

# Distributional Growth Paradigm in the Strategies of Sustainable Regional Development

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## Abstract

The issue of bringing outsider regions closer to leaders in conditions of unequal distribution of assets in order to establish sustainable development is a big task, both on the part of the government and of the companies as well. The authors of the article raise the question of the choice of distribution mechanisms and their connection with the development of an optimal strategy for sustainable development. There are no universal tools in this regard, which means it is necessary to develop a complex combination of strategic decisions that takes into account the capabilities of the regions and the companies based

there. Corporate strategies could significantly augment government action. This task is especially relevant for a country with a heterogeneous distribution of natural resources, among which Russia, making the emphasis is on fiscal decentralization as an equalization tool. Assessing its impact on the economy of Russian regions, the authors state that, despite its effectiveness in other countries, it is not workable for Russia. The solution seems to be the search for unique market mechanisms, the possible attraction of dynamic companies to the region and the selection of other mechanisms that trigger sustainable development.

**Keywords:** sustainable development; development strategies; regional inequality; regional development; resource capabilities; fiscal decentralization.

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## Introduction

Mitigating disparities in the pace of development between regions plays a key role in building national economic potential. This task is especially relevant for states with heterogeneous distribution of natural resources, which includes Russia.

In the post-Soviet regime, the Russian Federation has enjoyed an overall robust economic growth by adapting the market economic system (but with some exceptions). Economic growth mainly has been fueled by the natural resource boom, which in turn poses an imperative question regarding the distributional aspect of the Russian growth paradigm since some regions have much more natural resources than others. More precisely, in the first decade of the adoption of the market economic system, Russia had encountered unnatural economic fluctuations which are highly anchored in the mismanagement in the financial sector, the rapid privatization process, and the industrial and military policies. Eventually, economic growth along with the boom and slack had culminated with more income inequality and inter-regional economic disparity<sup>1</sup>. Although several empirical studies stressed the income equality issue (Zubarevich, 2019; Novokmet et al., 2018), inter-regional economic disparity has remained unknown in the economic literature. In order to address this pressing issue, the government of the Russian Federation has articulated its commitment to reducing regional disparities through the implementation of a comprehensive set of strategies. These strategies encompass various measures, one of which is fiscal decentralization<sup>2</sup>. Moreover, the substantial regional natural resource rent further emphasizes the need for Russian authorities to adopt a policy of fiscal decentralization, thereby mitigating the unequal distribution of resources. As fiscal decentralization is apparently the most effective tool to address the inter-regional disparity); hence, we are motivated to scrutinize its role in Russian Federation in our empirical setup.

We extend and contribute to the prior literature in several ways. First, we devise the regional economic growth disparity measure by deducting the real Gross Regional Product (GRP) per capita from the real Gross Domestic Product (GDP) per capita for Russia. The positive values indicate the regions enjoy higher economic growth compared to the country average, while negative values assert that the regionals encounter lower GRP per capita than the national level of GDP per capita. We use the measure of fiscal decentralization indicating the decentralization from federal to regional level. Second, we contextualize whether

natural resources play any mediating role in the fiscal decentralization and regional disparity linkage, given the enormous contribution of natural resources to the Russian economy. Third, we also consider whether the role of political identity of regional governments plays any role in the fiscal decentralization and regional disparity nexus, as we assume that the negotiation power of regional governments with the federation government is anchored with the ruling vs non-ruling party basis.

Fourth, given the considerable abnormality in our dataset across the regions and over time<sup>3</sup>. We then apply the Panel Quantile via Moment approach because this approach is able to eliminate the regional common correlation bias, regional heterogeneity, time lagged effect and potential endogeneity, which we have found in the data.

Finally, our empirical investigation on fiscal decentralizations and regional economic disparity in Russia provides several new insights. First, we find that fiscal decentralization further elevates the inter-regional disparity in the 10%-30% quantiles (less developed regions) of economic disparity, underscoring the existence of less developed regions where economic growth is lower. However, our empirical analysis shows no significant effect of fiscal decentralization at the upper quantiles (highly developed regions) of this disparity. When the disparity exceeds 70% (above average), the coefficient of fiscal decentralization becomes positive but is insignificant, which confirms the enhancing gap between more developed and less developed regions. We find that this statement is also true (i.e., an increase in disparity) for the regions where their governors are members of the ruling party (“United Russia”), while the governors from other parties play insignificant role in changing regional disparity in any direction. Natural resource extraction is also efficient in decreasing the disparity in the less endowed regions; however, it is counterproductive towards decreasing inter-regional disparity at the upper quantiles.

The results of this study can be conducive to designing inclusive economic growth agendas by ensuring an allocative efficiency of budget distributions towards reducing intra-regional economic disparity. The finding also intends to provide practical policy implications in allocating federal to the regional budgets in the case of the resource abundant and non-resource abundant regions. Finally, the results also aim to provide a pragmatic solution to the distribution of the national budget among the regions, thereby reducing any biases or nepotisms to ensure inclusive economic development.

<sup>1</sup> For instance, the range of gross regional products per capita can vary from Rub 3378000 to Rub 61000 for the Khanty-Mansiysk autonomous district and the Chechen republic in 2019, respectively. <https://rosstat.gov.ru/storage/mediabank/9Y14JKg4/vrp.xlsx>, accessed 05.07.2023.

<sup>2</sup> See also: <https://base.garant.ru/71405474/>, accessed 05.07.2023.

<sup>3</sup> E.g., the values for the logarithm of regional real GRP per capita vary from 9.45 for the Dagestan Republic and 19.83 for the Tyumen region, while the share of natural resources extraction in GRP varies from 0 to 78% in the non-oil and oil-extracting regions.

**Table 1. Positive Effects of Fiscal Decentralization**

Effects	Literature
Enhancing the efficiency of public goods provision, especially educational attainment	(Barankay, Lockwood, 2007; Freinkman, 2009; Kalirajan, Otsuka, 2012).
Enhancing the accessibility of public services, and reducing poverty	(Sanogo, 2019).
More efficient government regulations and regional economic growth	(Jia et al., 2020, 2021).
Enhances regional convergence	(Kyriacou et al., 2015).
Strengthening fiscal discipline	(Bellofatto, Bestfamilie, 2021)
<i>Source:</i> authors.	

## Literature Review

### *International experience of implementing fiscal decentralization*

Fiscal federalism argues that fiscal decentralization is beneficial for economic development in many countries as it increases the authority of local governments' officials, enhances the competition of local jurisdictions, boosts the possession of precise information on regional needs (Qian, Roland, 1998; Tiebout, 1956) and improves the ability of tailoring policies to local preferences and circumstances (Oates, 1999). The political hierarchy, which considers empowering regional authorities, is still associated with sufficient management and regional economy regulation. Theoretically, fiscal decentralization can address regional disparity (Bellofatto, Besfamilie, 2021; Gradstein, 2017; Martinez-Vazquez, Timofeev, 2008). However, we distinguish between two main strands in the current literature on fiscal decentralization.

The first strand argues that fiscal decentralization leads to an enhancement of efficiency in government management since regional governments are more highly motivated by local issues (Rubinchik-Pessach, 2005). Some authors argue that fiscal decentralization is more beneficial, particularly when the central government is less competent (Barankay, Lockwood, 2007). The distribution of political power in the government hierarchy is also crucial for regional development (Markevich, Zhuravskaya, 2011; Mookherjee, 2015). The positive impacts of fiscal decentralization for regional development are summarized at Table 1.

The second strand of the literature expresses its skeptical view regarding the effectiveness of fiscal decentralization in alleviating regional economic disparity. There is a strong association between fiscal decentralization and degrees of corruption among regional authorities (Fan et al., 2009; Fisman, Gatti, 2002), which eventually decreases local economic growth (Zhang, Zou, 1998) and increases regional disparities (Prud'homme, 1995). Blanchard and Shleifer (2001)

confirm that fiscal decentralization must strike a balance with centralization, as high degrees of decentralization in transition economies result in a lack of control and lower government quality, thereby decreasing economic growth and increasing corruption. Jia et al. (2020) argue that the potential outcome of fiscal decentralization can be undermined due to poor governance or malpractices in the local officials. Therefore, the central government should increase the degrees of control over local governments. Zhang (2006) observes that fiscal decentralization spurs tax burdens on the lagging behind regions, which eventually leads to higher regional disparities in the China context. The regional disparity may induce stronger inter-regional disparities as being beneficial only for well-endowed regions (Bartolini et al., 2016; Besley, Ghatak, 2003). Besides Bellofatto & Besfamilie (2021) argue that tax decentralization somewhat may enhance fiscal discipline, but it spurs regional disparities in many countries. Given the contrasting findings, the empirical literature further motivates us to conduct this study in the case of Russia.

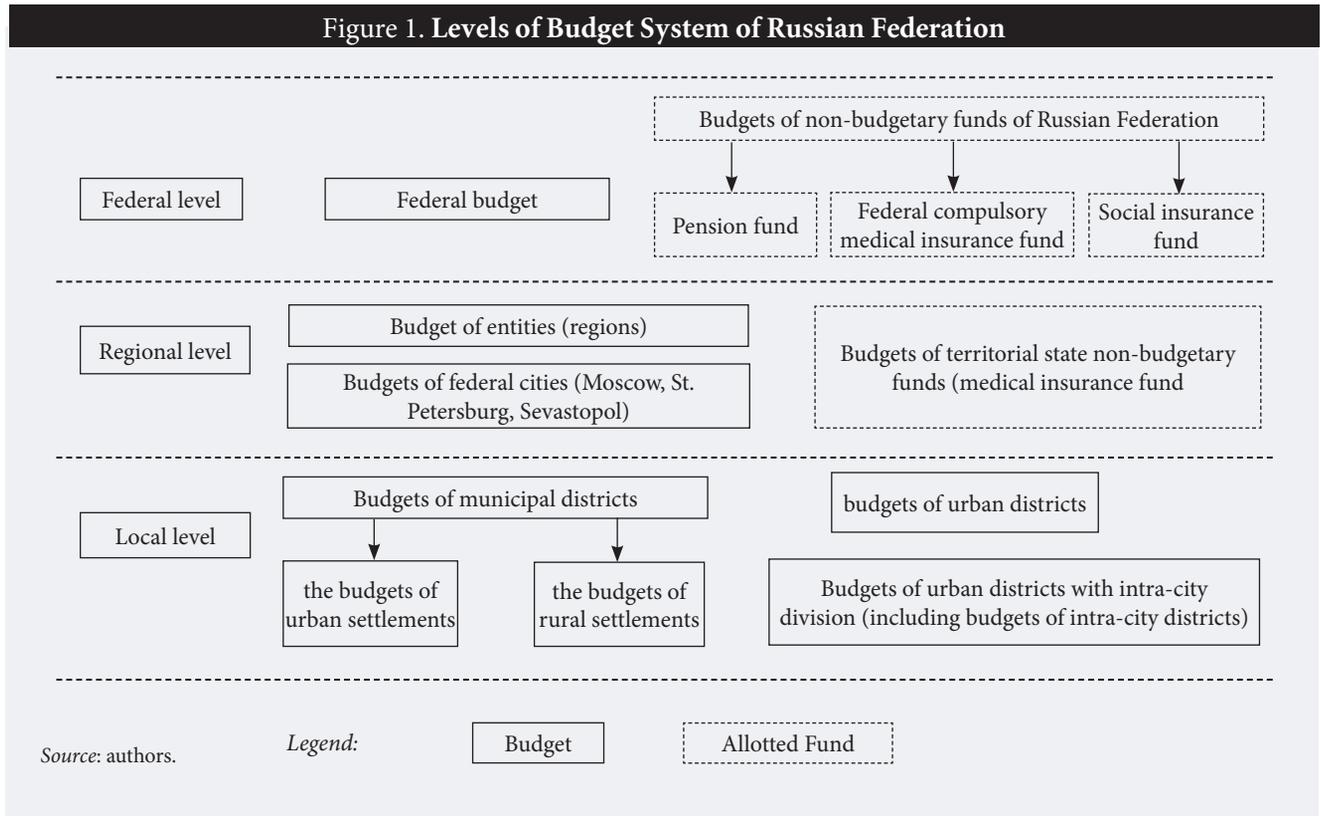
### *Russian context*

A few studies stress the Russian federal fiscal distribution policies and local government fiscal stances (e.g., Di Bella, 2017; Markevich, Zhuravskaya, 2011).

However, the fiscal decentralization and regional disparity nexus has remained under-researched in the prior literature. For example, Zhuravskaya (2000) focuses on the reallocation of fiscal expenditures from regional governments to the local governments in Russia. Their study argues that due to a lack of independence of local governments in the fiscal execution, local private sectors encounter sluggish growth (Zhuravskaya, 2000). Further, Martinez-Vazquez & Timofeev (2008) somewhat address some of our concerns about the role of fiscal decentralization in alleviating regional disparity<sup>4</sup>. However, over the last 20 years, Russia has experienced a significant transformation in the economy and fiscal rules, which urges to provide new insights in this linkage. Shankar & Shah (2003) study the effects of regional policies on regional disparity on a sample of federal (including Russia) and unitary countries for the 1997-1998 period. Markevich and Zhuravskaya (2011) study the relationship of the characteristics of Soviet regional party governors and regional industrial output for the period 1951-1967. Their study finds that increasing competition among regional governors depends on economic diversification where it promotes economic growth in the more diversified regions. Prior studies somewhat helped us to enhance our understanding of the roles of fiscal policy and regional disparity but our concerns about the effectiveness of the policy remain an empirical puzzle, which further motivates us to conduct this study.

<sup>4</sup> The mentioned study has considered 2000 local governments from 72 Russian regions.

Figure 1. Levels of Budget System of Russian Federation



## Distinct features of Russian economy and hypothesis development

A couple of studies stress the impact of severity of regional differences on economic inequality, living standards, employment, and quality of population and so on (Zubarevich, Safronov, 2011; World Bank, 2018). Historically Russian governments have constructed the economy by narrowing down the production line to the manufacturing, military development and natural resources extraction sectors. Regional development, therefore, was highly anchored with the location of those respective sectors, which eventually has led to a high regional disparity in the economy<sup>5</sup>. Third, the lack of fiscal coordination among the local, regional and Federation governments often hinder economic growth and yields regional disparity (Zhuravskaya, 2000). The literature argues that Russia had continued the Soviet fashion of the economic growth paradigm in the early transition period, thereby the grown disparity remained having the same magnitude, along with poor governance (Shleifer, 1997). Given the distinct feature of the Russian economy, anecdotal evidence and theoretical underpinning, we postulate several hypotheses.

## A Distinct Feature of the Russian Fiscal Structure

The budget system in Russia consists of three layers including the federal, regional and local apparatuses<sup>6</sup> (Figure 1). The fiscal redistribution among the Russian regions is executed through inter-budgetary transfers in the form of equalization transfers (donations), other donations (given to regional governments for further transfer to the local levels), grants (tied<sup>7</sup> transfers), other inter-budgetary transfers (non-tied) (Martinez-Vazquez, Searle, 2007).

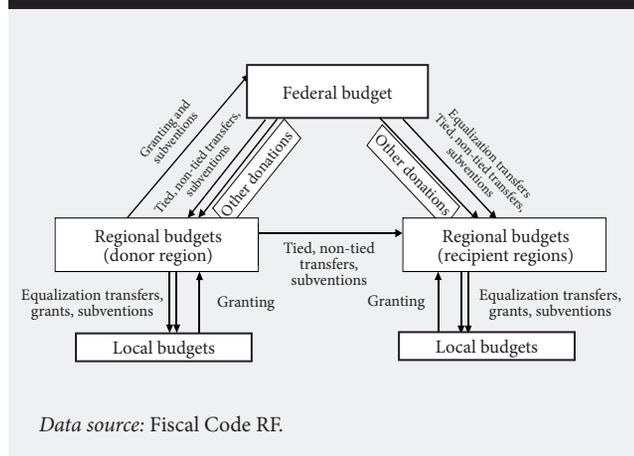
The fiscal decentralization is the distribution of power among the central and sub-national governments in making decisions at the regional and local levels including revenue aggregation and further redistribution. Ironically, the intergovernmental decentralization process makes the flow of revenue toward central government before the redistribution to the regional governments. The whole process requires more time, which creates fiscal imbalances and hinders the smooth implementation of development projects (Martinez-Vazquez et al., 2017; Martinez-Vazquez, Searle, 2007). The federal budget in Russia accumulates the revenues from taxes, fines, natural resources rent, etc. The fed-

<sup>5</sup> Moreover, the Soviet regime reoriented the population settlements according to the concentrated economic activities. Thus, the rate of inter-regional migration was remarkably high. The impact of the Soviet policy has persisted until today as 12.47% of the overall Russians dwell in Moscow and Saint Petersburg (2018-2020). <https://rosstat.gov.ru/folder/313/document/166784>, accessed 14.08.2023). The abandoned industrial town of the Soviet-Era encounter severe socio-economic disadvantages and seek a considerable support from the federal government.

<sup>6</sup> The Russian government introduced a Fiscal Code in 1998, which describes the budgetary system and mechanism of the inter-budgetary relations among the different layers of governments. Concerning the fiscal decentralization, the Fiscal Code classifies wealthy regions as contributors of the fiscal surplus to aid the regions with budget-deficit. The federal distribution policy also considers the per capita tax across region, size of population and level of economic activities in their allocations. [http://www.consultant.ru/document/cons\\_doc\\_LAW\\_19702/](http://www.consultant.ru/document/cons_doc_LAW_19702/), date of circulation 17.06.2023.

<sup>7</sup> Tied transfer is an inter-budgetary transfer assigned for specific purposes. These transfers are aimed at financing mandatory responsibilities of the recipient governments. The subvention is an interregional transfer provided for a specific purpose (tied) with a delegation of responsibilities (art. 129 FC RF, 1998 (2022)).

**Figure 2. Fiscal Decentralization in Russia (authors classification)**



eral government also obtains several forms of taxes from the regional revenues<sup>8</sup>. The central government provides a different form of fiscal assistance (tied, non-tied transfers and subventions) to the regional governments for implementing national projects. Sometimes, the regional governments assist the local governments to reduce their fiscal deficits by sharing the surplus amounts of the budgets.

In the case of budget surpluses, the region transfers the surplus to the federal budget in the form of grants and subventions (Figure 2).

The regional government sometimes co-finances some joint projects with other counterpart regions. The local budgets redistribute the finance to the intra-city districts, and urban and rural settlements. The local government also contributes at the regional level when the revenue exceeds a certain threshold level<sup>9</sup>.

Since 2010, the Ministry of Finance has pursued a large-scale reform of the public finance management system, which includes the introduction of fiscal tools, ensuring the long-term sustainability of the budget system, and implementing the budget rule and long-term budget planning. The reform aimed at improving the system of financial support to the recipients' regions, thereby emphasizing the competitiveness and the transparent procurement system to meet the state (municipal) needs and increase the openness and transparency of the budget process. Since 2017, the Russian government has implemented a policy mandating the allocation of 1% of corporate income tax to be centralized within the federal budget for subsequent redistribution in the form of non-tied equaliza-

tion transfers<sup>10</sup>. For the years 2019-2024, the Ministry of finance has identified the following problems that are to be addressed. First, is to reduce the dependence of the Russian economy and the federal budget on the resource rents and to form a sovereign fund for hedging against externally induced- fiscal deficit (Sohag et al., 2022). Eventually, this policy should promote predictability and transparency of fiscal transfers among the Russian regions and the federal budget, which will foster the national wealth. Second, is to increase the efficiency of budget expenditures by re-allocating the resources for priority projects, augmenting social welfare. The authority also aspires to achieve fiscal efficiency to reduce the gap between government revenues and expenditures by a proper implementation of development projects and programs. Third, is to develop a framework of inter-budgetary regulation based on the federal budgetary role in mitigating regional and local budget deficits.

Most of the disadvantaged regions often fail to refund the regional debt (Bulletin of Accounts Chamber, 2020). The federal government believes that a close monitoring and evaluation of the fiscal assistance to regional level can improve the effectiveness and efficiency of the execution of the budget towards sustainable development<sup>11</sup>. One of the prime aims of the budget redistribution is to reduce fiscal disparity itself from the top 10 to the bottom 10 Russian regions. For this purpose, the government implements several mechanisms to stimulate economic and tax potential of the territories which include providing equalization transfers to the regions as an incentive for achieving the national development goals at regional level; provision of financial support from the federal budget for compensating the investment tax deduction resulted in reduction of regional tax revenues; and restructuring of budget loans. Figure 3 shows that 13 regions provide fiscal aid to 72 regions in the channel of federal government in 2020. The Ministry of Finance uses Equation (1) to distinguish between the donor and the recipient regions considering the balance of regional budget or fiscal capacity:

$$FC_i = ITP_i / IEP_i, \quad (1)$$

where FC is fiscal capacity of i-region, ITP is the index of tax potential, a relative (compared to the average level in the Russian Federation) assessment of tax revenues of the regional budget, determined by taking into account the level of development and the structure of the tax base of a region; and IEP is index of budget expenditures potential, relative (compared to the aver-

<sup>8</sup> For instance, the regional corporates provide taxes around 20%, of which 2% is reallocated to the federal revenue and 18% to the regional revenue. Besides, the personal income tax revenue (13% of income) is redistributed between the federal budget (15%) and the regional budget (85%). For instance, if the personal income tax from an individual exceeds five million rubles, the revenue is transferred to the federal (13%), regional (74%) and local (13%) governments. [https://www.nifi.ru/images/FILES/Journal/Archive/2018/2/statii\\_2018\\_2/fm\\_2018\\_2\\_02.pdf](https://www.nifi.ru/images/FILES/Journal/Archive/2018/2/statii_2018_2/fm_2018_2_02.pdf), accessed 16.06.2023.

<sup>9</sup> Regional government sets the threshold which may vary over regions

<sup>10</sup> The amount of equalization transfers has experienced a significant increase, rising by 40% and reaching a total of 203.7 billion Rubles in 2021 compared to the figures recorded in 2016 ([https://minfin.gov.ru/common/upload/library/2023/06/main/Rezultaty\\_monitoringa\\_mestnykh\\_budzhetrov.pdf](https://minfin.gov.ru/common/upload/library/2023/06/main/Rezultaty_monitoringa_mestnykh_budzhetrov.pdf), accessed 19.08.2023). This upward trend highlights the government's commitment to promoting financial equity and stability across regions.

<sup>11</sup> <https://base.garant.ru/71405474/>, accessed 19.06.2023.

Figure 3. Donor and Recipient Russian Regions in 2019 (share of external aid in gross regional budget, %)



Source: authors.

age level for the Russian Federation) assessment of the expenditures of the regional budget for the provision of the same volume of budgetary services per capita, determined by taking into account objective regional factors and conditions.

One of the main challenges for the Russian fiscal policy is the increase in the effectiveness of the equalization transfers and the decrease in the number of the recipient regions<sup>12</sup>. Therefore, Russian governmental authorities carry out the fiscal decentralization policies as follows: clearly defining the federal regulations and regional autonomy in executing regional policies achieving the national development goals at regional level; increasing the own tax revenues of the regions; federal government holds mainly the monitoring role while regional governments enjoy more autonomy in the implementation of budgetary plans; less interference of federal government in regional decision making by the local authorities. Moreover, the regional governments obtain more power in planning the budget deficit and executing the public spending aimed at anti-crises measures. The effectiveness of the fiscal decentralization process remains an empirical puzzle, which increases the disparity; hence, we aim to evaluate the effectiveness of fiscal decentralization on the inter-regional disparity among the Russian regions through hypothesis (H1):

*H1: The fiscal decentralization is effective in reducing inter-regional disparity among the Russian regions.*

## Mediating factors that impact the link between fiscal decentralization and regional economic disparity

### *Role of Political Affiliation*

We assume the power of negotiation of a parliament member is conditional on several factors, including the membership of the ruling opposition parties. We

partially agree with the proposition of Riker (1964), who argues that the central government has a stronger influence over the regional governments. However, the recent anecdotal evidence shows regional governors also maintain a strong liaison with the federal government in terms devising on regional policy, budget and nation plan execution. Several recent studies show that the magnitude of a regional governor's influence on the federal government plays an important role for regional development (Sohag et al., 2022; Hartwell et al., 2022).

The balance between the national goals and the compliance of the regional interests is significant for sustainable regional and country development, which is realized through the bargaining power and the distribution of the political power among the political parties (Enikolopov, Zhuravskaya, 2007; Filippov et al., 2004; Oates, 1999; Polishchuk, 1996; Riker, 1964). The anecdotal evidence shows that the national party has been dominating the parliament since 2001. Similar to the Duma, the upper House of the Russian Parliament contains 170 representatives from the regions, where 83.5% is from the United Russia, 8.2% is independent, and around 7% is from the Communist Party, Liberal Party and Just Russia. The strong national party can be successful in tailoring regional policies to national goals (Enikolopov, Zhuravskaya, 2007; Oates, 1999), thereby improving the outcomes of fiscal decentralization (regional economic growth rates, regulation quality, disparity). However, a too strong ruling party can infringe on the interests of regional leaders by influencing them, which results in a reduction in economic growth in the regions and an increase in the inter-regional disparity (Filippov et al., 2004; Polishchuk, 1996; Riker, 1964).

Nevertheless, the literature shows that regional governments can influence the federal government through the preparation of international events, the develop-

<sup>12</sup> <https://ach.gov.ru/upload/reports/2020.pdf>, accessed 19.06.2023.

ment of the infrastructural and tourism potential and regulation of inter-regional elite conflicts (Orlov, 2021). The governors who pursue the development policies are more successful in bargaining with the federal government in promoting regional projects and receiving the financial support for their implementation<sup>13</sup>.

The bargaining power of a governor results in increasing financial support from the federal government, which in its turn increases the appreciation of the governor by the citizens, thus enhancing the chances of this governor being reelected. The governor of a region in Russia is elected by the local citizens of the Russian Federation every five years. Riker (1964) argues that the election of regional government empowers the decentralized officials, by providing them more support from the local elites and citizens, which can further put higher pressures on the federal government and subordinate it. However, we assume that this is not the Russian case, as most of the governors elected in the regions are member of the ruling party<sup>14</sup>. Moreover, according to the rating of governors' influence on the federal government, the 20 governors having the strongest impact are all members of the ruling party, while other parties compile mostly the lowest ratings (Orlov, 2021). On the one hand, the regional governors from the other parties lobby their own interest, which can contradict with the national goals, thereby decreasing their bargaining power and resulting in gaining less support from the federal government. On the other hand, the members from the smaller parties have less resources to compete with members from the ruling party even during the elections.

According to Enikolopov & Zhuravskaya (2007) the strongest political party influences the policies implemented by local politicians, affecting their career prospects. During elections, members of the ruling party have a greater financial support on the PR campaign, which starts long before the elections through the mass-media and social networks (Zhuravskaya et al., 2020; Enikolopov et al., 2011), increasing their chances to be re-elected. Moreover, the national governing parties can punish the local politicians for pursuing regional interests more than the national interest.

Based on our observation, the Russian political system is quite centralized, while the governors have enough space for political maneuvers due to increasing autonomy. In particular, during the last years, the governors

gained even more autonomy in making decisions at the regional level as they obtain more precise information than the federal government. Therefore, we believe that a strong political party can play a significant role in the fiscal decentralization and the regional disparity nexus (H2).

*H2: The political alliance of regional governors plays a role in the fiscal decentralization and regional disparity nexus*

### **Role of Regional Natural Resources**

The literature argues that the natural resources endowment can be either a resource curse or a blessing for the country (Al Mamun et al., 2017; van der Ploeg, 2011). Prior studies document that the concentration of natural resources has a significantly widened inter-regional disparity in Russia<sup>15</sup>. Many studies argue that post-Soviet Russia still follows the Soviet fashion of resource rents distribution (World Bank, 2018; Shleifer, 1997). The command economy was concentrated on the machine-building industry, where military production held the lion share (Polishchuk, 1996) along with the natural resources extraction, mainly oil and gas (Bradshaw, Connolly, 2016). First, the present intensity of regional disparity can be dated back to the Soviet economic policies for the resource-abundant regions and associated industrial growth, whose footprint remains.

The regional natural resource endowment also attracted more foreign direct investment to the Russian regions, enhancing the innovation implementation and spurring economic growth rates in particular regions (Smith, Thomas, 2017). Accounting for the dependence of the Russian economy on resource rents, we assume that the natural resources endowment is counterproductive in reducing the inter-regional economic disparity, which leads us to the third hypothesis:

*H3: Natural resources abundance is an essential factor in forcing up inter-regional disparity.*

## **Conceptual Framework, Data and Methods**

### **Concepts and data**

This study examines the role of fiscal decentralization in driving the inter-regional disparity in Russia. We employ panel time series for the 83 Russian regions obtained from Federal State Statistics Services during

<sup>13</sup> For instance, the governor of the Tula region received an infrastructural budget loan (more than 3 billion rubles) for bridge construction in 2021. In addition, the federal government afforded an infrastructural budget loan in 2022 to the governor of the Krasnoyarsk region for a subway construction and appreciated more the governor of the Novosibirsk region for his success in dealing with the elite conflicts during 2020-2021 (Orlov, 2021).

<sup>14</sup> According to the VCIOM (Russian Public Opinion Research Center, 2022) analytics, the United Russia party receives more support from the people, as 42.5% of the respondents would rather vote for the governor with the United Russia membership versus 11.1% for the Communist party and 8.8% for the Liberal Party. <https://wciom.com/our-news/ratings/rating-of-political-parties>, accessed 18.05.2022.

<sup>15</sup> According to the rating of natural resources potential in regions calculated by RAEX, the most endowed regions are the Krasnoyarsk region (timber and energy resources), the Sakha Republic (diamond deposits), the Khanty-Mansiysk and Yamalo-Nenets autonomous districts (hydrocarbon production). The Khanty-Mansiysk autonomous district is abundant with more than 300 oil fields, while more than 100 gas fields are situated in Yamalo-Nenets autonomous districts. The anecdotal evidence shows that the Khanty-Mansiysk and Yamalo-Nenets autonomous districts enjoy GRP per capita that are considerably higher than the GRP per capita of the less endowed regions. [https://raex-rr.com/pro/regions/investment\\_appeal/investment\\_potential\\_of\\_regions/2020/](https://raex-rr.com/pro/regions/investment_appeal/investment_potential_of_regions/2020/), accessed 18.05.2022.

the period 1996-2019. In order to measure regional disparity, we have developed a series using equations (2) and (3), as prior literature offers limited guidance on the appropriate measure. The Russian Parliament<sup>16</sup>, in the Spatial Development Strategy of the Russian Federation until 2025, considers the ratio of per capita Gross Regional Product (GRP) for each specific region to the mean Gross Domestic Product (GDP) for Russia as an indicator of inter-regional inequality. Following established methodologies, we calculate the dispersion of GRP per capita from GDP per capita within a fiscal year. This absolute value difference is then divided by the national mean to derive a relative indicator, which serves as our measure of regional economic disparity.

More precisely, the series is calculated by taking the difference between the logarithms of gross regional product per capita for region  $i$  at time  $t$  and the mean value of logarithm of GDP per capita over time  $t$  (Eq. 2).

$$Disparity_i = IGRPpc_{it} - IGRPpcT_t \quad (2)$$

In order to check the robustness of our prior estimation, we devise another proxy of inter-regional economic disparity rate by using equation 3:

$$DISR_{it} = (IGRPpc_{it} - IGRPpcT_t) / IGRPpcT_t \quad (3)$$

where  $DISR_{it}$  is the indicator of inter-regional disparity rate over time and cross regions,  $IGRPpc_{it}$  is the gross regional product per capita (constant) over time and cross sections,  $IGRPpcT_t$  is the average value of the gross regional product per capita (constant) for the whole country.

Appendix 1<sup>17</sup> represents the graphs for the regions with a real GRP per capita higher than the mean value. We observe extreme positive values for Moscow, the Tyumen region and the main oil and gas-extracting regions, including the Yamalo-Nenets Autonomous district, the Khanty-Mansiysk Autonomous district and the Nenets Autonomous district. Appendix 2 shows the regions with the real GRP per capita that is less than the mean. We identify the less developed Russian regions as the Chechen Republic and the Republic of Ingushetiya, the Tyva Republic, and the Dagestan Republic. In addition, the graphs show that around 60% of the Russian regions have real GRP per capita less than the mean, while around 40% indicates the upper value, which confirms a high degree of inter-regional disparity in Russia.

As for fiscal decentralization, we obtain the calculated index given by the International Monetary Fund<sup>18</sup>. Fiscal decentralization is calculated as a share of own public spending in the region in general government spending (Eq. 4).

$$Fiscal\ decetralization_i = (Regional\ government\ expenditure - grants) / general\ government\ expenditures, \quad (4)$$

Accounting for the dominance of the regions with the prevailing hydrocarbon sector, we assume the share of natural resources extraction in GRP as a main factor that drives inter-regional disparity (Figure 4). As control variables, we include trade openness (ratio of sum of export and import to gross regional domestic product), share of capital investment in GRP and the logarithm of labor force. To consider the governor membership in the political party, we introduce the dummy-variable “party”, where 1 indicates the membership of the governor in the ruling party, 0 – membership in other parties. Table 2 represents the description of the variables employed in the analysis.

### Methodology

According to the preliminary analysis of the data, the panel time series contain the cross-sectional dependency Table A3.1 (Appendix 3) and the heterogeneity bias Table A3.2 (Appendix 3). The test results of the cross-sectional dependency (Pesaran, 2004) is performed based on the average of the pair-wise correlations of the residuals obtained from the OLS estimations for each region in the panel data. According to the results, all variables included to do the econometric modelling contain the spatial correlation in panels. To address the cross-sectional dependency bias, we add common correlation variables calculated by the author as a mean value of an indicator for all regions in a specific time period (Eq. 5) for the logarithm GRP per capita, trade openness, the share of capital investment in the GRP and the logarithm of labor force.

$$Tx_t = mean(X_{it}), \quad (5)$$

where  $X_{it}$  is the vector of control variables (the logarithm GRP per capita, trade openness, the share of capital investment in the GRP and the logarithm of labor force).

According to the results of the heteroscedasticity test for the measures of inter-regional disparity among the Russian regions (Table A3.2), the test shows that the data contains a high degree of heteroscedasticity. The variables included to the analysis are stationary according to panel unit-root test (CIPS) developed by Pesaran (2007). To capture the strong heterogeneity, we apply the Quantile via Moment econometric approach (Machado, Santos Silva, 2019), which performs the simultaneous quantile regression under the bootstrapping standard errors and cross-sectional dependency variables (Eq. 6).

$$Q_y(\tau | X_{it}) = (a_i(\tau) + \delta_i q(\tau)) + \beta(\tau) + \gamma(\tau), \quad (6)$$

where the  $a_i(\tau) + \delta_i q(\tau)$  is the quantile-t fixed effect for region  $i$ , or the distributional effect,  $Q_y(\tau | X_{it})$  is the quantile of the dependent variable,  $X'_{it}\beta$  is the vector of the independent variables,  $Z$  is a vector of known dif-

<sup>16</sup> [https://www.economy.gov.ru/material/dokumenty/rasporyazhenie\\_ot\\_13\\_fevralya\\_2019\\_g\\_207\\_r.html](https://www.economy.gov.ru/material/dokumenty/rasporyazhenie_ot_13_fevralya_2019_g_207_r.html), accessed 12.05.2023.

<sup>17</sup> Appenixes are represented at the separate file at the article webpage (URL will be added).

<sup>18</sup> <https://data.imf.org/?sk=1C28EBFB-62B3-4B0C-AED3-048EEEBB684F>, assessed 02.12.2021.

Table 2. Variables Description

Variable	Definition	Source
Disparity (DSPR)	The measure of inter-regional economic disparity	Calculated by the authors using the data on GRP; retrieved from the Federal Statistic Service Data
Fiscal decentralization (FSD)	Fiscal decentralization (share of own public spending of the region in general government spending)	IMF (2020)
Trade Openness (TRO)	Trade openness (Sum of export and import divided by nominal GRP)	Calculated by the authors using the data on export, import, retrieved from the Federal Statistic Service Data
Total labor force (TLF)	Total labor force (people aged 15 years and older who are considered employed or unemployed during the review period)	Federal Statistics Service
Gross Regional Investment (INV)	Gross regional investment, share in GRP*	Federal Statistics Service
Natural resources extraction (NRS)	Natural resources extraction (share in GRP)	Federal Statistics Service
Governor's Affiliation with the political party	Dummy-variable (1 for "United Russia")	Ivanov (2019)

\* Total expenditures for construction, reconstruction, including expansion and modernization of facilities that lead to an increase in their initial cost; includes machinery, equipment, vehicles, production and household inventory, investments in objects of intellectual property; cultivated biological resources.  
Source: authors.

ferentiable (with probability 1) transformations of the components of  $X$ .

The quantile regression deals with heteroscedasticity in the data structure (Koenker, 1978) by modelling the relationship between a set of predictor variables and certain percentiles of the dependent variable. The basic econometric techniques often fail to address the cross-sectional and time heterogeneity bias. To account for the cross-sectional dependency model, we include time series variables to the model, since the quantile regression method does not eliminate distortions due to the CD dependency. Therefore, the econometric specification is described with the following equation:

$$Q_{disparity}(\tau | X_{it}) = (a_i + \delta_i q(\tau)) + \beta_{1i}(\tau) FDC_{it} + \beta_{2i}(\tau) TO_{it} + \beta_{3i}(\tau) LLF_{it} + \beta_{4i}(\tau) INVS_{it} + \beta_{5i}(\tau) NRS_{it} + \beta_i(\tau) Tvars + \gamma q(\tau) + \varepsilon, \quad (7)$$

where  $Q_{disparity}$  is the indicator of the inter-regional disparity as measured by the authors;  $FDC_{it}$  is the indicator of fiscal decentralization;  $TO_{it}$  is trade openness;  $LLF_{it}$  is the value of the labor force;  $INVS_{it}$  is fixed capital formation share in the gross regional product;  $NRS_{it}$  is natural resource extraction share in the gross regional product;  $Tvars$  is the vector of cross-correlation effects. To consider the governor membership in the political party, we introduce a dummy-variable and divide the dataset in the two subsets for further analysis.

Figure 4 reflects the disparity gaps among the Russian regions. From the lower to the middle quantiles (1% < 50%) on the horizontal axis, the figure reflects the regions having GRP per capita less than the mean GRP per capita in the entire Russia. Besides, the quantiles from the middle to the top indicate the regions enjoy GRP per capita higher than average GRP in Russia in a fiscal year. The red curve intersects the vertical-zero disparity line at the median quantile (50% quantile), capturing no disparity points. Therefore, we expect the

quantile slope coefficients to be positive (+) from the 10% to 50% quantiles to reduce the regional disparity. Besides, the quantile slope coefficients should be negative from the 50% to 90% quantiles to reduce disparity.

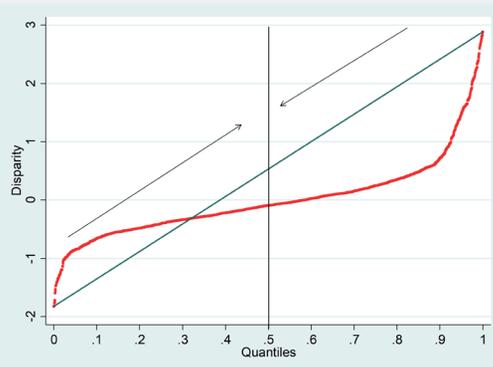
## Results and Discussion

### Description Analysis

We start our analysis with the descriptive statistics positioned in Appendix 4. The overall standard deviation reflects the volatility of our variables over time and across the regions. The between and within measures of standard deviation indicate the spatial ("between") and time ("within") variations of the variables. The values of "between" for the disparity, labor-force and natural resource extraction are significantly higher than the values of "within", which confirms a high regional inequality in economic growth and resource endowments. The standard deviation for fiscal decentralization does not show the between-measure as the data varies only over the time period. The trade openness varies more over time, which is explained by increasing the trade liberalization for all regions during the period 1996-2019. The gross regional investment is highly volatile over time and across the regions, which indicates that the regional inequality in expenditures for modernization follows an increasing trend over time.

Table 3 reports the estimated results for whole sample (all Russian regions). The fiscal decentralization is negative and significant at the lower quantiles (q10, q20 and q30) of the disparity, which indicates that fiscal decentralization is counterproductive in reducing economic disparity between the more developed and less developed regions. Fiscal decentralization widens regional economic growth disparity due to their heavy dependency on the federal budget, less market completion, economic inefficiency and diversification. The magnitude of the coefficients at the lower quantiles ap-

**Figure 4. Distribution plot of disparity by the quantiles**



Notes: the red curve represents distribution of the regional economic disparity by quantiles, while the black vertical line at the 50% quantile refers to zero disparity. Upward and downward arrows indicate convergence towards equality from both directions. The black linear line across the red line is imaginary with a 45-degree angle.

Data source: Federal Statistics Service.

pears to be higher with a negative sign, implying that fiscal decentralization worsens the lagging behind regions (q10) in terms of economic growth disparity. Besides, the coefficient of FDC is still negative but turns in to be insignificant at the 40% quantile.

Moreover, if the disparity exceeds the 70% quantile, the coefficient of FDC becomes positive but insignificant. Our empirical results violate the theoretical proposition (Oates, 1999; Qian, Roland, 1998a; Tiebout, 1956) concerning the effectiveness of fiscal decentralization in reducing the inter-regional disparity. However, our finding is consistent with Prud'homme (1995), who argues that fiscal decentralization increases the disparity as the regional governors enjoy uncontrolled fiscal expenditures. Bellofatto & Besfamille (2021) find that FDC is somewhat effective in reducing a small disparity, while it aggravates it in countries of higher disparities like Russia. Moreover, our empirical findings are in line with Zhang (2006), who finds that fiscal decentralization spurs tax burden on the less developed regions, which eventually leads to higher regional disparities in the China context.

Natural resources play an asymmetric role in explaining the regional disparity. For instance, for the regions with lower GRP per capita, the presence of the natural resources significantly reduces the gap of the inter-regional disparity. However, the estimated coefficients of natural resources are positive at the higher quantiles, indicating that the economically prosperous regions along with natural resources-augmented regional disparity at greater scale in Russia, which supports the prior investigation on Kazakhstan (Abdulla, 2021) and China (Qiang, Jian, 2020). Table A5.5 (Appendix 5) shows the quantile distribution by regions. The quantile of 90% reflects the regions with the highest resource endowment as hydrocarbon-exporters and precious metals (e.g., the Tyumen region, Khanty-Mansiysk Au-

tonomous district, Yamal-Nenets Autonomous district, Nenets Autonomous district, Kamchatka region, Chukotka Autonomous district, the Republic of Sakha).

The upper middle quantiles (70% and 80%) include most of the regions specializing with manufacturing production, metal & ore extraction, steel, and copper production. These regions enjoy a GRP per capita higher than the average in Russia and experience a decent economic performance. Therefore, resource endowment and trade openness spur economic development in the indicated regions and decrease the effect of the fiscal decentralization by worsening economic disparity. Concurrently, the parameters of regional trade, investment and labor force help to reduce regional disparity from the lower to the medium quantiles, while they spur the inter-regional disparity gap at the upper quantiles (q60-q90). The magnitude of the coefficients of trade openness and investment increase with increasing quantiles.

On the contrary, the coefficients of labor force are more efficient in reducing the gap between the less developed and more developed regions. Moreover, the magnitude of the coefficients for trade openness and natural resources reflects the dependency of the Russian economy on the natural resource rent (Gaddy, Ickes, 2013). Qiang & Jian (2020), argue that market openness in China increases the effect of the resource curse, especially for more resource-abundant areas. The empirical results show that fiscal decentralization is not efficient enough in addressing the disparity problem both for the lagging-behind-regions and more economically developed ones, which is in line with works by (Bartolini et al., 2016; Besley, Ghatak, 2003), arguing that fiscal decentralization may induce stronger inter-regional disparities as being beneficial only for the well-endowed regions. Moreover, the increasing contribution to the inter-regional disparity of natural resource extraction and trade openness makes the fiscal decentralization address the disparity at the higher quantiles.

In the next step of our analysis, we divide the sample-based governors' political attachments with the ruling party versus the non-ruling parties. Table A5.1 (Appendix 5) reports the results. They show that FDC widens regional disparity towards the negative direction at the lower to the medium quantiles (q10-q30) when regional governors are politically attached with the ruling party, which somewhat corroborates with Riker's theory (Riker, 1964). The lower quantiles represent the values of the disadvantaged regions which heavily rely on government fiscal transfers (e.g., Dagestan Republic, the Ingushetia Republic and the Chechen Republic). The literature argues that the governors from the ruling party enjoy more autonomous power in governing the regions (Enikolopov, Zhuravskaya, 2007; Zhuravskaya, 2000), thus, a lack of accountability and transparency often leads to poor bureaucracy and ultimately obstructs economic growth. The governors from the ruling party abuse the nepotism coming from the cen-

Table 3. The results of the quantile regression (all regions)

Variables	location	scale	Q10	Q20	Q30	Q40	Q50	Q60	Q70	Q80	Q90
FDC	-1.153	<b>2.280**</b>	<b>-4.538***</b>	<b>-3.507**</b>	<b>-2.697**</b>	-2.073	-1.327	-0.636	0.0609	0.906	2.315
	(-1.455)	(-1.049)	(-1.686)	(-1.455)	(-1.359)	(-1.355)	(-1.427)	(-1.557)	(-1.739)	(-2.009)	(-2.532)
TRO	<b>5.305**</b>	<b>2.453*</b>	1.664	2.772	<b>3.643*</b>	<b>4.315**</b>	<b>5.117**</b>	<b>5.860***</b>	<b>6.610***</b>	<b>7.519***</b>	<b>9.034**</b>
	(-2.066)	(-1.489)	(-2.394)	(-2.065)	(-1.929)	(-1.923)	(-2.025)	(-2.21)	(-2.468)	(-2.851)	(-3.592)
INV	<b>0.002***</b>	<b>0.001**</b>	0.002	<b>0.001**</b>	<b>0.002***</b>	<b>0.0014***</b>	<b>0.0017***</b>	<b>0.0018***</b>	<b>0.0021***</b>	<b>0.002***</b>	<b>0.003***</b>
	(-0.001)	(-0.0003)	(-0.0004)	(-0.0004)	(-0.001)	(-0.00039)	(-0.00041)	(-0.00045)	(-0.0005)	(-0.0006)	(-0.0007)
LLF	<b>0.152***</b>	<b>-0.029**</b>	<b>0.196***</b>	<b>0.183***</b>	<b>0.172***</b>	<b>0.164***</b>	<b>0.155***</b>	<b>0.146***</b>	<b>0.137***</b>	<b>0.126***</b>	<b>0.108***</b>
	(-0.019)	(-0.014)	(-0.022)	(-0.019)	(-0.0179)	(-0.018)	(-0.019)	(-0.0205)	(-0.0228)	(-0.0264)	(-0.0333)
NRS	<b>0.029***</b>	<b>0.003***</b>	<b>0.026***</b>	<b>0.027***</b>	<b>0.0276***</b>	<b>0.028***</b>	<b>0.029***</b>	<b>0.030***</b>	<b>0.031***</b>	<b>0.032***</b>	<b>0.033***</b>
	(-0.0013)	(-0.001)	(-0.002)	(-0.001)	(-0.0012)	(-0.0012)	(-0.0012)	(-0.0014)	(-0.0015)	(-0.0018)	(-0.0022)
Constant	-34.16	66.19**	-132.4***	-102.5***	-78.99**	-60.87*	-39.22	-19.17	1.068	25.6	66.48
	(-36.54)	(-26.33)	(-42.3)	(-36.53)	(-34.1)	(-34)	(-35.8)	(-39.05)	(-43.58)	(-50.39)	(-63.59)
Obs.	1,136	1,136	1,136	1,136	1,136	1,136	1,136	1,136	1,136	1,136	1,136

Notes. \*, \*\* and \*\*\* denote statistical significance at the 10%, 5% and 1% levels, respectively. Standard errors in parenthesis. FDC represents fiscal decentralization, TRO refers to open trade, INV indicates the regional investment, LLF denotes labor force, NRS defines natural resources  
Data source: Federal Statistics Service.

tral government in grabbing more revenue, eventually they execute inefficient fiscal plans (Orlov, 2021). For instance, the Republic of Dagestan, the Republic of Ingushetia, and the Chechen Republic have the lowest GRP per capita; while the Ivanovo region, the Kirov region, the Transbaikal region are less business active regions.

Since 2000, the Dagestan Republic, the Tyva Republic, the Karachay-Cherkess Republic, the Kabardino-Balkarian Republic, the Ingushetia Republic and the Chechen Republic receive the equalization transfer, whose value exceeds more than 40% of their consolidated budget and compiles the highest share of equalization transfers in Russia. These regions encounter a sluggish economic growth; therefore, they often rely on the federal government and regions who have a fiscal budget surplus. Their long-term dependency on the federal government hinders them from finding market solutions to their economic problem by tapping new economic opportunities. However, the fiscal decentralization shows a negative and insignificant impact on the disparity at the 40, 50, 60 and 70 quantiles. If disparity exceeds 80%, the coefficients of fiscal decentralization turn to be positive but insignificant, reflecting an insufficiency in addressing the disparity problem.

The results for the regions, where the governor is a member of another party or self-proposed (not a member of any party), are reported in Table A5.2 (Appendix 5). We observe that fiscal decentralization has an insignificant effect on the inter-regional disparity at all quantiles, although the sign of the parameters varies over the quantiles. Trade openness has an insignificant role in explaining regional economic disparity where governors are from non-ruling party. These regions depend less on the natural resource rent; however, the resource abundance still defines the economic development and contributes more to the disparity, compared to the regions in Table A5.1 (Appendix 5). The labor force decreases the inter-regional disparity at the low-

est quantiles. As more workers join into the labor-force during depressed conditions may reduce disparity by reducing wages. The magnitude of the estimated coefficients declines with the increase in the quantiles and shows no significant parameters for higher quantiles, where economic conditions are improving, as things cancel out each other.

Our empirical results represent that Russian fiscal decentralization is ineffective in reducing the regional economic disparity, which nullifies the theory of fiscal federalism by Tiebout (1956). Moreover, the fiscal decentralization augments disparity at the lower quantiles (q10-q30). At the upper quantiles, we report no significant effect of the fiscal decentralization. Our results are consistent with Prud'homme (1995), who argues that fiscal decentralization increases the disparity as the regional governors abuse more autonomy, which fosters the uncontrolled distribution of the fiscal budget and corruption. Moreover, our empirical findings are in line with (Bellofatto, Besfamille, 2021; Zhang, 2006). The political affiliation of the regional governor in the ruling party contributes to the disparity significance, while retaining its negative effect, thereby confuting Riker's theory (Riker, 1964) stating that governor attainment to the ruling party improves the outcomes of the fiscal decentralization.

Blanchard and Shleifer (2001) confirm that fiscal decentralization must strike a balance with centralization, as high degrees of decentralization in the transition economies result in a lack of control and a lower government quality, which decreases economic growth and increases corruption. According to Riker (1964), the existence of a strong political party is an indicator of the centralized states. Currently, the Russian authorities promote the centralization tendency for increasing the control of the regional policies. For instance, in 2022, about 75% of the Russian regional governors are from the main party. Among the rest, 7 governors are from other parties and 15 are self-proposed. Self-

proposed governors still require support from a party or private business for the election campaign. The ruling party for example had supported 11 governors during the recent elections (2010-2019) and a few other governors enrolled later in the party, which reflects the strong influence of the ruling party.

**Robustness check**

Table 4 reports the estimation results for all Russian regions. The results are consistent with our previous findings, which is reflected by significance and signs of the estimated coefficients of the independent variables.

We run the Quantile via Moments estimation for two subsets divided by the political affiliation of the governors. Table A5.3 (Appendix 5) reports the estimation results for the regions where the governor is a member of the ruling party. The results confirm our previous findings, showing that fiscal decentralization is significant at the lower quantiles; however, promoting the disparity gap. The natural resources, trade openness, labor force and investment drive the inequality among the Russian regions at the medium to the upper quantiles, but significantly decrease the inter-regional inequality at the lower quantiles.

Table A5.4 (Appendix 5) represents the estimation results for the regions where the governor is a member of another party or self-promoted. The results coincide with Table A5.2 and confirm our previous findings.

**Conclusion and Policy Implications**

The transition of the Russian Federation from a community (command) system to a market economy has posed many challenges, including inter-regional disparity. During the last two decades, the Russian gov-

ernment has undertaken several fiscal measures to reduce disparity including using the fiscal decentralization policy. However, the empirical studies are limited in stressing the evaluation of the effectiveness of fiscal decentralization in reducing the inter-regional disparity in the Russian Federation.

In this study, we have scrutinized the impact of fiscal decentralization on reducing the inter-regional economic disparity among the Russian regions, contextualizing the roles of natural resource abundance and political affiliations of regional governors. Due to a considerable regional heterogeneity and oscillation over time in the data, we have applied the Quantile via Moments approach which considers the location and scale effects to capture regional economic growth differences and economic growth jumps.

Our empirical results demonstrate that fiscal decentralization is ineffective in reducing the inter-regional economic disparity among Russian regions. Besides, FDC widens regional economic disparity by pulling down from the lower to the medium quantiles and pushing up from the medium to the top quantiles. Even after receiving a considerable fiscal support from the central government, the relative economic performance of many disadvantaged regions<sup>19</sup> are declining. Whereas FDC disproportionately hastens the wealthy regions<sup>20</sup>.

Our study confirms that regional governors’ political affiliations matter in the fiscal decentralization and regional economic growth disparity. More precisely, fiscal decentralization- induced regional growth disparity is pronounced (at the lower quantiles) in the regions where the governors are affiliated to the ruling party.

The roles of natural resource, trade openness, labor force and regional investment are found to be effective

**Table 4. The results of the quantile regression with the measure in Eq. (7)**

Variables	location	scale	Q10	Q20	Q30	Q40	Q50	Q60	Q70	Q80	Q90
FDC	-0.0967 (0.1211)	<b>0.2011**</b> (0.0873)	<b>-0.3931***</b> (0.1393)	<b>-0.3026**</b> (0.1204)	<b>-0.2345**</b> (0.1129)	-0.1770 (0.1126)	-0.1109 (0.1189)	-0.0529 (0.1293)	0.0081 (0.1443)	0.0855 (0.1677)	0.2073 (0.2106)
	<b>0.4439**</b> (0.1734)	<b>0.2072*</b> (0.1251)	0.1385 (0.1994)	0.2319 (0.1723)	<b>0.3020*</b> (0.1616)	<b>0.3612**</b> (0.1612)	<b>0.4293**</b> (0.1702)	<b>0.4890***</b> (0.1851)	<b>0.5518***</b> (0.2065)	<b>0.6316***</b> (0.2401)	<b>0.7571**</b> (0.3012)
INV	<b>0.0001***</b> (0.0000)	<b>0.0001**</b> (0.0000)	0.0001 (0.0000)	<b>0.0001**</b> (0.0000)	<b>0.0001***</b> (0.0000)	<b>0.0001***</b> (0.0000)	<b>0.0001***</b> (0.0000)	<b>0.0002***</b> (0.0000)	<b>0.0002***</b> (0.0000)	<b>0.0002***</b> (0.0000)	<b>0.0002***</b> (0.0001)
	<b>0.0127***</b> (0.0016)	<b>-0.0025**</b> (0.0012)	<b>0.0164***</b> (0.0018)	<b>0.0152***</b> (0.0016)	<b>0.0144***</b> (0.0015)	<b>0.0137***</b> (0.0015)	<b>0.0129***</b> (0.0016)	<b>0.0122***</b> (0.0017)	<b>0.0114***</b> (0.0019)	<b>0.0105***</b> (0.0022)	<b>0.0089***</b> (0.0028)
NRS	<b>0.0025***</b> (0.0001)	<b>0.0002***</b> (0.0001)	<b>0.0021***</b> (0.0001)	<b>0.0022***</b> (0.0001)	<b>0.0023***</b> (0.0001)	<b>0.0024***</b> (0.0001)	<b>0.0025***</b> (0.0001)	<b>0.0025***</b> (0.0001)	<b>0.0026***</b> (0.0001)	<b>0.0027***</b> (0.0001)	<b>0.0028***</b> (0.0002)
	-2.8520 (3.0451)	<b>5.5009**</b> (2.1958)	<b>-10.959***</b> (3.4997)	<b>-8.482***</b> (3.0266)	<b>-6.6199**</b> (2.8363)	<b>-5.0471*</b> (2.8298)	-3.2405 (2.9874)	-1.6531 (3.2478)	0.0143 (3.6211)	2.1328 (4.2122)	5.4633 (5.2949)
Obs.	1136	1136	1136	1136	1136	1136	1136	1136	1136	1136	1136

Notes: \*, \*\* and \*\*\* denote statistical significance at the 10%, 5% and 1% levels, respectively. Standard errors in parenthesis. FDC represents fiscal decentralization, TRO refers to open trade, INV indicates the regional investment, LLF denotes labor force, NRS defines natural resources

Source: authors.

<sup>19</sup> E.g., the Dagestan Republic, the Tyva Republic, the Karachay-Cherkess Republic, the Kabardino-Balkarian Republic, the Ingushetia Republic.

<sup>20</sup> E.g., the Nenets Autonomous district, the Yamal-Nenets Autonomous district, the Khanty-Mansiysk Autonomous district, the Tyumen region, the Sakhalin region, Moscow, and the Sakha Republic.

in reducing the growth disparity gap for the economically weak regions. Though, these variables accelerate regional economic growth in the wealthy regions at a faster rate, thus the overall regional economic growth disparity is augmented.

Based on the empirical investigation, we provide several policy implications. The counterproductive role of fiscal decentralization in reducing disparity for the weak regions implies that those regions should find market solutions to boost their economic performance to catch up with the wealthy regions. Besides, the fiscal support from the central government should be utilized for purely public goods and merit goods. Importantly, fiscal support should be tied with fair accountability, transparency, and budget implementation plan. Moreover, the decrease in the equalization transfer from the central budget can motivate the regions for

seeking new economic opportunities for their sustainable economic development. Since natural resources are the prime factor for a higher regional disparity, then the federal government should revise the distribution policy of resource rents for holistic economic development. Finally, the distribution of the national budget among the regions should be free from political nepotism to ensure more inclusive economic development.

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