REGIONAL MODELS OF CORPORATE SECTOR DEVELOPMENT IN RUSSIA: WHERE DOES FAMILY-FRIENDLY POLICY MATTER MOST? (A STUDY BASED ON CLUSTER ANALYSIS)

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KEYWORDS

ABSTRACT

Despite being popular across the world, the concept of family-friendly policy is not associated with business in Russia. Our research focuses on the corporate sector and its potential to change the demographic context in Russia. The aim of the study is to identify regional models of the Russian corporate sector development and suggest pilot regions to start family-friendly policies aimed at increasing the birth rate. We used variables which characterise the corporate sector development in Russian regions and applied the hierarchical cluster analysis. Regional values of the indicators for all 85 Russian regions were analysed. We revealed 5 clusters and then additionally profiled the clusters selected according to the Total Fertility Rate. The analysis allowed us to identify two clusters of Russian regions which may become pilot ones when promoting family-friendly policy practices in their enterprises. We argue that a family-friendly policy in these clusters' enterprises might become: relevant for employees; quite affordable for enterprises; a new effective tool of the demographic policy since the birth rates here are the lowest in Russia.

INTRODUCTION

Russia has extensively pursued a pro-natalist policy and introduced new measures to increase the birth rate and support to families with children; the number of people eligible for the support and the amount of benefits are increasing, too. The country has also started to implement a large national project "Demography", which includes a number of steps from the government to improve some demographic indicators. Despite the effort, the birth rate is not growing—in 2015–2020, the Total Fertility Rate (TFR) in Russia fell from 1.777 to 1.505, which is 15.4% (Total Fertility Rate data 2021).

We argue that one of the reasons behind the failure is that the demographic policy is poorly supported at the other levels of the socio-economic structure. Education, non-profit organisations, business, and other social institutes could contribute to the demographic policy

development since they are as concerned with the outcomes as the government. These institutes could both contribute to the demographic policy and reinforce it; thus, enhance its effectiveness.

Our research focuses on the corporate sector and its potential to change the demographic context in Russia. Despite being popular across the world, the concept of family-friendly policy is not associated with business in Russia. Instead, the corporate sector embraces the ambiguous notion of social responsibility, which rarely involves demographic aspects. Meanwhile, studies from different countries prove that pursuing a family-friendly policy has multiple effects on employees, employers, and society in general (Breaugh and Frye 2007; Kim and Yeo 2019; Vysniauskiene and Braziene 2017).

Researchers agree that one of the aims of this policy is to mitigate the conflict between family and work, which is today a pressing issue for women with children (Jang and Ahn 2021; Feeney and Stritch 2019; Yu 2019). However, developing this kind of policy is especially challenging in transitional economies, including Russia. Nabergoj and Pahor claim that "the coordination of work and family life is complex and depends on the interplay between factors at three different levels: governmental, organisational, and individual. The relationship between these three levels is even more intertwined in economies that have undergone economic transition from socialism to capitalism" (Nabergoj and Pahor 2016) .

We have to note, though, that family-friendly policies are mostly initiated and studied in countries with advanced economies. Researchers analyse how a family-friendly policy influences employees' satisfaction in different sectors and conclude that this influence is positive, but it is also determined by the demographic characteristics of employees (Kim and Wiggins 2011). Other studies explore how a family-friendly policy affects the image of a company and argue that a company pursuing a family-friendly policy is viewed as more attractive (Bourhis and Mekkaoui 2010). Lee and Hong evaluate how a family-friendly policy and its specific components influence turnover rates and companies' effectiveness and claim that some of the policy's programmes have a rather marked impact (Lee and Hong 2011). Callan reports on the relationship between a formal corporate family-friendly policy and an informal organisational culture (Callan 2007). In their analysis of

Slovenian business, Nabergoj and Pahor argue that some specific family-friendly practices have a profound—but with some limitations – influence on the organisational effects of companies in countries with economies in transition (Nabergoj and Pahor 2016).

While designing our research, we stemmed from the fact that 1) family-friendly policies are not widely developed by Russian companies; 2) the state demographic policy in Russia has not met its objectives yet; 3) Russian regions are highly differentiated by a number of socio-economic indicators, including those which deal with the corporate sector development. Thus, there are different models of the social and economic development within the country.

Therefore, the aim of our study is to identify regional models of the Russian corporate sector development and suggest pilot regions to start family-friendly policies aimed at increasing the birth rate.

DATA AND METHODS

For our research, we chose those variables which characterise the corporate sector development in Russian regions. They are traditionally used to characterise the economic development of the whole region. These variables are the following:

- Gross Regional Product (GRP) per capita, in roubles;
- Investment Activity in Russia (a share of organisations specialising in innovations among the total number of organisations, %);
- Share of Loss-making Organisations (% of the total number of organisations).

Also, it is important to analyse indicators which specify the actual or potential willingness of the corporate sector to meet social needs. To that end, we adopted the following indicators:

- Household Final Consumption Expenditure (families' expenditure on goods and services and the cost of consuming goods and services in kind);
- Retail Trade Turnover (per capita, in roubles).

To characterise the birth rate, we used Total Fertility Rate, which is most widely used in demographic studies.

We analysed regional values of the indicators mentioned above for all 85 Russian regions as of 2019, which is the most relevant data available. All data were extracted from an annual statistical report "Regions of Russia. Social and Economic Indicators 2021" issued by the Federal State Statistics Service (Regions of Russia. Social and Economic Indicators 2021).

To model the Russian economic space using indicators of the corporate sector, we applied the hierarchical cluster analysis. For modelling the regional economic space, we used various distance measures and distances between clusters. We compared clustering results obtained through different measures and chose those measures which allowed grouping the regions analysed most accurately.

To decide how many groups of regions to identify, we stemmed from the following:

- graphical representation of the clustering (we examined a dendrogram);
- evaluation of the between-group and within-group variability;
- cluster size (we controlled the number of regions that form a cluster to ensure that each group contained enough regions).

Variables used for clustering may be correlated, which can result in the distorted cluster structure; thus, we used the correlation analysis—based on Pearson correlation coefficients and Spearman's rank correlation—to assess whether variables are collinear. We used standard procedures to assess collinearity, which involve the correlation coefficient greater than 0.7.

As variables for clustering had different dimensions, we standardised them using the method of processing the initial data to the range of 0 to 1.

To ensure that clustering results are sound, we studied cluster centroids—medians of clustering variables. We avoided mean values, which are frequently used as cluster centroids, and referred to a non-parametric indicator because the values of clustering variables in the clusters identified were rather markedly different, which reduced the reliability of the mean value. The Median Test and Kruskal-Wallis Test were used to evaluate the statistical significance of differences between cluster centroids.

We used IBM SPSS Statistics 23.0 for our analysis.

RESULTS

We primarily focused on analysing how the indicators of the corporate sector development vary according to the region and found that these variations are either high or extremely high (Table 1). The lowest number of loss-making organisations was recorded in the Republic of Adygeya (22.6%); the highest in the Nenets Autonomous Area (59.6%). In this case, therefore, the Maximum-Minimum Ratio (MMR) accounts for 2.6. In the case of the investment activity, the MMR increases to 106. This huge regional differentiation is a precondition for forming groups of regions which differ radically by the corporate sector development; at the same time, these groups may incorporate regions with the similar values of the indicators analysed.

For clustering regions, it is important to note that some particular regions with minimax values for one indicator also showed those for some other indicator; it applies, for example, to the Retail Trade Turnover and Household Final Consumption Expenditure. Minimum values were recorded in the Republic of Chechnya, maximum ones in Moscow (Table 1). Therefore, we suggest that the indicators studied are collinear, which could result in the distorted cluster structure. To avoid negative effects from collinearity, we carried out a correlation analysis based on Pearson correlation coefficients and Spearman's rank correlation. Table 2 presents results of the analysis.

Table 1: Descriptive Statistics

Variable	Minimum		Maximum		MMR
	Value	Region	Value	Region	
Gross Regional Product, per capita, roubles	145723	Republic of Ingushetia	7530485	Nenets Autonomous Area	51.7
Household Final Consumption Expenditure, per capita, roubles	127351	Republic of Ingushetia	771175	Moscow[1]	6.1
Retail Trade Turnover, per capita, roubles	51702	Republic of Ingushetia	403426	Moscow	7.8
Investment Activity, %	0.2	Republic of Chechnya	21.2	Republic of Mordovia	106.0
Share of Loss-making Organisations, %	22.6	Republic of Adygeya	59.6	Nenets Autonomous Area	2.6

Table 2: Spearman's Rank Correlation

	Var 1	Var 2	Var 3	Var 4	Var 5
Var 1	1	0.814**	0.709**	0.199	0.006
Var 2	0.814**	1	0.930**	0.16	-0.006
Var 3	0.709**	0.930**	1	0.187	-0.092
Var 4	0.199	0.16	0.187	1	-0.397**
Var 5	0.006	-0.006	-0.092	-0.397**	1

In the Table:
Var 1 - Gross Regional Product, per capita, roubles
Var 2 - Household Final Consumption Expenditure, per capita, roubles
Var 3 - Retail Trade Turnover, per capita, roubles
Var 4 - Investment Activity, %
Var 5 - Share of Loss-making Organisations, %
** Correlation is significant at the 0.01 level (2-tailed)

[1] According to the administrative division of Russian regions, Moscow is a separate region

The analysis showed that the Gross Regional Product (per capita), Retail Trade Turnover and Household Final Consumption Expenditure are highly correlated. To avoid possible clustering bias, we retained only one variable for further analysis – Household Final Consumption Expenditure. We argue that it characterises the regional economy's and corporate sector's focus towards meeting the social needs to the greatest extent.

Thus, we conducted the cluster analysis based on the following variables:
- Household Final Consumption Expenditure, per capita, roubles;
- Investment Activity in Russia, %;
- Share of Loss-making Organisations, %.

The clustering was based on Ward's method and the Euclidean distance – these measures showed the best differentiation power and allowed us to identify five clusters of regions. Graphically, the clustering is presented in Appendix 1 as a dendrogram; characteristics of the cluster centroids as median values are shown in Table 3. The statistical significance of differences in cluster centroids was tested with a non-parametric median test; results are presented in Table 4. According to our results, differences in the median values of the clustering variables in the groups of regions were statistically significant.

Table 3: Cluster Centroids: Median Values

Cluster	Household Final Consumption Expenditure per capita, roubles	Investment Activity, %	Share of Loss-making Organisations, %	Total Fertility Rate
1 (7 regions)	299 709	4.6	46	1.583
2 (19 regions)	494 911	7.2	35.7	1.572
3 (30 regions)	318 587	10.4	32	1.413
4 (10 regions)	361 235	14.9	27.5	1.352
5 (19 regions)	282 575	4.6	33.3	1.594

Table 4: Test Statistics (Median Test)

	Household Final Consumption Expenditure, per capita, roubles	Investment Activity,%	Share of Loss-making Organi-sations, %
Median	320128	8.1	32.9
Chi-Square	33.054	48.07	26.464
df	4	4	4
Asymp. Sig.	0	0	0

Table 5: Spearman's Rank Correlation of Regional Birth Rates

	TFR 2018	TFR 2019	TFR 2020
TFR 2018	1	0.965**	0.945**
TFR 2019	0.965**	1	0.966**
TFR 2020	0.945**	0.966**	1

** Correlation is significant at the 0.01 level (2-tailed)

Proceeding to the most significant characteristics of the clusters identified, we believe that the most problematic clusters turned out to be Clusters 1 and 5. They include regions with the lowest level of the corporate sector development. The investment activity in these regions is equally low – and the lowest among other clusters. At the same time, regions in Cluster 1 have the highest share of loss-making enterprises; regions in Cluster 5 show the lowest Household Final Consumption Expenditure.

Cluster 4, on the other hand, includes regions with the highest level of the corporate sector development. The regions in this cluster show the highest investment activity and the lowest share of loss-making enterprises. The Household Final Consumption Expenditure here is effectively the highest among other clusters.

Clusters 2 and 3 are in between, having mid-level and statistically significant differences in the investment activity, and the share of loss-making organisations. Remarkably, Cluster 2 boasts the highest Household Final Consumption Expenditure.

Further, we additionally profiled the clusters selected according to the Total Fertility Rate. Its median values in each cluster are shown in Table 3. Conspicuously, two most challenging clusters have the highest TFR, and the most unproblematic Cluster 4 displays the lowest TFR.

We hypothesised a lag effect in the correlation between the level of the corporate sector development and the birth rate. Potentially, the analysis with the lag effect considered may reveal other peculiarities in the distribution of birth rates in the clusters identified. Clearly, to explore this effect, more specific and deeper research is needed. To a first approximation, we verified the hypothesis by analysing regional TFRs for adjoining years. Table 5 presents results of the correlation analysis of regional TFRs for 2018–2020. As is evident, all three variables are highly correlated; therefore, even with ±1-year lags, similar patterns may be found in the distribution of birth rates in the clusters identified.

DISCUSSIONS

The analysis allowed us to identify two clusters of Russian regions – Cluster 3 and 4 – which may become pilot ones when promoting family-friendly policy practices in their enterprises. These clusters have a distinctly low birth rate and a relatively high level of the corporate sector development (i.e., high investment activity and low share of loss-making enterprises). Moreover, we observed a moderate level of the Household Final Consumption Expenditure within these clusters, which might indicate an average living standard for Russia. A family-friendly policy in the third and fourth clusters' enterprises might become, firstly, relevant for employees (since the final expenditure here is not the highest in Russia); secondly, quite affordable for enterprises (as the corporate sector here has a higher investment activity and makes fewer losses than organisations in other regions of Russia); thirdly, a new effective tool of the demographic policy since the birth rates here are the lowest in Russia.

A family-friendly policy traditionally consists of 4 programmes (Bourhis and Mekkaoui 2010):
- Measures to support employees' family members (children, parents);
- Measures to enable leave-taking (parental, personal, or family leave);
- Measures to introduce various family programmes for employees (counselling, leisure time organisation);
- Measures to introduce flexible work arrangements.

It appears that any of these measures could be used by the corporate sector in Russian regions from Clusters 3 and 4. However, when developing, implementing, and promoting these measures, it is crucial to emphasise their novelty and innovation for the Russian corporate sector and that employees should be seen not only as actors of qualified labour, but also as human beings with family responsibilities. In Russia, where the negative natural population increase has already exceeded 1 million people in 2021 – for the first time since 2000 – it is of high relevance to deliver a message to the population when introducing new instruments. It could be the following: the corporate sector introduces a family-friendly policy because it has realised that the top priority of their employees is their families – and this is what HR and social corporate policies rest on. Consequently, it is the corporate demographic policy that should be seen as a key element of the social responsibility policy.

Proceeding from at least two scientific theories, we suggest that this new instrument of the demographic

policy can be effective in Russia. The first theory is the neo-institutional sociology, which assumes that organisations are structured by phenomena in their environment and are usually isomorphic to that environment (Meyer and Rowan 1977). Organisations and the environment they operate in are interlinked and interchanging, which results in a certain mutual correspondence between organisations and the environment. This theory may explain why the corporate sector in the regions with the lowest birth rates may respond to demographic problems and introduce a new element in social responsibility policies (or initiate such policies from a demographic perspective).

The second theory is the social exchange theory, which suggests that people tend to avoid activities that would involve them in unfair exchanges; in doing so, they tend to perform activities that are rewarded by fairness. Moreover, a failure to perform these rewarding activities is considered a loss to them (Homans 1961). This theory explains why the introduction and promotion of family-friendly policies in the corporate sector can be an effective tool for stimulating birth rates in the regions of Russia.

Our study is pilot; we realise that, to estimate the potential effectiveness of a family-friendly policy in Russian regions, it is necessary to consider a variety of factors. For example, these factors may deal with regional demographic processes (the migration level, population ageing, etc.), the development of the infrastructure for families with children, existing regional support measures, people's religious beliefs, and others. Additionally, there may be revealed more valid indicators to characterise the level of the corporate sector development in the regions. In our research, we focused on the indicators which are used in Russian regions' economic studies most frequently.

Enhancing the state demographic policy by promoting a family-friendly policy in Russian companies is also affected by the regional demographic potential. In this context, a crucial indicator may be a structure of the region's population and a share of childbearing-age women.

CONCLUSIONS

Our study yielded the following conclusions:

1) When developing demographic, social, and economic policy measures, it is important to take into account that Russian regions are heterogeneous, which results from the high differentiation of many socio-economic and demographic indicators. Indeed, such heterogeneity means that it is impossible to develop universally effective measures of state support and birth rate stimulation. On the other hand, despite the high differentiation, there are still regions in Russia with a similar socio-economic and demographic situation and with similar models of demographic dynamics. Identifying and describing such models is necessary for enhancing the demographic policy.

2) We argue that the cluster analysis is effective for modelling the Russian demographic space to enhance state demographic policy measures. It involves the distribution of objects into homogeneous groups (i.e., clusters). More importantly, objects can be grouped using several variables, and clustering can be based on both quantitative and qualitative variables that have different dimensions.

3) In our study based on the cluster analysis, we identified groups of Russian regions where family-friendly policies may be the most relevant for the corporate sector personnel, quite affordable for enterprises, and effective as a new demographic policy instrument.

We argue that our results lay the foundation for more comprehensive and detailed research with aforementioned areas considered – that is, searching for and selecting the most valid indicators of the corporate sector development, identifying a range of determinants of the family-friendly policy effectiveness in Russian regions, exploring a family-friendly policy as a potential birth rate factor.

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Appendix 1: Clustering Dendrogram