evaluating this regression model turned out to be very similar to the previous model. It is also statistically significant, while having a low strength of association, with an explanatory power of 30% (R^2). More detailed results of the evaluation of the regression model are presented below:

Table 8. Linear regression model for hypothesis 2, FE

ExpDec	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
LnPop	.276	.142	1.94	.054	-.005	.557	*
Mining	.087	.039	2.24	.026	.01	.163	**
STrans	.221	.179	1.24	.218	-.132	.573	
AvEduc	-.103	.015	-7.05	0	-.132	-.074	***
LnAvIncome	.089	.029	3.04	.003	.031	.147	***
Constant	-1.56	1.16	-1.34	.18	-3.849	.729	

Mean dependent var	0.182	SD dependent var	0.041
R-squared	0.301	Number of obs	210
F-test	15.870	Prob > F	0.000
Akaike crit. (AIC)	-1047.817	Bayesian crit. (BIC)	-1027.734

**** p<.01, ** p<.05, * p<.1*

The low explanatory power in combination with other factors allows us to conclude that the main hypothesis is rejected and the alternative one is accepted that expenditure decentralization is not fully explained by economic factors. In particular, level of education (AvEduc) and income per capita (LnAvIncome), as well as the budget from resource extraction (Mining) turned out to be statistically significant variables. Education level, the budget from resource extraction and income per capita have similar coefficients and the same explanation as the previous model.

A regression model was also built to analyze the hypothesis 3. According to the test models (Hausman, LM), the most suitable part is a linear regression model with random effects. Robust estimation was used to avoid heteroscedasticity. The estimated model is presented in the following form:

$$\overline{y(LnVRP)} = -8.114 + 0.593 * RevDec - 1.466 * ExpDec + 1.114 * LnPop + 0.388 * AvEduc + 0.737 * LnAvIncome + 1.200 * Mining + 2.839 * STrans + e$$

The model is statistically significant and what is the most vital is that at the same time, the overall strength of association of the model is high (R^2 = 92%), model has high explanatory power. More detailed results of the evaluation of the regression model are presented below:

Table 9. Linear regression model for hypothesis 3, RE

LnVRP	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
RevDec	.593	.348	1.71	.088	-.088	1.275	*
ExpDec	-1.466	.415	-3.53	0	-2.28	-.652	***
LnPop	1.114	.073	15.27	0	.971	1.257	***
Mining	1.2	.111	10.82	0	.982	1.417	***
STrans	2.839	.75	3.79	0	1.369	4.308	***
AvEduc	.388	.09	4.33	0	.212	.564	***
lnAvIncome	.737	.122	6.03	0	.497	.976	***
Constant	-8.114	1.624	-5.00	0	-11.296	-4.932	***
Mean dependent var		13.628	SD dependent var			0.511	
Overall r-squared		0.918	Number of obs			210	
Chi-square		453.884	Prob > chi2			0.000	
R-squared within		0.634	R-squared between			0.931	

**** p<.01, ** p<.05, * p<.1*

The presented results allow us to reject the main hypothesis and accept an alternative one: a centralized model of fiscal federalism with a low level of fiscal decentralization has a positive effect on the economic growth of regions. Expenditure decentralization (ExpDec) is a statistically significant variable (revenue decentralization as well, if consider confidence interval at 10%), which confirms the impact on the gross regional product (LnVRP). It should be noted that the beta coefficient is negative. Thus the average effect of a 1% increasing in expenditure decentralization across time and between regions will decrease gross regional product by 1.5%.

Moreover, in addition to expenditure decentralization, a few others variables are statistically significant. The variable of population (LnPop), shares of income from resource extraction in the budget (Mining), social transfers (STrans), average level of education (AvEduc), average per capita income (LnAvIncome) also turned out to be statistically significant. In general, economic theory explains the significance of these variables. In most cases, an increase of the population favorably affects the economy of the region, due to an increase in the labor force and an increase in the amount of product produced. Resource rich regions have the effect of resource rent, due to the fact that they are in more favorable conditions, which, as a result, increases the economic development of the region if resources are properly managed. Social transfers raise the standard of living and stimulate the development of society, which in turn has a positive effect on economic development. With an increase in the average level of education, human capital increases its efficiency and becomes more productive, which contributes to economic growth. An increase in average per capita income increases purchasing power, which stimulates the development of the economy.

To summarize the statistical analysis, all three main hypotheses were rejected and three alternative hypotheses were accepted. Revenue decentralization and expenditure decentralization are not fully explained by economic factors. Despite the statistical significance of the constructed regression models for hypotheses 1 and 2, they had a low explanatory power. Regarding hypothesis 3, fiscal decentralization has demonstrated its impact on the economic development of regions, while the increase in fiscal decentralization has had a negative impact on economic development.

Discussion on the results obtained

The results obtained are compelling subject for discussion. Further, two parts of empirical results will be considered in more detail, the first part is related to the conclusion that fiscal decentralization is not fully explained by economic factors, the second part is related to the conclusion that an increase in fiscal decentralization has a negative impact on the economic growth of regions in Russia.

The first part of discussion is related to the factors of fiscal decentralization. Initially, when formulating the hypotheses of the study, it was assumed that although fundamentally, the model of fiscal federalism is determined by economic and political factors, the economic factors play a predominant role. These assumptions were based on the works of previously presented authors (Wallis and Oates, 1998; Panizza, 1999; Letelier, 2005; Freinkman and Plekhanov, 2009; Alexeev and Mamedov, 2017).

Theoretical work on fiscal decentralization factors suggests that countries or regions would be more decentralized if their populations are more diverse along various dimensions, relevant public goods can be delivered reasonably efficiently at a lower level of government, and lower government levels have access to adequate revenue sources. However, it is crucial to note that these theoretical issues are influenced to some extent by the country's political structure, notably the degree of government responsibility to citizens at all levels.

However, this study showed that, in relation to Russia, economic factors do not play a key role in fiscal decentralization, and political factors come to the fore. These results confirm the work of other previously mentioned authors (Zhuravskaya, 2000; Enikolopov & Zhuravskaya, 2003; Ermakova, 2020).

Furthermore, it may be stated that the distribution of subventions (which affect fiscal decentralization) is based on more than only economic variables, as the centralized model of fiscal federalism explains. Subventions are used to fund the regions' performance of federal powers.

On the one hand, the authors (Yushkov et al., 2016) believe that delegating these authorities undermines the foundations of federalism. To some extent, this complicates public administration's efforts to achieve a balanced and long-term regional development. A substantial percentage of subventions in the volume of transfers, as well as regular revisions of techniques and procedures for calculating the amount of subventions, endangers the stability of budgets at all levels. With the support of subventions, the federal center hopes to put in place major political choices for it and delegate responsibility for their execution to regional authorities. At the same time, the federal government expands the scope of political influence over regional activity. Regional authorities attempt to get as many financial resources as possible in the form of subventions in order to exercise Russian Federation rights and reduce political risks in the event of underperformance, citing a lack of financing from the federal center. As a result, subventions are becoming a tool for flexible redistribution while also obscuring accountability.In this case, there is an increased risk of inefficient use of budgetary funds, which is confirmed by the constant revision of the division of powers and methods for calculating the volume of subventions.

Political forces, on the other hand, have a significant effect in a variety of other issues. The most accurate assessment of the study's findings will be based on an examination of these aspects.

The desire for a centralized fiscal federalism model, as well as the considerable impact of political forces, can be explained in part by a desire to reduce corruption. Fiscal decentralization may encourage corruption at the local level because it gives discretion to local politicians and bureaucrats, making them more vulnerable and accessible to the demands of local interest groups, as Prud'homme (1995) and Tanzi (1995) have shown (1996). Corruption at sub-national levels is inclined to diminish, if not eliminate, the benefits that fiscal decentralization is supposed to bring to allocative efficiency and growth, according to theory. Second, there is a component of corruption. Initially, Fishman & Gatti (2002), de Mello and Borenstein (2001) found that the danger of corruption emergence and development is higher at the local level than at the national level. As a result, decentralization may lead to corruption in the areas.

The political system of Russia may also play a role in the considerable effect of non-economic elements. Russia is classified as a non-democratic political system, according to the Democracy Index assessment (EUI, 2022). The underlying premise that subnational governments have a stronger motivation to offer local public goods more efficiently may not apply in a non-democratic political system (Tanzi, 1996). In a non-democratic political system, the principle-agent issue may make fiscal decentralization a weapon for sub-national authorities to exploit local constituents and the national budget.

Moreover, the appointment (not the election) of officials could play a role in reducing the importance of economic factors. Appointed managers are more concerned with carrying out the federal center's decisions than with the development of the areas. Tanzi's approach, on the other hand, looked at the problem from a different perspective (1996, 2002). Tanzi based his argument on the fact that the government may and does appoint officials to local regional organizations, allowing for the identification and distribution of comprehensive information on federal subjects' preferences. However, a difficulty occurs when the country's political structures are inadequate, resulting in situations when the nominated person offers wrong or no information at all. This perspective is most likely in line with the federal center's viewpoint.

Another reason for the absence of effect of economic variables on fiscal decentralization is the answer to the issue of regional governance quality. The aforementioned difficulty emerges while introducing decentralization. Decentralization not only distributes authority from the center to the regions, but it also transfers power from central government officials to regional bureaucrats. At the same time, it's worth remembering that the more developed core areas attract more competent workers. As a result, fiscal decentralization might lower the quality of regional government, according to Prudhomme's research (1994). There was, however, a counterargument: the inability to successfully govern a too complicated system, referred to as "control failure." A major country's central government has a huge state machinery. Controlling a vast bureaucracy effectively is difficult, costly, and not always possible. As a result, the power to deliver public goods should be transferred to lower-level governments in the hopes that they would serve the local population's interests. Russia, unlike Belarus, Mongolia, or Lithuania, cannot be efficiently managed from the center as a company due to its immense size and economic and cultural diversity (Zhuravskaya, 2010). As a result, this political component is contentious, yet it still exists.

Furthermore, the setting and characteristics of Russia can be linked to potential causes. In different nations, there are several contradicting instances of the beneficial and negative effects of fiscal decentralization. For example, Akai and Sakata (2002) found that decentralization of fiscal federalism had a beneficial influence on US economic development in the 1990s. However, there are cases of negative consequences, such as in China, where decentralization harmed the provinces' economic progress, as described in Zhang and Zou's (1998) research. Every country's setting is distinctive in some manner, and the Russian Federation requires a more extensive investigation that might serve as the foundation for future research.

The impact of fiscal decentralization on gross regional product is the subject of the second half of the debate. According to empirical findings, fiscal decentralization has an impact on

agglomeration and regional growth; entities with less fiscal decentralization have bigger gross regional product on average. Furthermore, the factors that may have contributed to this will be examined.

The effects of fiscal decentralization on economic growth and, in particular, the gross regional product are mixed. Some researchers identified a detrimental effect of decentralization on corruption (Fisman, Gatti, 2002; de Mello, Barenstein, 2001), whereas Treisman (2000) found no link. Decentralization has a detrimental influence on provincial growth in China, according to Zhang and Zou (1998). After excluding cyclical effects, Jin et al. (1999) found that this association is favorable. This finding was validated by Lin and Liu (2000). In the early 1990s, Akai and Sakata (2002) found that decentralization had a beneficial influence on state growth in the United States. For the past 50 years, Xie et al. (1999) found no long-term association between these factors in the United States. In poor nations, Woller and Phillips (1998) found no relationship between decentralization and growth. Davoodi and Zou (1998), on the other hand, found a negative, marginally significant association in developing nations but no influence in wealthy countries. Decentralization and infant mortality have a negative cross-country association, according to Robalino et al. (2001). Zhuravskaya (2000) found that marginal decentralization has a favorable impact on healthcare and education results in Russian towns. As a result, this topic is currently being debated.

Despite not directly addressing the issue of growth, the traditional "first-generation" literature pioneered by Oates (1972) that emphasized associated efficiency gains, as well as Brennan and Buchanan's (1980) argument that decentralization is inefficient, suggest that fiscal decentralization may have a growth-enhancing role. On the other hand, Qian and Weingast (1997) and others' theory of fiscal decentralization, which stresses the role of government employees as self-interested agents, suggests that decentralization's effects may not necessarily be growth-enhancing. Prud'homme (1995) points out that due of economies of size and scope, local supply of public goods may not be more cost-effective than national provision.

However, it is important to note that the growing negative impact of fiscal decentralization might be explained by a lack of incentives for regional growth and a significant reliance on federal center administration. If the federal government pays for the majority of the budget, the regions will lose incentive and will need to boost their own earnings over time. Subsidies are the primary drivers of regional and large-city growth, which can have long-term negative consequences. Zhuravskaya goes into great length about this (2000). First, the author said that fiscal incentives for local politicians in Russia are very weak; in fact, they are essentially non-existent, since

increases in individual income are nearly totally offset by changes in shared revenues. Second, the intensity of fiscal incentives has a favorable impact on the number of enterprises founded. Finally, the intensity of fiscal incentives has a favorable impact on the efficiency of government expenditure.

The authors also stated (Oding, Savulkin, Yushkov, 2016) that government-mandated responsibilities to increase regional and municipal financial independence and eliminate subsidization of areas had not been met. The percentage of various forms of interbudgetary transfers in the income of the consolidated budgets of the Russian component entities The federal center was compelled to boost the amount of gratuitous financial aid to the component bodies of the Russian Federation to 27 percent of the income of their consolidated budgets when the financial and economic crisis peaked in 2009 and impacted sub-federal budgets hard. In future years, the proportion of transfers reduced marginally, but they still accounted for about 20% of subfederal budget revenues.

There is a downward trend in regional dependence: the percentage of transfers in subnational budget income has stayed steady in most OECD countries over the last ten years, whereas it has climbed by about 10% in Russia. The proportion of unconditional transfers fell dramatically during the same time, indicating a deterioration in regional independence. Due to frequent changes in the form of interbudgetary transfers, Russia's interbudgetary relations system is in general unstable and unpredictable (Oding, Savulkin, Yushkov, 2016). A clear and consistent delimitation of tax and spending capabilities across different levels of the budget system is one of the primary challenges repeated in government programs and conceptions. This mission is currently unfinished at both the regional and local levels. The proportion of expenditures in the consolidated budgets of Russian Federation subjects that are not covered by their own income, indicating a major breach of the subnational budget system's balance of revenue powers and spending commitments. The situation is much more complicated at the local level, with transfers from higher-level budgets accounting for about half of municipal spending. This condition contributes to the building of reliance attitude and prevents the creation of appropriate incentives for the budget system's lowest levels.

Proposed methodology for further researches

Moreover, this work can be considered as a proposed version of the methodological framework for the study for the reason that the basic concept of the study is applicable to other potential studies. For instance, the methodological basis for assessing the influence of political factors may be the same as in this study. Moreover, in the case of assessing regions with and

without agglomeration, a similar study can be used with the addition of a binary variable responsible for the presence of agglomeration in the region.

In general, in the presented literature sources as well as in this paper the methodology of the research, in particular, the statistical model, consists of three parts: dependent variable, control variables and explanatory variables. In this paper, as a dependent variable, the gross regional product in regions that include agglomerations was chosen. An alternative is the calculation of the gross urban product of agglomerations. Due to the fact that at the moment there are no official statistics on agglomerations, it is extremely difficult to access such data. The methodology for calculating the gross urban product for agglomerations was presented by the Institute of Urban Economics, in which case an attempt can be made to calculate the gross urban product for each agglomeration for a long period of 10 years or more, or develop your own methodology for the same purpose. This approach is extremely labor-intensive and can be a separate scientific work. Moreover, future studies may use other estimates for the number of agglomerations in the Russian Federation, which may change the potential results of the study.

Regarding the control variables, they are standard for economic research. In view of the fact that the dependent variable was the gross regional product, according to economic theory, it is influenced by the regional human and physical capital. In addition, population and/or labor force, average level of education, average level of income per capita can be used as well. An important caveat is the potential multicollinearity, hence one must carefully choose variables that correlate with others at a high level.

In the context of fiscal federalism and fiscal decentralization, expenditure decentralization and revenue decentralization were chosen as explanatory variables. From the point of view of economic theory, these variables explain fiscal decentralization and as a result of fiscal decentralization. In this case, the methodology for calculating these indicators is extremely important, in view of the fact that the specifics of federal governance differ between countries. In general, the authors of various studies distinguish two approaches. The first approach is a calculation of municipal revenue and expenditure as a share in total regional budget. Special attention should be paid to subventions. Thus, the independence of the region is determined, as well as its dependence on the federal center. In part, this approach can be called simplified, while it minimizes the possibility of making errors in the calculations. The second approach is a detailed calculation and analysis of tax and other interbudgetary transfers to determine the level of decentralization of a region or agglomeration. This approach is more complex and requires a

thorough study of the nuances of interbudgetary relations in the Russian Federation, which, in particular, may be the subject of further research.

CONCLUSION

This paper sheds light on the functioning of fiscal federalism, in particular, fiscal decentralization, as well as their impact on the development of regions, agglomerations and large cities. In addition, the research presents the modern context of the Russian Federation.

The purpose of this work is to analyze the impact of fiscal federalism on the development of the Russian Federation agglomerations. The theoretical base on the concepts of fiscal federalism, economic development of regions and agglomerations was analyzed. The research model was built based on the studies reviewed and represents an assessment of the impact of agglomerations factors and characteristics on the fiscal federalism model selection, which in turn affects urban and economic development of agglomerations. As a result, the research design could be characterized as a sequential linear structure. Based on secondary data, a quantitative empirical study was conducted. This study includes an assessment of the impact of the current level of fiscal decentralization on the development of urban agglomerations. An analysis of the fiscal decentralization and its impact on the development of urban agglomerations allows assess the existing economic regional and agglomeration development. The paper also explores the context of the Russian Federation.

Revenue decentralization and expenditure decentralization are not fully explained by economic factors. This study showed that, in relation to Russia, economic factors do not play a key role in fiscal decentralization, and political factors come to the fore. Moreover, it can be concluded that the distribution of subventions (which influence fiscal decentralization) occurs not only on the basis of economic factors, which can be explained by the centralized model of fiscal federalism. The desire for a centralized model of fiscal federalism and the strong influence of political factors can partly be explained by the desire to minimize the level of corruption, political system in Russia. Moreover, the appointment (not the election) of officials as well as the quality of regional governance issue could play a role in reducing the importance of economic factors.

Fiscal decentralization has influence on agglomeration and regional development, entities with less fiscal decentralization tends to have larger gross regional product on average according to empirical results. However, it is worth highlighting the issue that negative influence of fiscal decentralization increasing could be explained by the lack of incentives for regional development and high dependence on federal center management.

Practical implementations could be regarded from two perspectives. Firstly, this paper provides a methodology to estimate regional development, in particular, how to estimate the influence of fiscal decentralization in context of the Russian Federation. Secondly, this paper is

thought-provoking for policymakers, within the research the current situation is considered, as well the recommendations on the topic of the fiscal federalism and the development of urban agglomerations and regions are presented.

Limitations and further researches

Limitations comprise three aspects. First of all, political factors should be included in analysis in further researches to estimate its influence on fiscal decentralization in modern context. Secondly, further researches require the consideration of endogenity problem. Although there are several potential reasons for this lack of consensus on the empirical findings, one serious untreated problem that is common to most of this past literature has been the presence of endogeneity between fiscal decentralization and economic growth. A fair conclusion to be drawn from this literature is that the causal effect of fiscal decentralization on economic growth remains an open question. Beyond the many cases of contradictory findings, most of the previous empirical work on the question suffers from the potential endogeneity problem due to reverse causality and omitted variable bias. The third compelling issue for further research is that calculations are made only for 21 regions where agglomerations are represented. With this approach, information about all other regions is absent. An alternative approach could be to use all Russian regions and add a binary variable (0 if there are no agglomerations in the region, 1 if there are) to the model with all the main independent variables. Then it would be possible to draw conclusions about whether regions with agglomerations differ from all other regions in terms of fiscal federalism and economic growth.

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