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Impact of Social Spending and Inter-Regional Migration on Employment Rates in Russian Regions

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Ural Federal University, Ekaterinburg, Russia; ✉ rogneda.v@urfu.ru**ABSTRACT**

Relevance. The employment level in Russia plays a crucial role in the social and economic development of regions. The federal policy of Russia is geared towards bolstering regional employment through targeted social spending and fostering balanced inter-regional migration. Analyzing the contribution of these policies to employment outcomes offers insights for shaping effective regional strategies across the Russian Federation's entities.

Research Objective. This study aims to uncover the key relationships and assess the impact of inter-regional migration and social policy spending on employment dynamics in Russian regions.

Methods and Data. Our research is based on a dataset encompassing 83 Russian regions spanning from 2000 to 2021. The study relies on the data sourced from the Treasury of the Russian Federation, the Ministry of Finance, and the Federal State Statistics Service. To model these dynamics, we employ simultaneous quantile regression with bootstrapped standard error.

Results. Inter-regional migration tends to exert a negative influence on regional employment rates in most cases. Public spending on social policy, on the other hand, contributes to employment gains in regions with relatively healthier employment rates, while exhibiting less efficacy in regions dealing with more significant employment challenges. Western regions, characterized by more favorable employment situations and higher economic development, tend to be more attractive to migrants.

Conclusion. Current trends in inter-regional migration demonstrate diminished effectiveness in stimulating regional employment. Social policies generally boost employment in most regions, although there's still potential for improvement in areas with job disparities. Based on our findings, we propose several policy implications for both federal and regional governments to enhance employment policies in Russia.

KEYWORDS

employment, public spending, social policy, inter-regional migration, Russian regions

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Влияние социальных расходов и межрегиональной миграции на занятость в субъектах Российской Федерации

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Актуальность. Уровень занятости в России является одним из ключевых факторов, определяющих социально-экономическое развитие регионов. Федеральная политика России направлена на содействие занятости в регионах за счет выделения расходов на социальную поддержку и обеспечение сбалансированной межрегиональной миграции. Анализ роли указанной политики в увеличении занятости позволит определить направления региональных стратегий развития в субъектах Российской Федерации.

Цель исследования. Целью данного исследования является выявление ключевых взаимосвязей и изучение влияния межрегиональной миграции и расходов на социальную политику на занятость в регионах России.

КЛЮЧЕВЫЕ СЛОВА

занятость, государственные расходы, социальная политика, межрегиональная миграция, регионы России

Методы и данные. Исследовательскую базу составила выборка по 83 регионам России за период 2000-2021г. Информационным обеспечением исследования послужили базы данных Казначейства РФ, Министерства финансов и Федеральной службы государственной статистики. Для эконометрического моделирования применен метод одновременной квантильной регрессии с коррекцией стандартных ошибок.

Результаты. Результаты эконометрического моделирования демонстрируют, что в большинстве случаев межрегиональная миграция снижает уровень занятости в регионах. Государственные расходы на социальную политику стимулируют занятость в регионах, где ее уровень выше относительно других субъектов, в то время как данная политика менее эффективна в регионах с более выраженной проблемой занятости. Западные регионы отличаются более благоприятной ситуацией в сфере занятости и высокими темпами экономического развития, что привлекает мигрантов.

Вывод. Межрегиональная миграция имеет низкую эффективность в увеличении занятости в регионах РФ. Социальная политика стимулирует занятость в большинстве регионов, однако требует некоторой корректировки для менее развитых субъектов. На основе результатов исследования сформулированы предложения по совершенствованию федеральной и региональной политики в области содействия занятости в России.

БЛАГОДАРНОСТИ

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ДЛЯ ЦИТИРОВАНИЯ

Vasilyeva R.I., Ampenova D.M. (2023). Impact of Social Spending and Inter-Regional Migration on Employment Rates in Russian Regions. *R-Economy*, 9(3), 269–280. doi: 10.15826/recon.2023.9.3.016

社会政策支出和区域间移民对俄罗斯联邦主体就业的影响

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摘要

现实性: 俄罗斯的就业水平是决定地区社会经济发展的关键因素之一。俄罗斯联邦的政策旨在通过分配社会支出和确保地区间的均衡移民来促进各地区的就业。分析上述政策在增加就业方面的作用将有助于确定俄罗斯联邦各主体地区发展战略的方向。

研究目标: 本研究的目的是确定关键联系, 并研究地区间移民和社会政策支出对俄罗斯各地区就业的影响。

数据与方法: 本研究基础是 2000-2021 年期间俄罗斯 83 个地区的样本。研究得到了俄罗斯联邦国库、联邦国家财政部与统计局数据库的支持。计量经济学建模采用了修正标准误差的分位数回归法。

研究结果: 计量经济学模型的结果表明, 在大多数情况下, 地区间移民会降低地区的就业水平。国家在社会政策方面的支出刺激了就业水平相对较高地区的就业, 而在就业问题较为严重的地区, 这一政策的效果则较差。西部地区的特点是就业形势较好, 经济发展速度较快, 因此吸引了移民前来。

结论: 地区间移民在增加俄罗斯联邦各地区就业方面效率较低。社会政策对大多数地区的就业有促进作用, 但欠发达地区的社会政策需要进行一定的调整。根据研究结果, 我们提出了完善俄罗斯联邦和地区就业领域政策的建议。

关键词

就业、政府支出、社会政策、地区间移民、俄罗斯地区

供引用

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Introduction

The employment situation in Russia is a crucial topic in today's economic policy because it shapes social and economic progress across different areas. According to the Federal State Statistics Service, the employment level shows how many people within a certain age group are working compared to the total number of people in that age group¹. Since 2018, the President of Russia has

endorsed a number of national projects by issuing the decree “On the National Goals and Strategic Objectives for the Development of the Russian Federation up to 2024”². The goal of protecting public health and well-being, along with the stated “Demography” project that includes the federal initiative “Boosting Employment,” is being pursued through coordinated financial strategies

¹ “On the National Goals and Strategic Objectives for the Development of the Russian Federation up to 2024”, Decree of the President of the Russian Federation from 07.05.2018 N204. <http://www.kremlin.ru/acts/news/57425> (Assessed on: 15.03.2023)

² Passport of the government program of Russian Federation “Sodeystvie zanyatosti naseleniya” (Eng. “Boosting Employment”), Decree of the Government of the Russian Federation of April 15, 2014 N 298 <http://gov.garant.ru/SESSION/PILOT/main.htm> (Accessed on: 20.02.2023)

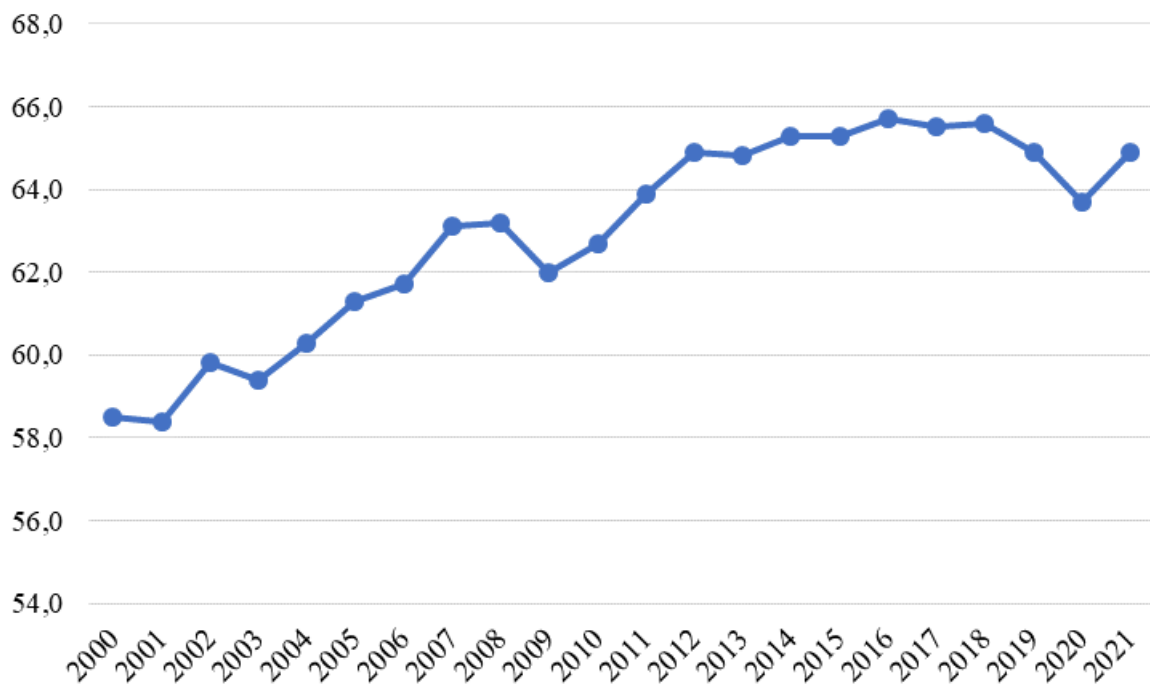


Figure 1. *Employment in Russia, 2000-2021.*

Source: Compiled by the authors using data retrieved from EMISS (<https://www.fedstat.ru/indicator/34027>)

at both the national and regional levels. This is accomplished by allocating federal funds to different regions. These programs aim to enhance the work of employment centers in various parts of Russia and help employers find workers. They are an important part of the regional plan to improve how people can move around for work.

As delineated by the Government of the Russian Federation, the main focus of the long-term state policy resides in fostering employment growth. This objective is pursued through the establishment of a multifaceted framework encompassing legal, economic, and institutional elements. Such a comprehensive approach is designed to stimulate the evolution of the labor market while concurrently enhancing the caliber and effectiveness of labor force participation³. Figure 1 illustrates a substantial growth in employment within Russia since the turn of the millennium. However, this upward trajectory was occasionally interrupted by significant events such as the Global Financial Crisis (2008-2010), geopolitical tensions (since 2014), and the recent disruptive influence of COVID-19, which lead to widespread business closures and workforce reductions.

³ Passport of the government program of Russian Federation "Sodeystvie zanyatosti naseleniya" (Eng. "Boosting Employment"), Decree of the Government of the Russian Federation of April 15, 2014 N 298 <http://gov.garant.ru/SESSION/PILOT/main.htm> (Accessed on: 20.02.2023).

According to the Federal State Statistics Service, the pinnacle of unemployment was reached in August 2020, with a recorded figure of 4.8 million jobless individuals. Concurrently, the overall labor force in Russia contracted from 75.7 million in August 2019 to 75.2 million by December 2020.

In 2021, a modest economic recovery, as acknowledged by the Ministry of Finance, brought about favorable outcomes for the labor market, signaling a gradual improvement. According to the recent statistical report, the labor force amounted to 75.3 million people in June 2021⁴. Unemployment returned to the 2019 level, receding from the August 2020 peak (6.4%) to 4.3%.

In the Russian context, it's crucial to give due regard to regional differences since they shape the unique aspects of the labor market. Factors like population density, environmental and climatic conditions, ethnic and demographic distinctions, infrastructure development, and more, can have a notable impact on employment rates (Chowdhury et al., 2022; Cui et al., 2012; Vermeulen & van Omeren, 2009). The sparsely populated eastern and northern regions of Russia, along with struggling areas, face challenges in dealing with outward mi-

⁴ Employment and unemployment in Russian Federation // Federal Statistics Service URL: https://www.gks.ru/bgd/free/B04_03/IssWWW.exe/Stg/d02/17.htm (Accessed on: 10.03.2023).

gration and declining employment opportunities (Mkrtchyan and Florinskaya, 2020). Specifically, the population of the Far East has notably dwindled over the last two decades, and this trend continues. This situation introduces fresh challenges for both the Russian labor market and migration policy. The national projects are designed to enhance employment opportunities by directing public social expenditures and fostering well-balanced and superior inter-regional migration patterns. According to Caponi (2017), Castillo et al. (2017) and Freedman (2015) the governmental policies impact the labor market and employment in the regions through increasing efficiency of labor market, which improves the quality of the workforce and spurs the employees' motivation. Their research results are supported in later studies (Agovino et al., 2019; Westerman, 2018).

The primary objective of this study is to assess how social public spending and inter-regional migration impact employment across Russian regions. To examine our hypotheses, we utilize a panel dataset encompassing Russian regions from 2000 to 2021. Given the considerable variation of variables across these regions and the substantial presence of heteroscedasticity, we employ a simultaneous quantile regression approach. This technique helps mitigate the influence of heteroscedasticity by segmenting the regions into quantiles based on employment levels. Moreover, the quantile approach enables the identification of regions with the highest and lowest employment rates within Russia.

This study adds to current research in several key ways. Firstly, we analyze the impact of a specific government expenditure category - social policy spending - on regional employment in Russia. This aligns with the President's decree to enhance employment across regions. Additionally, recent literature underscores the significant role of state policies in boosting regional employment rates (Azad et al., 2021; Carlino & Inman, 2013; Naraidoo et al., 2017). Secondly, we evaluate the impact of inter-regional migration on employment rates in Russian regions. According to the Spatial Development Strategy, enhanced labor mobility is expected to particularly boost employment in less populated areas, where employment challenges are most pronounced. Thirdly, we present policy recommendations for enhancing federal and regional employment strategies in Russia.

The article's structure is as follows: the subsequent section provides an empirical literature review. The Method and Data section outlines the

dataset and econometric approach. The Results section presents key empirical findings and discussions. The concluding section contains final remarks and policy implications.

Theoretical framework

Exploring fiscal stimulus for employment: the role of public spending in social policy

Previous research underscores the impact of public spending on social policy in driving employment and fostering economic activity (Antonelli & de Bonis, 2017). Rodríguez-Vives & Kezber (2019) contend that the quantity and composition of social expenditures vary among nations and mirror social policy preferences. In the short term, government expenditures on social policy have a stimulating effect on the economy by bolstering GDP, private consumption, and employment. Murín (2016) found similar outcomes for EU countries. Furceri & Zdzienicka (2012) accentuate the importance of public spending on healthcare and unemployment benefits in propelling employment. While some scholars argue that short-term public spending on social policy yields equivocal results, ultimately becoming pro-cyclical in the long run (Effiom, 2019), Oyvatt & Onaran (2022) offer evidence that public expenditures on social infrastructure invigorate both male and female employment. Moreover, Kopic (2020) presents empirical evidence suggesting that fiscal stimulus augments the synergistic effects of fiscal and monetary policies, thereby fostering labor market growth and enhancing employment.

Veredyuk (2010), Giltman (2018), and Volovskaya (2016) offer empirical insights into how government spending and regional characteristics influence employment patterns in the Russian context. In the face of economic crises, some authors assert that active state intervention becomes crucial for maintaining employment rates (Gaidayenko, 2021; Kashepov, 2021). Balaev (2018; 2019) and Kamenskikh & Ivanova (2011) delve into the structure of Russian budget expenditures, noting that fiscal allocations can foster human capital development, employment, and overall economic growth. However, not much research has been done on how social spending boosts employment, which is why we intend to study how public money spent on social policies affects employment in Russia.

Public expenditures on social policy encompass a range of budget allocations that include pensions, social security and public services, family protection, research related to social policy, and

other relevant aspects⁵. We believe that public expenditures on social policy contribute to heightened employment rates across Russian regions (H1). These social policy expenditures encompass unemployment benefits, pensions, scholarships, and various other social benefits. These incentives encourage economic agents to participate in the labor market and secure employment opportunities.

Hypothesis 1:

Public expenditures allocated to social policy have a stimulating effect on employment dynamics in Russian regions.

Connection between inter-regional migration and employment

Inter-regional migration has the potential to enhance regional labor markets by promoting employment opportunities. The existing body of literature offers diverse interpretations of inter-regional migration. Troyanskaya (2021) defines it as the movement of people between administrative regions or territories within a state. Doroshenko (2022) argues that inter-regional migration in Russia addresses shortages in regional labor force and substantially bolsters employment in SMEs. Providing empirical support, Topilin & Maksimova (2020) demonstrate pronounced disparities in regional labor markets, attributed to the growing divide between less developed areas and more advanced regions. They contend that diverse forms of migration, necessitating greater governmental regulation, exert a considerable influence on the labor market. Furthermore, inter-regional migration in Russia contributes to the labor force and engenders elevated regional employment rates, underscoring the significance of heightened mobility within the labor market (Kozlova et al., 2015).

There is a view that inter-regional migration displaces local citizens' employment, thereby detrimentally affecting overall employment rates and increasing local unemployment. However, Wu et al. (2020) observe that in Chinese provinces, inter-regional migration does not exhibit a complete substitution effect for local workers. Specifically, empirical findings establish an employment substitution effect limited to low-skilled local workers, while inter-regional migration supplements employment in sectors demanding medium-skilled and highly skilled labor.

Van Truong (2020) emphasizes the lesser appeal of lower-paid jobs to local workers, consequently leading to increased regional employment through migrant engagement in such positions. Intriguingly, a complementary employment effect surfaces in medium and higher-paid roles owing to economies of scale, skill complementarity, and the spill-over impact of consumption and human capital (Wu et al., 2020; Howard, 2020).

Furthermore, a scrutiny of the US labor market corroborates that inter-regional migration bears a favorable short-term impact on employment (Howard, 2020). However, there is evidence that these positive short-term effects often culminate in adverse long-term trends, necessitating robust and high-quality public management practices (Abdurakhmanova & Abdurakhmanov, 2019).

In the context of Russia, inter-regional migration exhibits an imbalance, with western regions drawing more migrants while eastern territories face human resource shortages. Consequently, the impact of inter-regional migration on employment in Russia becomes an empirical enigma, as it could either raise or lower employment rates. Hence, our objective is to assess the influence of inter-regional migration on employment rates, guided by the following hypothesis (H2):

Hypothesis 2:

Inter-regional migration exacerbates employment rates disparities among Russian regions.

Furthermore, Hypothesis 2 proposes that inter-regional migration enhances employment rates, incorporating both the initial employment rates and spatial aspects.

Method and Data

We are going to test our assumptions by using a panel dataset encompassing annual observations from 2000 to 2021 across 83 Russian regions. The dependent variable under scrutiny is the employment rate, sourced from the Federal Statistics Service, calculated as the ratio of the employed individuals in a region to its total population.

Our principal research variable revolves around social spending per capita, serving as an indicator of the government's efforts to boost employment and inter-regional migration. As control variables, we use GRP per capita (in constant 2007 prices), inflation, the Central Bank key rate (Beetsma & Giuliadori, 2011; Carlino & Inman, 2016; Kato & Miyamoto, 2013), and regional dummies. A comprehensive description of these variables and their data sources are presented in Table 1.

⁵ Fiscal Code of the Russian Federation of 31.07.1998 No. 145-Federal Law (adjusted in 14.04.2023). http://www.consultant.ru/document/cons_doc_LAW_19702/ (In Russian; accessed: 27.06.2023)

Table 1

Variables

Variable	Description	Unit	Source
Dependent variable			
Employment	Employment rate (number of employed to total number of populations of specific age)	%	Government Statistics Service
Independent variables			
Social spending	Per capita government expenditures on social policy	rub	Accounts Chamber of the Russian Federation
Migration	Coefficient of inter-regional migration (inter-regional migration growth to yearly average number of employment ratio)	%	Government Statistics Service
Regional dummy	Dummy variable indicating the spacing of the region (1 – western Russia; 0 – eastern Russia)	-	Constructed by the authors
GRP per capita	Gross regional product per capita (constant prices 2007)	rub	Calculated by the authors using the data of the Federal Statistics Service
Inflation	Inflation	%	Calculated by the authors by using the data of the Federal Statistics Service
Rate	Annual average key rate	%	Calculated by the authors by using the data of the Central Bank

Source: developed by the authors using the data retrieved from EMISS (<https://www.fedstat.ru>), the Federal State Statistics Service (<https://gks.ru>), and the Central Bank of Russia (<https://cbr.ru>).

Table 2

CD-test result

Variable	CD-test	p-value	average	mean p	mean
Employment	155.408	0.000	20.98	0.58	0.60
Social spending	258.773	0.000	20.76	0.97	0.97
Migration	49.851	0.000	21.00	0.19	0.43
GRP per capita	240.871	0.000	19.69	0.93	0.93
Inflation	227.454	0.000	20.00	0.87	0.90
Rate	254.277	0.000	19.00	1.00	1.00

Source: authors' calculations

Table 3

Slope homogeneity test result

	Delta	p-value
	13.571	0.000
adjusted	17.928	0.000

Source: authors' calculations

At the preliminary stage, we conduct a series of tests on our dataset. Firstly, the outcomes of the cross-sectional dependency test (Pesaran, 2004, 2013), as displayed in Table 2, reveal a pronounced issue of cross-sectional dependency, given the considerable correlation among regional panels. To tackle this cross-sectional dependency concern, we augment our model specifications with spatial fixed-effects. These fixed-effects are computed as the average values for Russia in a particular year for each spatial-varying independent variable.

According to the results of the slope heteroscedasticity test (Pesaran & Yamagata, 2008) pre-

sented in Table 3, the high heterogeneity bias is found in the model specification.

To address the existing heterogeneity, we employ simultaneous quantile regression with bootstrapped standard errors. This quantile-based approach allows us to estimate the effects of various determinants on different employment quantiles, effectively accounting for the pronounced heteroscedasticity within the regional dataset (Koenker, 1978). The econometric model (Equation 1) is employed to gauge the influence of government expenditures on social policy and inter-regional migration on employment.

$$Q_{Employment_{it}}(\tau|X_{it}) = \alpha(\tau) + \beta_{1i}(\tau)SocialSpending_{it} + \beta_{2i}(\tau)Migration_{it} + \beta_{3i}(\tau)RegionalDummy_i + (1) + \beta_{4i}(\tau)GRPPc_{it} + \beta_{5i}(\tau)Inflation_{it} + \beta_{6i}(\tau)Rate_t + \beta_{7i}(\tau)T - vars_t + \epsilon_{it}$$

where $i = 1, \dots, 83$ indicates the number of regions; $t = 1, \dots, 21$, the time periods; $Q_{Employment_{it}}$, quantiles of the dependent variable; τ , the specific quantile (q10-q90); α is an intercept, $\beta_i(\tau)$ are slope coefficients for each variable at specific τ -quantile; $Migration_{it}$ indicates the inter-regional migration ratio; $SocialSpending_{it}$ is per capita social public spending; $GRPPc_{it}$ is per capita GRP in constant prices; $Inflation_{it}$ is the inflation rate; $Rate_t$ is the yearly average key rate of the Central Bank; $T - vars_t$ is the vector of cross-correlation effects (estimated for each indicator as the mean value for Russia during a specific period).

Results and Discussion

Table 4 shows the results of our analysis using simultaneous quantile regression with bootstrapped standard errors. The upper quantiles represent regions with higher employment rates, while the lower quantiles include areas facing greater employment challenges. In the lower quantiles (Q10-Q30), the impact of migration is not significant, but it becomes negative and significant in the medium (Q40-Q60) and upper (Q70-Q90) quantiles.

Regions with higher employment rates tend to attract more migrants, which increases the ratio of arrivals to departures. However, this doesn't necessarily lead to more job opportunities for new-

comers. Instead, it often results in a larger population and labor force, which can actually decrease employment rates. This negative impact of migration indirectly suggests that local residents and migrants don't replace each other in the job market.

Interestingly, we find that public spending on social policies stimulates employment in regions within the upper quantiles (Q50-Q90), which means that federal policies can help boost regional employment. These regions also tend to have higher economic development and employment rates. For example, the 90% quantile includes resource-rich areas like Kamchatka region, the Khanty-Mansyisk, Nenets and Yamalo-Nenets autonomous regions, as well as bustling economic hubs like Moscow region and the federal cities of Moscow and St. Petersburg. These regions offer better job prospects and higher wages, motivating residents to seek employment.

Moreover, in resource-rich areas such as Tyumen region, specialized educational and training programs are provided to prepare highly skilled workers for industries like resource extraction. Additionally, government spending on social policies includes support for maternity leave with job retention, which helps maintain employment rates.

Table 4

Estimation results for simultaneous quantile regression analysis

Variable	Q10	Q20	Q30	Q40	Q50	Q60	Q70	Q80	Q90
Migration	1.175 (1.480)	-1.054 (0.972)	-0.793 (0.597)	-1.042** (0.478)	-1.228*** (0.362)	-1.560*** (0.324)	-1.652*** (0.377)	-2.332*** (0.574)	-2.677*** (0.547)
Social spending	-4.491*** (1.391)	-1.656* (0.869)	-0.0643 (0.653)	0.610 (0.498)	1.004** (0.451)	1.340*** (0.510)	1.739*** (0.511)	2.010*** (0.554)	1.818** (0.717)
Regional dummy	-0.179 (0.558)	0.925*** (0.342)	1.580*** (0.266)	1.816*** (0.250)	2.217*** (0.204)	2.514*** (0.227)	2.472*** (0.245)	2.857*** (0.264)	3.102*** (0.287)
GRP per capita	7.139*** (0.693)	5.427*** (0.529)	4.605*** (0.373)	4.256*** (0.302)	4.069*** (0.329)	4.027*** (0.424)	3.954*** (0.426)	3.808*** (0.465)	4.388*** (0.495)
Inflation	-0.0102 (0.0974)	-0.00817 (0.0612)	-0.00942 (0.0418)	-0.0448 (0.0459)	0.000309 (0.0435)	-0.0169 (0.0446)	0.0359 (0.0348)	0.0269 (0.0347)	0.0357 (0.0357)
Rate	0.0905 (0.161)	0.0513 (0.0908)	0.0237 (0.0757)	0.0348 (0.0657)	0.0454 (0.0596)	0.0242 (0.0573)	0.0627 (0.0550)	0.0245 (0.0580)	-0.0140 (0.0592)
Constant	-8.687 (60.60)	-35.66 (28.55)	-34.00 (22.11)	-42.23* (21.67)	-54.83** (23.80)	-48.48** (24.29)	-57.82*** (20.63)	-45.85* (24.64)	-20.15 (29.49)
Common correlation effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
Obs.	1555	1555	1555	1555	1555	1555	1555	1555	1555

Note: standard errors in parenthesis; level of significance: *** - $p\text{-val} < 1\%$, ** - $p\text{-val} < 5\%$, * - $p\text{-val} < 10\%$. Common correlation effects are included into the model specification to eliminate the CD-bias.

Source: authors' calculations

Contrarily, slope coefficients for social spending exhibit insignificance within the medium quantiles (Q30–Q40), while manifesting negative significance within the lower quantiles (Q10–Q20). These outcomes validate the inefficacy of social policy in incentivizing employment rates in regions facing more pronounced employment challenges. Our findings align with Fialová & Mysíková (2009), as government spending on social policy, encompassing benefits, subsidies, pensions, scholarships, and similar provisions, can potentially discourage economic agents from entering the labor market (van der Ploeg, 2006). For instance, increased scholarships may diminish students' motivation to seek employment until graduation. Furthermore, Hagedorn et al. (2015) contend that unemployment benefits can prolong joblessness and inadvertently hinder employment growth, as benefit recipients tend to rely on financial support throughout their unemployment period.

The impact of GRP per capita, on the other hand, exhibits consistent positivity and significance across all quantiles. Elevated economic development evidently contributes to employment among Russian regions, with the most pronounced slope coefficients observed at the 10% and 20% quantiles. Notably, economic development emerges as the predominant catalyst for stimulating employment in regions struggling with lower employment rates. Consequently, we recommend that effective government policy should involve the stimulation of business activity and regional economic development to foster labor demand and regional employment—a proposition supported by Saviotti & Pyka (2004) and corroborated by subsequent findings for Taiwan (Chen, 2014) and Algeria (Bouazza, 2015). Inflation and the key rate, as per the regression results, exhibit no significant impact on employment rates.

Continuing our exploration of the factors' impact on employment in Russian regions, we computed the contribution effects of the variables of interest. To this end, we calculated the difference between the mean value of each variable in 2021

and its corresponding mean value in 2000, based on descriptive statistics for the lowest (Q10), medium (Q50), and highest (Q90) quantiles (Table 5). The derivation of contribution effects involves the multiplication of the slope coefficients (Table 4) by the change in the independent variable relative to the change in the dependent variable (Equation 2).

$$\text{Contribution effect} = \beta_i(\tau) * \frac{\Delta X}{\Delta Y}, \quad (2)$$

where $\beta_i(\tau)$ indicates the slope coefficient for independent variable at specific quantile; ΔX , the change in the independent variable (2021 compared to 2000); and ΔY , the change in the dependent variable (2021 compared to 2000).

The contribution effects reveal that at the lowest quantile, social policy has a negative impact on employment, decreasing it by 6.4%. On the other hand, economic development, represented by real GRP per capita, contributes to a 2.6% change in the dependent variable. Migration does not show significance in the econometric model. However, across all quantiles, we observe a negative shift, indicating a decrease in inter-regional migration during the given period. At the medium quantile, all indicators listed exhibit positive contribution effects. Public spending on social policy, inter-regional migration, and GDP per capita contribute, on average, 0.9%, 0.4%, and 1% respectively to the employment level. Interestingly, public spending on social policy demonstrates the highest contribution effect (1.4%) at the highest quantile, while inter-regional migration negatively affects employment rates by 0.4%.

Our analysis also confirms that spatial location impacts employment rates. Over the past three decades, eastern regions of Russia have experienced a population outflow towards western regions. Our study highlights significantly higher employment rates in western regions compared to their eastern counterparts at all quantiles Q20–Q90.

Table 5

Contribution effects

Quantile	Change (2021 compared to 2000)			Contribution		
	p10	p50	p90	p10	p50	p90
Employment	3.00	4.40	5.10	-	-	-
Social spending	4.28	3.97	3.85	-6.4	0.9	1.4
Migration	-1.36	-17.13	-10.53	-1.2	0.4	-0.4
GRP per capita	1.08	1.09	1.30	2.6	1.0	1.1

Source: authors' calculations

Table 6

Estimation results for simultaneous quantile regression analysis

Q10	Q20	Q30	Q40	Q50
Adygea Republic, Chechen Republic, Dagestan Republic, Ingushetia Republic, Tyva Republic	Altai Republic, Altai region, Buryatia Republic, Kurgan region, North Ossetia, Trans-Baikal region	Jewish Autonomous Region, Rostov region, Ryazan region, Tambov region	Krasnodar region, Bashkiria Republic, Saratov region, Volgograd region, Voronezh region	Kursk region, Novosibirsk region, Orenburg region, Omsk region, Perm region,
Q60	Q70	Q80	Q90	
Arkhangelsk region, Chuvash Republic, Ivanovo region, Smolensk region, Primorsky region	Kaliningrad region, Khabarovsk region, Lipetsk region, Sverdlovsk region, Vladimir region	Leningrad region, Nizhny Novgorod region, Samara region, Sakhalin region, Tatarstan Republic, Udmurtia Republic	Kamchatka region, Khanty-Mansi Autonomous Region, Moscow, Moscow region, Murmansk region, Nenets Autonomous Region, St. Petersburg, Tyumen region, Yamalo-Nenets Autonomous Region	

Source: authors' calculations

Furthermore, considering regions with similar employment levels and GRP per capita, included in the same quantile, the disparity between western and eastern regions widens as the quantile increases.

Table 6 presents the regional distribution among quantiles. The upper quantiles (Q70-Q90) encompass regions with the highest employment rates from 2000 to 2021. Employment rates in these regions exceed 68% at the 90% quantile. Notably, the Chukotka Autonomous Region often boasts employment percentages surpassing 80% in most years.

Medium quantiles (Q40-Q60) encompass regions with employment rates spanning from 59.5% to 64.4%. Conversely, the lower quantiles (Q10-Q30) encompass regions facing significant employment challenges. Notably, the employment rates in the Chechen and Ingushetia republics fell below 20% throughout the given period.

Conclusion

In this study, we sought to estimate the influence of government spending on social policy and inter-regional migration on employment rates across Russian regions, unraveling key relationships between these indicators. Our findings show the marked heterogeneity in employment rates among regions, prompting the adoption of simultaneous quantile regression with bootstrapped standard errors to alleviate any bias stemming from this variability.

Empirical evidence validates our primary hypothesis, affirming the positive contribution of public expenditures on social policy towards bolstering employment. However, our secondary hypothesis is rejected as we found a significant adverse effect of inter-regional migration in regions characterized by moderate to relatively high

employment rates. Although regions grappling with pronounced employment challenges seem minimally impacted by inter-regional migration, the coefficient retains a negative sign.

Our study highlights the efficacy of government social spending in augmenting employment rates. Yet, our empirical study reveals that such spending exhibits counterproductivity in regions dealing with lower employment rates. Drawing from our estimation outcomes, we offer pertinent policy implications. Primarily, we recommend that government regional policies should focus on creating conducive conditions in regions with lower employment rates, especially in the eastern territories, to mitigate migration outflows and foster inter-regional equilibrium.

Furthermore, our study underscores the need for diversification in social policy, recognizing an incentive effect in regions characterized by higher employment rates. However, we have shown that government spending on social policy hampers employment growth in regions with lower employment levels. For these regions, the most important requirement is to boost economic development by increasing production and business activity. Such measures not only attract labor but also ameliorate employment prospects, aligning with initiatives like the “National Economy” national project and tailored place-based policies.

Our current findings may be used for future investigations into employment dynamics among Russian regions. Potential avenues for research include looking into the impact of international migration and the assessment of labor competition's influence on employment through the analysis of both internal and external migration patterns.

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