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Marta Orviská a Juraj Nemec

INTRODUCTION

This special issue of our journal publishes articles prepared by PhD students from our partner institution – Faculty of Economic and Administration, Masaryk University Brno. For some of them this is their first academic publication and the start of their academic carrier. We acknowledge that one of roles of our journal is to support the development of publishing skills of young doctoral students. This issue represents one step forward in this direction.

Marta Orviská and Juraj Nemec

OBSAH

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FISCAL DECENTRALIZATION AND INCENTIVES OF LOCAL AUTHORITIES IN THE RUSSIAN FEDERATION

FIŠKÁLNA DECENTRALIZÁCIA AKO MOTIVÁCIA MIESTNYCH SAMOSPRÁV V RUSKEJ FEDERÁCII

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Abstract

This article examines the impact of intraregional fiscal decentralization on fiscal incentives for local governments in the Russian Federation. It is expected that decentralization contributes to the economic development of territories through two channels: 1) a higher level of budgetary (tax) decentralization gives more opportunities to local authorities to realize the economic potential of the territory; 2) stable decentralization of revenue sources preserves incentives for local authorities to realize such opportunities. In comparison with the widespread approach to measuring these incentives in terms of gross regional product, the author uses indicators of entrepreneurship, the development of which is mostly within the competence of local authorities. As a measure and stability of decentralization, the norms for deducting revenues to local budgets are used. No clear and conclusive evidence of the impact of decentralization is found: due to the low financial security of subnational budgets as a whole, the transfer of standards can rather be understood as financial assistance to the lower budget, in particular because the size of the average transferred standard grows with the level of subsidies in the region. At the same time, there are certain positive results: the very fact of the transfer of the revenues levied in connection with the application of the simplified taxation system is accompanied by an increase in entrepreneurial activity in the region. A similar effect is exerted by the stability of the revenues on personal income tax and corporate property tax. In general, it can also be pointed out that local authorities have low indicators of the level and stability (rigidity) of budget decentralization.

Key words: fiscal decentralization, hard budget constraints, soft budget constraints, fiscal incentives, local governments, entrepreneurship

JEL Classification: H61, H70, H71

INTRODUCTION

Over the past 50 years, fiscal decentralisation has been one of the key elements of reforms in both developing and developed countries of the world. From 1985 to the present, all member states of the Council of Europe (47 countries, including the Russian Federation - since 1996.) signed the European Charter of Local Self-Government, according to which the local authorities of the countries should receive administrative, financial and political independence. According to classical views, such decentralisation is conditioned not only by the goals of increasing the efficiency of the public sector of the economy, improving the quality of local public services, as well as private services provided in a public way (Oates, 2005), but also by creating conditions conducive to the emergence of incentives for subnational governments to support economies in their territories in order to accelerate economic growth (Martinez-Vazquez, McNab, 2003).

According to the data for 2016, the fiscal decentralisation of local budgets in OECD countries relative to Russia was higher: their share in the tax revenues of the state was 10.8%, and the level of independence in regulating rates and tax bases was 81.0%, while in Russia the significance local budgets in tax revenues turned out to be almost two times lower. Nevertheless, both in Russia and on average across the OECD countries, local budgets are much less important in comparison with regional ones: the share of the regional budget level in the tax revenues of the state, on average for the federal OECD countries, is 2.2 times higher than the share of local budgets, and in Russia, this difference reaches 6.9 times.

This article analyzes the impact of intraregional decentralisation of tax revenues on the economic incentives of local authorities. The study examines the level of fiscal (income) decentralisation and its stability. According to our assumption, these parameters of decentralization affect the economic incentives of local authorities, which can be expressed through the parameters of entrepreneurship development. According to the key legislation of the Russian Federation (Law No. 131 “On General Principles of Organization of Local Self-Government in the Russian Federation”), the economic policy of local authorities is very limited, and it includes assistance to the development of small and medium-sized

businesses. The proposed approach introduces a relatively new view of the impact of decentralization from the standpoint of stability and also considers the local level of power and the corresponding indicator of economic policy, while in the bulk of research, the main parameter is the GRP at the regional level.

The structure of the article includes: 1) literature review on a theoretical and empirical backgrounds; 2) research methodology with the argumentation of the chosen approach; 3) results, including a preliminary analysis of the situation and final empirical assessments.

1 THEORETICAL FRAMEWORK

The basic ideas of decentralisation and inter-budgetary relations are described by the long-established principles of budgetary federalism: subsidiarity (Boadway, Shah, 2009; Oates, 1999), compliance (Oates, 1972), taxation of benefits (Oates, Schwab, 1988) and economies of scale (Olson, 1969). However, today there are also more complex ideas and are developing, which include the theory of "Market-preserving federalism" and the concept of "hard" budget constraints, which are a solution to the problem of "soft" budget constraints.

In (Lavrov, 2019), "soft" budget constraints mean "the ability and interest of" regulators "(" principals "), on the one hand, to seize financial results of activities in their favor, for example, additional income or cost savings" subordinate "to them, formally or in reality," administrators "(" agents "), and on the other hand, to provide them with non-formalized and non-transparent financial support in the event of their ineffective activity." In a narrower sense, the term is set forth in (Vigno M. et al., 2006), where the situation of "soft" budget constraints implies "that initially a fixed budget constraint was set for the actions of an economic agent, but additional financing not provided for by the initial conditions leads to a change budget constraints - to mitigate it". One way or another, these definitions reflect the essence laid down by Kornai, the author of the problem of "soft" budget constraints, which consists in the loss of incentives for agents, or in the case of local authorities, in the loss of interest in making effective decisions (Kornai et al., 2004).

The theory of "Market-preserving federalism" is more supportive of considerations of "efficiency" and emphasizes the ability of the federal government to limit the confiscation of wealth of subnational governments, followed by increased competition between them to attract investment and increased interest of regional authorities in pursuing policies oriented towards economic reform and promoting economic growth. According to (Weingast, 2009), "market-preserving federalism" must satisfy the following conditions: (1) clear delineation of

powers, (2) autonomy of fiscal policy of subnational authorities, (3) powers to control the common market at the national level, (4) "Hard" budget constraints, limited distribution of income between levels of government, (5) stable distribution of powers. From the above points, it follows that a higher and more stable decentralisation (autonomy) should contribute to the emergence of incentives for local authorities to develop.

2 EMPIRICAL BACKGROUND

There are number of works, to one degree or another, related to the study of Russian budgetary federalism from the point of view of the problems at hand.

The study (Enikolopov, Zhuravskaya, 2007) confirms the hypothesis that fiscal decentralisation leads to more efficient management, better public goods and higher economic growth. The results (Alexeev, 2016) show that decentralisation of expenditures is positively associated with regional economic growth in Russia, which suggests that Russian regions could benefit from further transfer of expenditures to municipalities. The work (Deryugin et al., 2017) notes that budget decentralisation, in which lower levels of government have a significant number of powers due to efficiency and flexibility, as well as openness to reforms, promotes investment and an increase in the quality of human capital. In addition, using the example of Russia, it is shown that a large volume of interbudgetary transfers and a low dependence of local budget expenditures on local tax potential underestimate the effective level of local budget decentralization (Timushev, 2018). The lack of independence of regional and local authorities in the implementation of expenditure powers and the tendency of the fall of local budget decentralisation in Russia in 2009–2016 additionally weaken the fiscal incentives of the local economy development available to the authorities of the regions and municipalities.

The work (Alexeev et al., 2019) revealed that the increased dependence of municipal budgets on transfers from the regional government leads to an increase in the deficit of the consolidated regional budget, which supports the logic of "soft" budget constraints. The study (Sinelnikov-Murylev et al., 2006) examines hypotheses about the presence of "soft" budget constraints in Russian regions through the analysis of accounts payable, which has a positive effect on the amount of federal financial assistance, which indicates the presence of "soft" budget constraints. The article (Kudri, Deryugin, 2018) concludes that in the post-crisis period of 2008-2009 (under conditions of softer budget constraints) medium-income regions without sufficient income potential increased their debt burden to a greater extent than this was done by regions with high and low

budgetary security. This is due to the fact that underdeveloped regions traditionally attract more attention from the federal center and have stricter legislative restrictions (including in terms of deficit and debt burden), while highly developed regions have more financial resources to go through such periods.

In the more fundamental work of Lavrov (2019), along with the criteria related to interbudgetary transfers (prevention of "dependency" in the equalization of budgetary provision and the absence of informal financial support), the stability of income standards for local budgets is also considered. Based on the totality of the criteria, it is concluded that "in general, local budgets, to an even greater extent than regional budgets, are in conditions of "soft" budget constraints, which has led to quite expected negative consequences for them and for the entire budget system" (Lavrov, 2019, p. 163).

The problem of incentives for local authorities can be viewed from different positions, but in recent years, as an element of effective decentralization in the Russian Federation, more and more attention has been attracted by the norms of deductions from federal and regional taxes and fees established by the state authorities of the constituent entity of the Russian Federation. In the Methodological Recommendations of the Ministry of Finance of Russia, the transfer of income to the local level in this way (through additional standards) is also considered as the best choice in terms of stimulating the development of municipalities. According to the results of individual studies, such a position is related to both uniform and differentiated standards (Arlashkin, 2020), but according to the results of others, differentiated standards can be considered rather as financial assistance or the remainder of "regulatory" taxes (Lavrov, 2019, p. 106). Nevertheless, in practice, the constituent entities of the Russian Federation most often combine these types of standards. This is due, for example, to the fact that the use of a differentiated personal income tax rate does not always allow achieving the required minimum rate of 15% for the region, since the largest volume of revenues is collected from non-subsidized territories. The use of a differentiated personal income tax rate can also be considered as a solution to the problem associated with the payment of this tax at the place of work, and not at the place of residence, when there is a territorial unevenness of its distribution (Lavrov, 2019, p. 111).

3 RESEARCH METHODOLOGY

The idea of this study is that local authorities in the Russian Federation have generally weak opportunities to influence the economic growth of the territory in terms of indicators such as GRP or budget revenues, while most studies consider these particular indicators. At the same time, the work (Escaleras, Chiang,

2017) shows that decentralization is an additional channel linking entrepreneurial activity with growth. It has been found that financial decentralization has a positive effect on the ease of starting a business, especially in developing territories. From the results of the work (Yakovlev, Zhuravskaya, 2013) it follows that more decentralized governments will implement business regulation reforms that will reduce the time, costs and complexity of regulatory processes at the stage of business creation. Empirical studies confirm the role of local government policy for the development of entrepreneurial activity in a territory in which their fiscal and political autonomy also has a certain value (Smith, 2010). In the Russian Federation, the indicator of SME development is also included in the list of indicators for assessing the performance of local self-government bodies in urban districts and municipal districts, based on the results of which local bodies can receive incentive grants.

The study (Barinova et al., 2018) notes that a comprehensive model of the econometric study of SMEs has not yet been developed, but it is advisable to take into account the basic factors of entrepreneurial activity in it:

- the availability of human capital (the unemployment rate), which, "on the one hand, indicates poor economic conditions and a higher risk of failing in business, and on the other hand, indicates the availability of free human resources to engage in entrepreneurship, most often forced" (Barinova et al., 2018);
- the level of economic development (gross regional product (GRP) to the population), which "as an indicator of the standard of living, the solvency of the population and the volume of consumer markets contributes to the development of entrepreneurship" (Barinova et al., 2018);
- agglomeration effects (population density and urban population share), which, on the one hand, guarantee high demand and provide access to sales markets, and on the other hand, due to higher concentration and appropriate competition, can create barriers to market entry;
- features of the structure of the economy (the share of the extractive industry in GRP), which may consist in the presence of a significant raw material sector, which, on the one hand, may lead to monospecialization and a decrease in the density of economic activity, and on the other hand, the purchasing power may be higher in raw material regions, which stimulates the development of entrepreneurship.

By adding the variables of interest to the approach under consideration (the level and dynamics of standards), we can find a more accurate connection with the development of entrepreneurship. We formalize our hypotheses.

1. Higher standards of deductions of tax revenues transferred to the local level contribute to higher incentives for local authorities to pursue an effective economic policy, which has a positive impact on the level of SME development.

2. The transfer of the norms of deductions of tax revenues to the local budget level on a more stable basis contributes to the preservation of higher incentives for local authorities to pursue effective economic policy, which has a positive impact on the level of SME development.

To study this relationship, we will use the panel data model (1) for the subjects of the Russian Federation for the period 2010-2018, while excluding federal cities from the sample due to the different system of local self-government, as well as regions with extremely high values of some budgetary and economic indicators that stand out strongly against the background of the general sample.

$$EA_{it} = \text{const} + \alpha_1 \text{GRP}_{it} + \alpha_2 \text{Unempl}_{it} + \alpha_3 \text{POPdensity}_{it} + \alpha_4 \text{Citizens}_{it} + \alpha_5 \text{ExtractIND}_{it} + \alpha_6 \text{TestVariables}_{it}, \quad (1)$$

where: i – the subject of the Russian Federation; t – the time period (year); EA-entrepreneurial activity (the number of small (including micro) enterprises in the region per 1 thousand economically active population (labor force) of the subjects of the Russian Federation); GRP – the level of regional development (GRP taking into account interregional differences in the price level) to the population, rubles per person); Unempl – the availability of labor resources for entrepreneurship (the unemployment rate according to the ILO methodology on average for the year,%); POPdensity – agglomeration effects associated with the concentration of economic activity (population density, people per 1 km); Citizens – agglomeration effects associated with the concentration and diversification of economic activity (the share of the urban population in the total population,%); ExtractIND – features of the structure of the regional economy (the share of the extractive industry in GRP,%); TestVariables – the studied (tested) variables: Perstax/PerstaxSD – the standard of deductions to local budgets from personal income tax / its standard deviation for the period; Corpprtax/Corpprtaxfact/CorpprtaxSD – corporate property tax / its presence / its standard deviation for the period; Specialtax/SpecialtaxSD – total income tax standards / its standard deviation for the period; Simpltax/Simpltaxfact/SimpltaxSD – the standard of tax levied in connection with the application of the simplified taxation system / its presence / its standard deviation for the period; Transptax/Transptaxfact/TransptaxSD – the standard for transport tax / its presence / its standard deviation for the period; Alltaxes/AlltaxesSD – the total standard for the transferred

taxes / its standard deviation for the period; Sharegrants – the share of subsidies in the budget of the region.

4 RESULTS

Preliminary Analysis

The increased attention to the transferred standards is also due to the fact that the Ministry of Finance of Russia includes the indicator "Ratio of tax revenues of local budgets received according to uniform and additional standards of deductions from federal and regional taxes and fees established by state authorities of the constituent entities of the Russian Federation "(hereinafter referred to as the revenues of local budgets for the unified taxation system) in Monitoring the financial position and quality of financial management of the constituent entities of the Russian Federation and municipalities, which should contribute to the expansion of the use of the transfer of revenue standards to the local level.

In fact, the dynamics of this indicator on average across regions shows a slight increase from 12.8% in 2010 to 15.4% in 2018, while in 28 regions this indicator decreased (by more than 40 percentage points in Krasnoyarsk Territory, Magadan Region and the Republic of Khakassia). A relatively stable positive practice of transferring income to the local level according to the standards has developed in the Republic of Altai, Khanty-Mansiysk Autonomous Okrug, Republic of Adygea (the share of local tax revenues generated from deductions according to regional standards on average for 2010-2018 was more than 40%), and relatively low standards were observed in the Pskov region, the Republic of Mordovia and the Jewish Autonomous Region (less than 0.5%).

If we consider precisely the standards themselves, which are transferred to the local level, then there is a general decrease, which is associated, among other things, with a reduction in the minimum standard for personal income tax in 2014 by 5 pp. Thus, a decrease in the average rate of deductions to local budgets in the regions for personal income tax decreased from 41.7 to 31.5% over the period 2010-2018. There was also a decrease in corporate income tax (-1.5 percentage points), corporate property tax (-2.7 percentage points) and transport tax (-22.4 percentage points). The share of income transferred under special regimes has generally decreased, but the tax rate levied in connection with the application of the simplified taxation system showed a positive trend (+3.5 percentage points).

Table 1 Indicators characterizing the revenue of local budgets transferred from the level of the federal subjects of Russia according to the standards

Налог	2010	2012	2014	2016	2018
Revenues of local budgets according to the Ministry of Finance	12,8	7,8	12,5	12,4	15,4
The personal income tax standard	41,7	40,8	32,6	31,7	31,5
The standard of corporate income tax	1,7	0,7	0,5	0,3	0,3
The standard for the property of organizations	6,4	3,5	3,2	3,3	3,7
The standard of taxes on total income (entrepreneurship)	57,4	49,0	47,7	46,7	45,1
including the tax levied in connection with the application of the simplified taxation system	25,0	19,4	20,7	22,3	28,5
The standard of the transport tax.	25,5	6,6	3,5	3,0	3,1
The total standard of deductions to local budgets for the reduced taxes	25,3	23,4	19,8	18,6	17,8

Source: author's calculations based on the data of the Ministry of Finance of the Russian Federation.

According to clause 1.1 of Art. 58 of the Budget Code of the Russian Federation, if the law of a constituent entity of the Russian Federation establishes that draft budgets of municipal districts, municipal districts, urban districts, urban districts with intracity division, intracity districts are drawn up and approved for a period of three years (the next financial year and planning period), is not allowed reduction of the established unified standards for deductions to the budgets. This condition is an element of stability, but, as can be seen from the table above, in general, the standards are quite volatile, not only in the long-term horizon. From our point of view, the level and volatility of the standards under consideration has a significant impact on the incentives of local authorities, which is also noted in the Methodological Recommendations of the Ministry of Finance of Russia. In particular, "the advantages of securing additional standards for deductions for a long time are:

- the ability for local governments to independently forecast their own income for a long period and, therefore, implement long-term development programs;

- increasing incentives to increase the collection of tax and non-tax revenues and to develop the revenue base available in the territory of municipalities.

A preliminary analysis of the data on the distribution of values of the level of development of entrepreneurship (organization of small business per capita of the economically active population) by groups of regions, depending on the size

of the average standard of deductions to local budgets and its stability, suggests the following".

First, regardless of the group of regions in terms of the size of the standard and its stability, on average, there is a decrease in the level of SMEs with an increase in the share of subsidies in the consolidated budgets of the constituent entities of the Russian Federation. Second, the level of development of SMEs increases with an increase in the size of the standard deductions to local budgets only for a group of regions with a low share of subsidies in income; no such connection can be traced across the totality of regions. Third, the most stable (tough) indicators of deduction rates are not a guarantee of growth in the level of SMEs: only in half of the cases, the condition of high stability of standards increases the level of development of SMEs at a given rate. At the same time, the average stringency of standards in about 80% of cases contributes to an increase in the level of development of SMEs, and a low level in 2/3 of cases is accompanied by a decrease in the level of development of entrepreneurship at a given standard of deductions to local budgets. A similar situation can be seen when comparing the dynamics of development of SMEs: an ambiguous effect in the case of the most stable standards, rather a positive effect with an average stability of the size of the standard and a predominantly negative effect with a high volatility of standards. These results can be correlated with the study (Besfamille, Lockwood, 2008), where it was shown that excessively tight budget constraints can also lead to the fact that local authorities are afraid to take risks and introduce new projects, as a result of the possible failure of which they do not will be supported by higher authorities.

Table 2 Comparison of business development with the parameters of regional budget decentralization and its stability (trictness)

Group of subjects of the Russian Federation by the size of standards *	Number of SMEs per capita of the economically active population by group (level / dynamics)**	Group of subjects of the Russian Federation on the hardness of standards ***	Number of SMEs per capita by group (level/dynamics)
Subjects of the Russian Federation with a low share of subsidies in the consolidated budget revenues ****			
High standard	37,8/131,5	High hardness	60,0/136,9
		Medium hardness	26,0/137,5
		Low hardness	27,3/119,9
Average standard	34,8/155,1	High hardness	28,3/154,4
		Medium hardness	39,3/144,8
		Low hardness	34,5/171,3
Low standard	31,3/143,2	High hardness	28,4/144,3
		Medium hardness	33,5/153,7
		Low hardness	32,9/135,8
Subjects of the Russian Federation with an average share of subsidies in the consolidated budget revenues			
High standard	29,5/ 45,9	High hardness	-
		Medium hardness	29,5/145,9
		Low hardness	-
Average standard	27,3/142,4	High hardness	29,4/157,3
		Medium hardness	28,5/141,8
		Low hardness	24,8/134,6
Low standard	34,0/143,5	High hardness	32,4/139,8
		Medium hardness	35,6/147,2
		Low hardness	-
Subjects of the Russian Federation with a high share of subsidies in the consolidated budget revenues			
High standard	18,7/124,7	High hardness	19,6/134,4
		Medium hardness	24,3/151,2
		Low hardness	14,0/98,8
Average standard	22,7/144,3	High hardness	20,5/137,1
		Medium hardness	23,7/155,9
		Low hardness	21,5/119,0
Low standard	17,4/117,0	High hardness	17,4/117,0
		Medium hardness	-
		Low hardness	-

* Division of the subjects of the Russian Federation into groups according to the size of the standard: high (more than 23%), medium (from 19 to 23%), low (less

than 19%). The size of the standard was calculated as the ratio of the transferred volume of income for the selected taxes (personal income tax, income tax, corporate property tax, tax on total income, transport tax) at the municipal level to the volume of receipts to the consolidated budget of a constituent entity of the Russian Federation on average for 2010-2018.

** The level of development of SMEs is defined as the number of small enterprises (including micro) per capita of the economically active population (or per capita of labor force) in the constituent entity of the Russian Federation in 2018.Dynamics is calculated as the ratio of this indicator in 2018 to the level of 2010 (%).

*** Division of the subjects of the Russian Federation into groups according to the stability (rigidity) of the standard size: high (standard deviation coefficient for the standard size in 2010-2018 - less than 2.8), medium (standard deviation coefficient - from 2.8 to 4, 3), low (standard deviation coefficient - from 4.3).

**** Dividing the subjects of the Russian Federation into groups according to the share of subsidies in CB revenues: low (less than 5%), medium (from 5 to 15%), high (more than 15%).

Source: compiled by the author.

The above analysis requires clarification, since, for example, in the highly-subsidized group of regions with an average standard, regions with a higher proportion of urban population were selected than in the group with a high standard, which probably contributes to the difference in the development of SMEs.

Empirical Estimates

In the analysis of panel data, regression models with fixed effects (FE) were used with robust standard errors.

The results of modeling the dependence of entrepreneurial activity on the size of the transferred standards are presented in Table. 3. In this case, data for every second year from the period 2010-2018 were used in six specifications of the model (1). The basic control variables (GRP, Unempl, POPdensity, Citizens, ExtractIND) and the additional control variable (Sharegrants) were alternately added variables characterizing the standard of deductions for certain taxes, while the integral standard (Alltaxes) is considered in the model (1). In the case of the study of the impact of the standards for the corporate property tax (Corpprtax, model 3), the tax levied in connection with the application of the simplified taxation

system (Simpltax, model 5), as well as the transport tax (Transptax, model 6), the corresponding variables characterizing the very fact of the presence of the standard of deduction for these taxes (Corpprtaxfact, Simpltaxfact, Transptaxfact) were simultaneously included.

The results of modeling the dependence of entrepreneurial activity on the stability of the transmitted standards are presented in Table. 4. In this case, data on the stability of standards for two periods were used: 2010-2014 and 2014-2018, for which the corresponding values of the standard deviation (SD) were calculated. The level of entrepreneurial activity was measured at the end of each of the periods. In the six specifications of the model (1), variables characterizing the stability of the deduction rate for certain taxes (models 8-12) were alternately added to the basic control variables (GRP, Unempl, POPdensity, Citizens, ExtractIND), while in model 7 the stability of the standard for the entire set of taxes (AlltaxesSD) is considered.

Table 3 Assessment of the impact of the standards' size on the business activity level (EA dependent variable)

Модель	(1)	(2)	(3)	(4)	(5)	(6)
const	8,63	18,7	4,07	10,4	4,55	-1,29
	(20,1)	(18,0)	(21,8)	(20,9)	(21,7)	(21,1)
GRP	1,72e-05***	1,66e-05**	2,42e-05***	2,46e-05***	2,51e-05***	2,33e-05***
	(6,22e-06)	(6,82e-06)	(6,68e-06)	(5,88e-06)	(6,81e-06)	(6,93e-06)
Unempl	-0,045	-0,139	-0,190	-0,069	-0,198	-0,191
	(0,196)	(0,186)	(0,214)	(0,188)	(0,219)	(0,223)
POPdensity	-0,057	-0,150	-0,184	-0,006	-0,196	-0,175
	(0,298)	(0,286)	(0,321)	(0,307)	(0,325)	(0,317)
Citizens	0,354	0,277	0,348	0,219	0,341	0,423
	(0,295)	(0,266)	(0,328)	(0,302)	(0,326)	(0,327)
ExtractIND	-0,275**	-0,216**	-0,300***	-0,293**	-0,297***	-0,277***
	(0,087)	(0,083)	(0,098)	(0,078)	(0,088)	(0,090)
Sharegrants	-0,142*	-0,183**	-0,119	-0,144*	-0,131	-0,127
	(0,084)	(0,076)	(0,083)	(0,076)	(0,081)	(0,078)
Alltaxes	-0,364***	-	-	-	-	-
	(0,107)	-	-	-	-	-
Perstax	-	-0,246***	-	-	-	-
	-	(0,068)	-	-	-	-
Corpprtax	-	-	-0,102*	-	-	-
	-	-	(0,052)	-	-	-
Corpprtax-fact	-	-	-0,051	-	-	-
	-	-	(2,170)	-	-	-
Specialtax	-	-	-	-0,080***	-	-
	-	-	-	(0,021)	-	-
Simpltax	-	-	-	-	-0,0440***	-
	-	-	-	-	(0,014)	-
Simpltax-fact	-	-	-	-	1,88**	-
	-	-	-	-	(0,845)	-
Transptax	-	-	-	-	-	0,0132
	-	-	-	-	-	(0,020)
Transptax-fact	-	-	-	-	-	-2,59
	-	-	-	-	-	(1,560)
n	390	390	390	390	390	390
Adj. R^2	0,378	0,368	0,339	0,362	0,339	0,334

Note: Robust standard errors are indicated in parentheses.

** Indicates significance at the 10% level.*

*** Indicates significance at the 5% level.*

*** *Indicates significance at the 1% level.*

Source: author's calculations.

Table 4 Assessment of the impact of the standards' stability on the business activity level (EA dependent variable)

Модель	(7)	(8)	(9)	(10)	(11)	(12)
const	70,6***	87,7***	70,9***	70,5***	70,3***	69,8***
	(15,4)	(15,8)	(15,5)	(15,7)	(15,6)	(16,8)
GRP	1,86e-05*	1,31e-05*	2,07e-05**	1,97e-05**	2,00e-05**	1,86e-05*
	(9,47e-06)	(6,58e-06)	(8,80e-06)	(9,45e-06)	(9,67e-06)	(1,01e-05)
Unempl	0,0371	0,140	-0,0350	-0,155	-0,166	-0,101
	(0,497)	(0,509)	(0,480)	(0,478)	(0,482)	(0,538)
POPdensity	0,493	0,701**	0,344	0,234	0,229	0,241
	(0,426)	(0,333)	(0,448)	(0,495)	(0,490)	(0,524)
Citizens	-0,922***	-1,230***	-0,879**	-0,811**	-0,810**	-0,805*
	(0,343)	(0,300)	(0,360)	(0,387)	(0,386)	(0,416)
ExtractIND	-0,278*	-0,280**	-0,274*	-0,260*	-0,257*	-0,253*
	(0,141)	(0,118)	(0,138)	(0,148)	(0,145)	(0,148)
AlltaxesSD	-0,471*	-	-	-	-	-
	(0,262)	-	-	-	-	-
PerstaxSD	-	-0,577***	-	-	-	-
	-	(0,157)	-	-	-	-
CorpprtaxSD	-	-	-0,197*	-	-	-
	-	-	(0,099)	-	-	-
SpeciltaxSD	-	-	-	-0,0379	-	-
	-	-	-	(0,074)	-	-
SimpletaxSD	-	-	-	-	-0,0162	-
	-	-	-	-	(0,038)	-
TransptaxSD	-	-	-	-	-	-0,0300
	-	-	-	-	-	(0,027)
n	156	156	156	156	156	156
Adj. R^2	0,206	0,306	0,219	0,178	0,177	0,187

Note: Robust standard errors are indicated in parentheses.

* *Indicates significance at the 10% level.*

** *Indicates significance at the 5% level.*

*** *Indicates significance at the 1% level.*

Source: author's calculations.

The results of modeling the dependence of entrepreneurial activity on the size of the transferred standards indicate a negatively significant effect in the case of personal income tax (model 2), corporate property tax (model 3), tax on total income in general (model 4) and tax levied in connection with the application of the simplified taxation system (model 5), as well as in general on the total standard of the taxes under consideration (model 1). This connection can be explained in two ways: either local authorities, receiving additional income in the current circumstances, lose incentives for development, or these regulations are passed as necessary assistance and can hardly be considered as a real grant of autonomy. In fact, there is a stable relationship between the level of subsidization of the region and the size of the transferred standards (the correlation coefficient is 0.569), as well as the share of the urban population and the size of the transferred standards (the correlation coefficient is -0.422). This indicates that the regional authorities use these standards more often as assistance to local budgets and practically do not use them in the case of cities where the main business activity is concentrated, thereby leaving significant tax sources for themselves. The desire to leave more revenue sources at the regional budget level, apparently, is due to the fact that the regions as a whole are experiencing "a steady, turning into a chronic budget deficit" (Alyokhin, 2020), despite the fact that the main spending powers are assigned to regional, not local authorities.

At the same time, the very fact of using the transfer of income from the tax levied in connection with the application of the simplified taxation system has a positive effect, which, despite its relatively small significance in local budget revenues, confirms its meaning and justifies the expediency of its transfer even according to minimum standards. The tax on the property of organizations as a whole is transferred according to even lower standards and has less significance for filling local budgets, but some authors consider property taxes as optimal for transfer to the regional and especially municipal levels (Slack, Bird, 2014). Apparently, in the current conditions, it also plays a supporting role.

The results of modeling the dependence of entrepreneurial activity on the stability of the transferred standards show that the high volatility of personal income tax and corporate property tax corresponds to a lower level of entrepreneurial activity (models 8-9). Such an effect is not observed either for the tax on total income in general (model 10), or for the tax levied in connection with the application of the simplified taxation system (model 11) in particular. This can be explained in two ways: either even with a reduction in the standard for taxes related to small businesses, local authorities do not reduce the motivation for its development, since revenues from it remain at some level, or the change in these revenues is really insignificant, since it also does not worsen the relationship between the volatility of the aggregate standard and entrepreneurial activity. In

general, despite the fact that the transferred standards can be considered both as assistance and as granting autonomy, their volatility has a negative impact (model 7), which is generally consistent with the theory.

CONCLUSION

The results of the study showed that the impact of intraregional budget decentralization on the economic incentives of local authorities in the Russian Federation has an ambiguous interpretation. Regional authorities use the transfer of standards rather to support local budgets, that is, the highest standards more often correspond to highly subsidized regions with a low level of entrepreneurial activity, which can hardly be considered an additional autonomy. Apparently, this practice is generally associated with a lack of budgetary resources at the subnational level and a broader list of powers at the regional level.

Considering the volatility of the norms for deducting taxes to local budgets, we not only check the work of the theory in its classical sense, but also clarify it: in the primary understanding, subsidies or tax benefits were related to fiscal methods of easing budget restrictions (Kornai et al., 2004). In addition, the classics pointed out: "…if the possibility of providing assistance cannot be foreseen in advance, then there is no special reason to attribute it to the MBO", but in the case of manipulation of the deduction standards by the regional authorities, their unpredictable dynamics also contributes to a decrease in the economic incentives of local authorities. This was demonstrated in a preliminary analysis: if high rigidity does not always unambiguously affect the level of entrepreneurship in the regions of Russia, then high volatility is more often accompanied by lower business activity and its weak dynamics. The analysis of panel data indicates a significant impact of personal income tax and corporate property tax on entrepreneurial activity.

In general, we can notice a general trend of a decrease in the regional practice of transferring income to local budgets through tax standards and a general low level of standards. It seems that in order to stimulate further real intraregional decentralization, it is necessary to solve the problem of the lack of budget revenues at the subnational level as a whole.

LITERATURE

1. ALEKHIN, B.I. 2020. Regional Tax Autonomy and Budget Balances. Financial Journal, vol. 12, no. 5, pp. 114–127.

2. ALEXEEV, M. 2016. Fiscal Incentives in Federations: Russia and the US Compared. Comparative Economic Studies, vol. 58, no. 4, pp. 485–506.
3. ALEXEEV, M., AVXENTYEV N., MAMEDOV A. et al. 2019. Fiscal Dcentralization, Budget Discipline, and Local Finance Reform in Russia's Regions. Public Finance Review, vol. 47, no. 4, pp. 679–717.
4. ARLASHKIN, I.Y. 2020. Intergovernmental Fiscal Instruments for Stimulating Regional Economic Growth in Russia. Financial Journal, vol. 12, no. 6, pp. 54–68.
5. BARINOVA, V.A., ZEMTSOV, S.P., TSAREVA, Y.V. 2018. Entrepreneurship and Institutions: Does the Relationship Exist at the Regional Level in Russia? Voprosy Ekonomiki, no 6, pp. 92–116.
6. BESFAMILLE, M., LOCKWOOD, B. 2008. Bailouts in federations: Is a hard budget constraint always best? International Economic Review, vol. 49, no. 2, pp. 577–593.
7. BOADWAY, R., SHAH, A. 2009. Fiscal Federalism: Principles and Practice of Multiorder Governance. Cambridge: Cambridge University Press.
8. BUKHARSKY, V.V., LAVROV, A.M. 2020. Hard Budget Constraints: Theoretical Foundations and Problems of Russian Cities. Voprosy gosudarstvennogo i munitsipal'nogo upravleniya – Public Administration Issues, no. 1, pp. 7–40 (In Russ.).
9. DERYUGIN, A.N., ALEKSEEV, M.V., MAMEDOV, A.A. et al. 2017. The Influence of the Main Characteristics of Interbudgetary Relations on the Indicators of Economic Development of the Subjects of the Russian Federation. Moscow: RANEPA Publ. (In Russ.)
10. ENIKOLOPOV, R., ZHURAVSKAYA, E. 2007. Decentralization and Political Institutions. Journal of Public Economics, vol. 91, no 11-12, pp. 2261-2290.
11. ESCALERAS, M., CHIANG, E.P. 2017. Fiscal decentralization and institutional quality on the business environment. Economics Letters, vol. 159, pp. 161–163.
12. KORNAI, J., MASKIN, E., ROLAND, G. 2004. Understanding the Soft Budget Constraint (The Ending). Voprosy Ekonomiki, no. 12, pp. 35–53 (In Russ.).
13. KUDRIN, A.L., DERYUGIN, A.N. 2018. Subnational Budget Rules: Foreign and Russian Experience. Ekonomicheskaya politika – Economic Policy, vol. 13, no. 1, pp. 8–35 (In Russ.).

14. LAVROV, A.M. 2019. The Logic and Prospects of Budget Reforms in Russia: in Search of "Optimal Decentralization". Series of Publications and Documents (1998–2019). Moscow: HSE (In Russ.).
15. LESSMANN, C., MARKWARDT, G. 2010. One Size Fits All? Decentralization, Corruption, and the Monitoring of Bureaucrats. World Development, vol. 38, iss. 4, pp. 631–646.
16. MARTINEZ-VAZQUEZ, J., MCNAB, R.M. 2003. Fiscal Decentralization and Economic Growth. World development, vol. 31, iss. 9, pp. 1597–1616.
17. OATES, W.E., SCHWAB, R.M. 1988. Economic competition among jurisdictions: efficiency enhancing or distortion inducing? Journal of Public Economics, vol. 35 (3), pp. 333–354.
18. OATES, W. 1999. An Essay on Fiscal Federalism. Journal of Economic Literature, vol. 37, no. 3, pp. 1120–1149.
19. OATES, W. 2005. Toward A Second-Generation Theory of Fiscal Federalism. International Tax and Public Finance, no. 12, pp. 349–373.
20. OATES, W. 1972. Fiscal Federalism. New York: Harcourt Brace Jovanovich.
21. OLSON, M. 1969. The principle of "fiscal equivalence": the division of responsibilities among different levels of government. American Economic Review, no. 59, pp. 479–487.
22. SINELNIKOV-MURYLEV, S.G., KADOCHNIKOV, P., TRUNIN, I. et al. 2006. Fiscal Federalism in Russia: Soft Budget Constraints of Regional Governments. Moscow: Consortium for Economic Policy Research and Advice.
23. SLACK, E., BIRD, R.M. 2004. The Political Economy of Property Tax Reform, OECD Working Papers on Fiscal Federalism. no. 18, pp. 1–36.
24. SMITH, H.J.M. 2010. Fiscal Decentralization: Explaining Successful Local Economic Development in Latin America. SSRN Electronic Journal. Available at;, 2021.
25. TIMUSHEV, E.N. 2018. Revenues, Grants, and Fiscal Incentives-Evaluation and the Causes of Decentralization Effects in the Budgetary System of Russia. Voprosy Ekonomiki, no. 1, pp. 71–90 (In Russ.).
26. VIN'O, M., KADOCHNIKOV, P., SINEL'NIKOV-MURYLEV, S. et al. 2006. Soft Budget Constraints of Subnational Authorities: Theory, Practice and Conclusions for Russia. Ekonomicheskaya politika – Economic Policy. no. 2, pp. 180–208 (In Russ.).
27. WEINGAST, B.R. 2009. Second generation fiscal federalism: The Implication of fiscal Incentives. Journal of Urban Economics, vol. 65, iss. 3, pp. 279–293.

28. YAKOVLEV, E., ZHURAVSKAYA, E. 2013. The Unequal Enforcement of Liberalization: Evidence from Russia's Reform of Business Regulation. Journal of the European Economic Association. vol. 11, iss. 4, pp. 808–838.

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NON-TARIFF MEASURES OF INTERNATIONAL TRADE: LITERATURE REVIEW

NETARIFNÉ OPATRENIA V OBLASTI MEDZINÁRODNÉHO OBCHODU: PREHĽAD LITERATÚRY

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Abstract

This paper delivers the literature review showing different position about the impact of non-tariff measures on foreign trade. We analyzed the views on government regulation of foreign trade of different economic schools. We did the overview of recent theories of state regulation of foreign trade. We reviewed different assessment methods of non – tariff measures influence on foreign trade and divided these methods on groups.

The outcomes point to some open questions in this field of research. Research in this area of the impact of non-tariff measures on foreign trade is carried out to find the relationship between the level of a country's trade and non-tariff barriers. All conclude that they certainly exist. However, there is no definite answer on the negative or positive impact of non-tariff measures on trade. Such lack of an unambiguous answer is associated with a number of factors beyond the control of the researcher. The first is the difficulty of collecting statistics on non-tariff barriers. The second problem is the lack of separation of barriers according to the degree of influence on trade and their accounting in the methods. The third problem is the time factor, the real effect of one or another barrier can be seen only after a few. In the framework of the study of non-tariff measures, this is quite difficult.

Key words: international trade, non-tariff measures, state regulation

JEL Classification: F13, B17

INTRODUCTION

The non-tariff measures (NTMs), regulating the international trade is the topic which has generated growing interest in recent years. As tariff rates reach historic lows, policy debates about non-tariff foreign trade regulations become more pressing.

Regarding the "organization" of the foreign trade the World Trade Organization (WTO) has been formulating the basic rules of trade for the participating countries for many years. By summer 2021 WTO included 164 countries, which account for 98% of all world trade. All of these countries must comply with WTO rules, the main purpose of which is consolidated trade.

However, despite to the pressure from WTO and other international organizations, many, especially national trade regulations exist worldwide. According to existing estimates some 96% of world trade is affected by at least one regulation, often in the form of "non-tariff measure - NTM".

Early non-tariff measures (e.g. quotas, anti-dumping duties) were intended to replace tariff protections (Anderson, Schmitt, 2003; Baldwin, 1984). New types of NTMs have proliferated in response to public policy objectives such as consumer health and safety and environmental protection. However, the same NTMs can be used to achieve both legitimate and protectionist goals and to establish boundaries between different motives. The trade effects can be very different depending on the reasons underlying the implementation and development of NTMs. For instance, if NTMs seek to correct a market failure such as information asymmetry, trade may be enhanced as consumer confidence in the foreign product will increase demand for it. When countries employ NTMs to protect domestic producers, they are likely to induce negative trade effects on partners (Herghelegiu, 2018).

The use of NTMs is extensive and varies. The comprehensive data about its scale and size are published by the United Nations Conference on Trade and Development (UNCTAD), which reflects new scientific and technological developments in a special report. The UNCTAD materials maps all different form of NTMs, like administrative procedures, technical regulations, sanitary and phytosanitary measures, customs and border procedures, financial rules, domestic subsidies and quantitative restrictions.

Over the past decades, UNCTAD and WTO have been trying to quantify NTM by keeping statistics of countries using these measures. If it is more or less possible to track the use of measures, then the degree of their influence is less studied. Only in the last 5-7 years the amount of research on this topic has increased (for

example, 49 papers have been published in peer-reviewed journals during the period 2012-2019)

Most of existing studies assess the degree of influence of scientific and technological revolution directly on the export / import of the country, the costs of producers, and the price of goods. Empirical evidence for their effects is patchy. The most used are: frequency-type measures; price gap, that is, price or tariff equivalents of NTBs; econometric methods that analyze the effect on volume or price (price-based econometric methods, quantity-based econometric methods); simulation methods.

The goal of this article is to analyze the main theoretical and practical studies in the field of the impact of non-tariff measures on international trade with focus on questions like: *Do non-tariff regulation measures affect foreign trade? What methods of assessing this impact exist?*

For the purpose of preparing this study, we analyzed the views on government regulation of foreign trade of different economic schools. We did the overview of recent theories of state regulation of foreign trade. We reviewed different assessment methods of non – tariff measures influence on foreign trade and divided these methods on groups.

1 VIEWS ON STATE REGULATION OF FOREIGN TRADE

For centuries the debate has been about the role of state on economy, about its positive and negative effects. Starting from the 16th century, it was creating the various economic doctrines, like mercantilism, liberal school, neoclassical school, Keynesianism, institutionalism. These doctrines formed opinion about the level of the public regulation. These theories in different ways deal also with the issue of foreign trade regulation methods.

There are various forms of state protection of national interests in the struggle on world markets, which determine the trade policy of individual countries. Protectionism is a policy of protecting the domestic market from foreign competition through a system of certain restrictions: import and export duties, subsidies and other measures. This policy is expected to contribute to the development of national production (Oleynov, 2020). In economic theory, protectionist doctrine is the opposite of free trade doctrine - free trade, and a controversy between these two doctrines has continued since the time of Adam Smith.

1. 1. State regulation of foreign trade in different economic schools

In their modern form, the concepts of free trade and protectionism began to take shape in the 16th century. At the end of the 16th - beginning of the 17th centuries a very important, however, rarely mentioned in the literature, *developmentalist economic doctrine was* born. According to this tradition (it cannot be called a school), the government should be the main agent of economic development. That is, the role of the administrative apparatus expanded. "In difficult economic conditions in difficult economic conditions, if the government does not intervene by imposing duties, subsidies (…), free markets will constantly pull countries back to low-productivity activities based on natural resources and cheap labor."(Maltsev, Yuzva, 2016).

At the same time in the XVI century the term «freedom of trade» appeared. The first modern debate over free trade was the controversy over the English East India Company (1600) against the backdrop of the growing import of calico fabrics into England and the threat of the collapse of the cotton industry in the country. The situation was ambiguous, because the ship alone brought the British treasury 10 thousand pounds of tax deductions a year, and on the other hand, it still threatened the main branch of the economy (Carson, 2007). As a result, severe protectionist measures designed to protect the domestic market were the result.

The developmentalist tradition was further developed in *mercantilist literature* (from Latin mercanti - to trade), which was most actively developed in the 17th- 18th centuries. The author of this term is the French economist Vatteville (1576-1621), who in his work "A Treatise on Political Economy for the King and Queen" (Maltsev, Yuzva, 2016) substantiated the reasons for its appearance and formulated the main mercantilist principles (Schumpeter, 2007)

The opinion about the main goal of the mercantilists that it was to ensure a positive trade balance. It is not true. Most of the representatives of mercantilism considered the main task of the state not to exceed exports over imports, but to stimulate the development, in modern parlance, of manufacturing industries. The positive foreign trade balance in this case acted as an indicator of economic growth, and not an end in itself. Mercantilist economic thought increasingly concentrated on the implementation of the ideas of protectionism (Maltsev, 2014)

To replace the mercantilism of the world at the end of the 18th century came the classical school of political economy. Its formation is usually associated with the names of Adam Smith, David Ricardo, Jean-Baptiste Say. Smith created the term "the invisible hand". It is spontaneous objective action of the economic

laws. These laws act against the will of the people, and often against. Smith argued that the public regulation should be minimal. The market self-regulation is realized with the help of free prices, which are formed depending on supply and demand under the influence of the competition. The classic school proved that the economy should be regulate the market and its laws (Smith, 1993). With the advent of this theory, many believed that trade wars between countries would end.

Beginning with Smith, protectionism began to be called mercantilism. Although today there are two different concepts - protectionism and mercantilism, but economic historians in relation to the era of the XVII-XVIII centuries put an equal sign between them. The historian Bayrokh specifies that mercantilism came to be called protectionism since the 1840s.

The Neo - liberalism (Friedman, Hayek) does not reject state intervention. They directly or indirectly considered the problem of the relationship between freedom of trade and protectionism. For example, it legislation is which is control the ownership (Schumpeter, 2007).

Friedman in the book "Capitalism and Freedom" listed the areas, which should be removed from the participation of the state. He proposed to abandon the maintenance of prices for agricultural products. He offered to abolish export-import quotas and tariffs, government control over production and rental rates, the establishment of a minimum wage and maximum limits for price increases, compulsory insurance for the old-age pensions, licensing of any types of labor activity, stop public housing, etc. (Friedman, 1994)

Until the 1920s and 1930s the idea of a self-regulating market prevailed among economists. With the advent of market failure theory by Pigou in the book «The Economics of Welfare», sentiments began to gradually change. The idea of the need for a dosed state intervention in the game of the market element has become more and more popular (Pigou, 1920).

Keynes was the founder of the macroeconomic regulation mechanism. He created a revolutionary theory of a state regulation of the national economy. He developed a theory of effective demand. It was the basis of the state regulation concept. Keynes believed that the function of consumption is sustainable, so you need to focus on investment. The total expenses of the society consisted of four components: a personal consumption; an investment consumption; a government spending; a net export. Keynes considered that the most important task of the state is to ensure a high volume of effective public demand for consumer goods, entrepreneurs for investment goods, and governments for economic and social purposes. Thus, Keynes justified the decisive role of the state in preventing economic crises. The role of the market state regulation was to stimulate demand

with the help of monetary and budgetary instruments. The special emphasis was issuing a large government loan to cover the budget deficit (Keynes, 1978).

North, Coase and Williams represent a new institutional school in the 1980s. Opinions about the best trade policy varied from the views of ardent adherents of protectionism, since the market analyzed by the neoclassicists is also an institution where agents act according to certain rules. Some echoed free trade, while others supported moderate protectionism (Nord, 1990).

The concept of a natural state permeates the entire institutional theory, the "order of limited access" - the most widespread form of social relations in world history - is based on restrictions on economic and political resources, primarily from the state (Maltsev and Yuzva, 2016).

Thus, the main basic schools of economics dealt with issues of state regulation. The question of the level and balance of government intervention remains open. Stiglitz proved that the extreme right and left doctrines of intervention are wrong. Stiglitz developed a theoretical concept of the economic role of the state, identified the fundamental differences between the state and other economic ones and the resulting advantages and disadvantages in the region. It is present in various forms of government intervention. Market failures need government intervention. For each country, the level of intervention will be different (Stiglitz,1989).

1. 2. The overview of recent theories of state regulation of foreign trade

The question regarding the need for state regulation of foreign trade remains to be un-answered today both by the economic theory and the economic policy. At the present stage of development of international economic relations, states strive to pursue a flexible foreign economic policy. This is a combination of protectionism and liberalization of economic relations. The balance and the degree of their use is determined based on the conjuncture developing in various sectors of the world economy and on world markets. (Oleinov, 2020.)

The main basic theories of state regulation of foreign trade are presented in the table 1.

Table 1: The main theories of state regulation of foreign trade

Name of theory	Name of researchers	Idea
Young industries theory or defense theory emerging industries	Alexander Hamilton, Daniel Friedrich Hamilton, Robert Edward Baldwin, Pranab Bardhan	Protection from foreign competitors allows nascent industries to achieve economies of scale faster, making their products competitive in foreign markets. Cost of production in new industries are potentially higher than those of more mature foreign competitors. State intervention is required by means of subsidies and other measures of state regulation of foreign
Metzler's paradox	Lloyd Appleton Metzler	Barriers to imports lead to an increase in domestic prices for imported goods, which contributes to the development of domestic production, and on the other hand, are the reason for a decrease the world prices for imported goods of the country, which may offset the initial increase in domestic prices for imported goods
Optimum welfare-maximizing tariff theory	Harry Gordon Johnson	It consists in finding the optimal tariff for imported goods and services. The optimal tariff that maximizes the welfare of the country is equal to the product elasticity of mutual demand in the domestic market for imported goods and elasticity of mutual demand in the external market for export goods, reduced per unit. The lower the price elasticity of imports the higher the rate of the optimal tariff and vice versa
Theory of distortions	Max Corden	Inconsistency of private and public economic interests within the country (divergences) must be corrected by internal measures. Correction of internal problems by methods of foreign economic policy is ineffective and leads to distortions. The actions of governments in the field of foreign trade are always indirectly affect other spheres of national economies.
Theory of customs unions	Jacob Viner, James Meade	The elimination of tariffs within a customs union can lead to two different effects: trade creation (positive effect), trade diversion (negative effect). The first effect allows consumers to switch from the national market to the markets of the countries of the union, the second - the consumer can switch from suppliers outside the union to suppliers inside the union.
Theory of the second best	Richard George Lipsey, Kelvin John Lancaster	In addition to free trade policy, there is no other trade policy whose impact over all welfare would be unequivocally positive. If one of the conditions of the Pareto optimum cannot be fulfilled (optimal distribution of benefits between consumers, optimal distribution of resources between producers, optimal output), situation the second-best optimum is achieved only through deviation from all other conditions Pareto optimum.

Source: compiled by author.

The above theories prove that foreign trade affects the development of a country's economy. But the question of positive or negative remains open. Protectionism makes it possible to balance the trade balance, support domestic industries, in particular new production, protects the domestic market from unfair competition, and stimulates production growth. On the other hand, protectionism weakens competition and motivation to improve it, stimulates the rise in prices for domestic goods, and reduces the choice of goods for consumers. The conditionality of the country in connection with strict protectionism does not allow to take advantage of the international division of labor; in the future, the country's export opportunities may be limited due to the response to the imposed restrictions on imports.

Free trading increases competition in the domestic market, expands the range of products, and stimulates the economic activity of enterprises. A serious disadvantage of free trading is considered complete insecurity from foreign competitors, unfair competition and any other external shocks associated with trade.

2 THE CURRENT STATE OF RESEARCH IN THE FIELD OF ASSESSING THE IMPACT OF NON-TARIFF MEASURES ON TRADE AND THE ECONOMY OF THE STATE

Understanding of the effect that non-tariff measures (NTMs) have on international trade has become an area of the increasing interest in recent years. These measures are expansive, including policies such as administrative procedures, technical regulations, sanitary and phytosanitary measures, customs and border procedures, financial regulations, domestic subsidies, and quantity restrictions.

Forms of state regulation of foreign trade represent a large set of different instruments. There exist several recognized classifications of these forms in the world. Among the proposed are the classification of the WTO, of the European Commission in conjunction with the International Trade Center, classifications by individual experts (Baldwin, 1970; Deardorff, Stern, 1998; Dumoulin, 2015; Troshkina, 2017), as well as systematization on the basis of the UNCTAD (https://unctad.org/).

That these types of measures affect trade is well documented, but the extent to which they do is less well understood. Tariffs by the comparison, are concretely defined (typically by a specific rate) and lend themselves well to quantitative economic analysis. NTMs, on the other hand, are typically not so cleanly defined in terms of ad valorem impacts on trade costs, making quantitative assessment much less straight forward.

There is much discussion in the literature about the role of NTMs as a part of a country's regulatory environment. Unlike tariffs, which are unambiguously intended to reduce the imports of a targeted good in most cases, NTMs may exist for a variety of reasons. In many cases, the measures perform a socially desirable function such as preventing the spread of disease or upholding an environmental standard. In these cases, the trade reducing aspects of the measure must be balanced against the social good that it is fulfilling. In the other cases, however, the measure may exist for the purpose of restricting trade or may restrict trade more than it is necessary for the fulfilment of the desired social function.

It should be noted that studies of the impact of non-tariff regulation measures on trade and the economy have only begun in the last 5-9 years. The researchers associate this with a number of reasons. One of the main ones is to reduce the ability to influence trade flows through tariffs. 164 countries are members of the WTO. All these countries must comply with the rules of the trade organization, which, among other things, are related to bringing customs tariffs to a certain framework. So, according to the data of the Eurasian Commission of the EAEU for a number of goods, customs duties have been reduced by more than 10-15% in 7-9 years, and some have been canceled altogether. In this regard, in recent years, more and more governments have been using non-tariff barriers to regulate export - import flows. According to WTO statistics, the United States has increased the use of non-tariff barriers by 40% over 10 years, the European Union by 30%, and Russia by 6 times.

The most widely used methods for assessing the impact of NTM are frequency-type measure, price gap (price or tariff equivalents of NTBs) price-based econometric methods, quantity-based econometric methods, simulation methods.

For example, many scientists use the AVE method. The method mainly compares the price of a product before and after the application of NTMs (Bradford, 2003, 2006; Zaki, 2010; UNCTAD, 2013; Beghin et al, 2015). Thus, AVE is reported as the percentage change in the price of an item due to the presence of NTMs. According to Sudeshna Chattopadhyay, this technique raises a number of problems related to the influence of other serious factors on the price of the product. So, applications of the price- wedge approach should try to account for all factors other than NTMs like border taxes, the cost of moving goods, other trade costs which might contribute to the price gap, net them out and derive the residual effect of the NTM on the price difference.

Studies that calculate the price gap arithmetically find it difficult to control for these factors other than NTMs, which contribute to the price gap. Hence, econometric methods are preferred to isolate the price impacts of NTMs from other

factors affecting the price differential (Beghin et al., 2015; Dean et al., 2009; Kee et al, 2008, 2009).

Li and Behgin (2013) propose an aggregate NTM index methodology for quantifying the level of protectionism using the Maximum Residue Limit (MRL). Hardly any studies provide an overall assessment of the trade effects of NTMs, but Ing, Cadot, Walz ranked countries in terms of NTM transparency, which affects the level of development of countries. The rating is headed by industrialized countries.

Edeme recearch questions about the growing impact of trade restrictions on globalization and finding a compromise between them in developed and developing countries. International trade is the result of growing globalization and in this regard, we can talk about the impact of trade barriers on it.

The number of studies in the field of non-tariff regulation of foreign trade is growing. In the period from 2012 to 2019 in total 49 papers were published in peer-reviewed journals on this topic. (Santeramo, Lamonaca 2019). Views on the impact of non-tariff measures are mixed.

A first group of researchers writes about the negative impact of NTMs on the economy. For example, Felbermayr, Kinzius, Yalcin, based on the analysis, is concluded that the global trade may slow down by 16% due to the introduction of non-tariff barriers. Studies of Peterson et al. (2013), Beckman et al. (2015), Dal Bianco et al. (2016), Cadot, Gourdon (2016) show that NTMs discourage trade. Also studies examining the impact of NTMs implemented by developed countries against developing countries often show negative effects on the trade performance of developing countries (Anders, Caswell, 2009; Disdier, Marette, 2010). According to other authors, NTMs can have both negative (Yue, Beghin, 2009) and positive (Henry de Frahan, Vancauteren, 2006) impacts on trade between developed countries, although NTMs restrict trade between developing countries (Melo et al., 2014).

On the other hand, Cardamone have found that NTMs facilitate trade. The group of researchers talk about the controversial impact of NTMs on trade (Beghin, Xiong, 2011,2016; Beghin et al., 2015; Beckman, Arita, 2016; Webb et al. 2018, 2019). So Herghelegiu investigates the replacement of tariffs and NTMs and concludes that only restrictive measures replace tariffs, including under the influence of lobbying by transnational companies. (Tudela - Marco et al., 2014)

Such a difference in the results obtained can be associated with the study of different types of NTMs and their different justifications (Schlueter et al., 2009; Webb et al. 2017,2019; Herghelegiu, 2018). So Webb, Gibson, Strutt analyzes the relationship between the use of SPS, TBT and the number of exporters using a gravity model (Beghin, Disdier, Marette, 2015; Theie, 2015; Carrère,

De Melo, 2011; Kee et al, 2009).In these studies technical barriers to tradeING (TBT) tend to catalyze trade (Henry de Frahan, Vancauteren, 2006; Webb et al., 2017), while SPS show mixed data (Schlueter et al., 2009; Jayasinghe et al., 2010; Crivelli, Gröschl, 2016; Webb et al. 2017).

Second reason of differences of results of research is connected with an assessment of the impact only on certain production sectors or countries (Jordaan, 2017; Kumar and Bharti, 2020). For example, NTMs appear to inhibit trade in seafood (Marette, 2014; Shepotylo, 2016), meat (Wilson, Otsuki, 2003), wine (Dal Bianco et al, 2015). Agriculture is particularly affected by protectionist non-tariff measures (Beckman, Arita, Mitchell, and Burfisher, 2015).

Other sources of heterogeneity may be associated with a variety of methodological and empirical approaches that we find in the literature. Various proxies are used to measure NTM: inventory indicators (e.g., dummy or counting variables, often a performance index, coverage rate, prevalence estimates); transparency coefficient, calculation of price gaps.

CONCLUSION

Today, state regulation of foreign trade acquires special significance due to its importance for the country's economic growth. It is especially worth highlighting non-tariff barriers, which are actively used by states in exchange for tariffs. Non-tariff barriers may allow the development of the country's domestic production; however, they also carry many dangers such as higher prices in the consumer market, lower quality of goods for consumers, etc.

Our analysis of studies on assessing the impact of non-tariff measures has led us to several conclusions. Research in this area carried out to find the relationship between the level of a country's trade and non-tariff barriers came to the conclusion that they certainly exist. However, there is no definite answer on the negative or positive impact of non-tariff measures on trade.

The lack of an unambiguous answer is associated with a number of factors beyond the control of the researcher. The first is the difficulty of collecting statistics on non-tariff barriers. Today, the most reliable source for the number of NTBs introduced is the WTO website. Data collection is carried out according to official statements by a member of the organization, therefore, an incomplete database is possible. The second problem is the lack of separation of barriers according to the degree of influence on trade and their accounting in the methods. A direct ban and phytosanitary requirements for fruits, in our opinion, have a different effect on the level of trade in a country. Therefore, studies that study a separate group

of non-tariff measures or a separate group of goods are becoming more effective. The third problem is the time factor, the real effect of one or another barrier can be seen only after a few. In the framework of the study of non-tariff measures, this is quite difficult.

Based on the analysis of existing studies on state regulation of foreign trade, with focus on the impact of non-tariff barriers, we came to the conclusion that this issue requires additional comprehensive analysis, both from the point of the (optimum) level of government intervention in foreign trade and from the point if economic impacts of NTMs.

LITERATURE

1. ANDERS, S., CASWELL, J.A. 2009. Standards-as-barriers versus standards-as-catalysts: Assessing the impact of HACC Pimplementation on U.S. seafood imports. American Journal of Agricultural Economics 91(2), pp 310–321.
2. ANDERSON, S. P., SCHMITT, N. 2003. Nontariff barriers and trade liberaa lization. Economic Inquiry, 41, pp 80–97.
3. BAKAEVA, O.Y., GALICKAYA, N.V. 2005. Netarifnoe regulirovanie vneshnej torgovli v ramkah VTO, vestnik 2005 №11.
4. BALDWIN, R. 1984. Trade policies in developed countries. Handbook of International Economics, Vol. 1, pp. 571–619.
5. BECKMAN, J., ARITA, S. 1999. Modeling the Interplay between Sanitary and Phytosanitary Measures and Tariff-rate Quotas under Partial Trade Liberalization. American Journal of Agricultural Economics 99(4), pp. 1078-1095.
6. BECKMAN, J., ARITA, S., MITCHELL, L., BURFISHER, M. 2015. Agriculture in the Transatlantic Trade and Investment Partnership: Tariffs, Tariff-Rate Quotas, and Non-Tariff Measures. Economic Research Report No. 198.
7. BEGHIN, J., XIONG, B. 2016. Economic Effects of Standard-Like Nontariff Measures: Analytical and Methodological Dimensions. CARD Working Papers.
8. BEGHIN, J. C., DISDIER, A.-C., MARETTE S. 2015. Trade restrictiveness indices in the presence of externalities: An application to non-tariff measures. Canadian Journal of Economics/Revue canadienned' economique 48 (4), pp. 1513 - 1536.

9. BEGHIN, J. C., MAERTENS, M., SWINNEN, J. 2015. "Non-tariff measures and standards in trade and global value chains". Economics Working Papers (2002–2016). 6.
10. BRADFORD, S. 2003. Paying the Price: Final Goods Protection in OECD Countries. Review of Economics and Statistics, 85-1, pp. 24-37
11. BRADFORD, S. 2006. The Extent and Impact of Final Goods Non-Tariff Barriers in Rich Countries. In M. Ferrantino and P. Dee (Eds.), Quantitative Methods for Assessing the Effects of Non-Tariff Measures and Trade Facilitation. Singapore: World Scientist.
12. CADOT, O., GOURDON, J.2016. Non-tariff measures, preferential trade agreements, and prices: new evidence. Review of World Economics, 152, pp. 227 – 249
13. CARRÈRE, C., DE MELO, J. 2011. Non-tariff measures: what do we know, what should be done? Journal of Economic Integration 26(1), pp.169–196.
14. CARSON, K.A. 2007. Studies in Mutualist Political Economy. Booksurge Publishing.
15. CHATTOPADHYAY, S. 2019. Index of Non-tariff Measures: A Study of the EU Textile and Garment Market. Foreign Trade Review 54(3), pp. 206–223
16. CRIVELLI, P., GRÖSCHL, J. 2016. The Impact of Sanitary and Phytosanitary Measures on Market Entry and Trade Flows. World Economy 39(3), pp. 444-473.
17. DAL BIANCO, A., BOATTO, V.L., CARACCIOLO, F., SANTERAMO, F. 2016.Tariffs and non-tariff frictions in the world wine trade. European Review of Agricultural Economics, 43(1), pp. 31-57.
18. DAL BIANCO, A., BOATTO, V. L., CARACCIOLO, F., SANTERAMO, F. G. 2015. Tariff and non-tariff frictions in the world wine trade. European Review of Agricultural Economics, 43(1), pp.31–57.
19. DEAN, J.M., J. SIGNORET, R.M. FEINBERG, R.D. LUDEMA, FERRANTINO, M.J. 2009. Estimating the Price Effects of Non-Tariff Barriers. The B.E. Journal of Economic Analysis & Policy, Vol. 9, No. 1. Available at https://doi.org/10.2202/1935-1682.1972. Last accessed November 21, 2021.
20. DEARDORFF, A., & STERN, R. 1997. Measurement of non-tariff barriers. Economics Department Working Paper 179. Paris: OECD.
21. DISDIER, A, MARETTE, S. 2010. The Combination of Gravity and Welfare Approaches for Evaluating Non-Tariff Measures. American Journal of Agricultural Economics 92(3), pp.713-726

22. DYUMULEN, I. 2016. Netarifnye mery v sovremennoj mezhdunarodnoj torgovle: nekotorye voprosy teorii, praktika i pravila VTO, interesy Rossii // Rossijskij vneshneekonomicheskij vestnik. No 2.

23. EDEME, R., ADUKU, E., NWOKOYE, E., NKALU N. 2020. Impact of Traa de Restrictions in European and Sub- Saharan Regions. Review of Market Integration 12(1–2), pp. 35–50

24. EDEME, R., ADUKU, E., NWOKOYE, E., NKALU, N. 2020. Impact of Trade Restrictions in European and Sub- Saharan Regions. Review of Market Integration 12(1–2), pp.35–50.

25. FELBERMAYR, G., KINZIUS, L., YALCIN, E. 2017. Hidden Protectionism: Non-Tariff Barriers and Implications for International Trade. ifo Forschungsberichte, No. 91.

26. FRIDMAN, M. 1994. Kapitalizm i svoboda. Moskva: Nauka.

27. GRÜBLER, J. 2016. Assessing the Impact of Non-Tariff Measures on Imports. The Vienna Institute for International Economic Studies.

28. HEAD, K., MAYER, T. 2015. Gravity Equations: Workhorse, Toolkit, and Cookbook. In Handbook of International Economics, pp.131 - 195.

29. HENRY DE FRAHAN, B., VANCAUTEREN, M. 2006 Harmonization of food regulations and trade in the Single Market: evidence from disaggregated data. European Review of Agricultural Economics 33(3), pp. 337–360.

30. HERGHELEGIU, C. 2018. The political economy of non-tariff measures. The World Economy, 41(1), pp. 262–286.

31. ING, L.Y., CADOT, O., ANANDHIKA, O., URATA, S. 2016 Non-tariff Measures in ASEAN: A Simple Proposal. Ferdi Working Paper n°183.

32. ING, L.Y., CADOT, O. & WALZ, J. 2017. Transparency in non-tariff measures: An international comparison, Policy Brief No. 2017-06. Jakar: Economic Research Institute for ASEAN and East Asia (ERIA). International classification of non-tariff measures. New York: UNCTAD.

33. JAYASINGHE, S., BEGHIN, J. C.M, MOSCHINI, G. 2010. Determinants of World Demand for U.S. Corn Seeds: the Role of Trade Costs. American Journal of Agricultural Economics 92(4), pp. 999- 1010

34. JORDAAN, A. 2017. Impact of Non-Tariff Measures on Trade in Mauritius. Foreign Trade Review 52(3), pp. 185–199.

36. KEE, H. L., NICITAA., OLARREAGA, M. 2008. Import Demand Elasticities and Trade Distortions. The Review of Economics and Statistics 90 (4), pp. 666 - 682.

37. KEE, H. L., NICITA, A., OLARREAGA, M. 2009. Estimating Trade Restrictiveness Indices. The Economic Journal 119 (534), pp. 172 - 199.

38. KEE, H. L., NICITA, A., LARREAGA, M. 2009. Estimating trade restrictiveness indices. Economic Journal, 119, pp. 172–199.

39. KEYNES, D. M. 1978.O bshchaya teoriya zanyatosti, protsenta i deneg. Moskva: Progress.

41. KUMAR, C., BHARTI, N. 2020. Why NTM is a Challenge in Trade Relations? Evidence from India–Africa Agricultural Trade. Insight on Africa 12(2), pp. 79–103.

40. LI.Y., BEGHIN, J. C. 2012. A meta-analysis of estimates of the impact of technical barriers to trade. Journal of Policy Modeling, 34(2012), pp. 497–511.

41. LI.Y., BEGHIN, J. C. 2013. Protectionism indices for non-tariff measures: an application to maximum residue levels. Food Policy, 45, pp. 57-68.

42. MALTSEV, A. A. 2014. Economic ideas and the world economic environment: a retrospective of interaction. Yekaterinburg: Ural Publishing House.

43. MALTSEV, A.A., Yuzva, A. 2016. Evolution of the conceptual foundations of protectionism and free trade. Innovative economy, 4, pp. 41-56.

44. MELO, A., ENGLER, A., NAHUEHUAL, L., COFRÉ, G. 2014. Do Sanitary, Phytosanitary, and Quality-related Standards Affect International Trade? Evidence from Chilean Fruit Exports. World Development, 54, pp.350–359

45. NORTH, D. 1990. Institutions, Institutional Change, and Economic Performance. Cambridge: Cambridge University Press.

46. OLEINOV, A.G. 2020. Theories of international trade and foreign trade regulation. Economic theory, 2, pp. 51-62.

47. PETERSON, E., J. GRANT, D. ROBERTS, KAROV, L. V. 2013. Evaluating the Trade Restrictiveness of Phytosanitary Measures on U.S. Fresh Fruit and Vegetable Imports.American Journal of Agricultural Economics, 95(4), pp.842-858.

48. PIGOU, A.C. 1920. The economics of welfare. London: Macmillan.

49. SANTERAMO, F.G., LAMONACA, E. 2019. The Effects of Non-tariff Measures on Agri-food Trade: A Review and Meta-analysis of Empirical Evidence Empirical Evidence. Journal of Agricultural Economics, 70(3), pp.595–617.

50. SCHUMPETER, J. 1955. The history of economic analysis. New York: Routledge.

51. SHEPOTYLO, O. 2016 Effect of non-tariff measures on extensive and intensive margins of exports in seafood trade. Marine policy, 68, pp. 47-54.
52. SMITH, A. 1993. Issledovaniye o prirode i prichinakh bogatstva narodov. Moskva: Ekonomika.
55. STIGLITZ, J. 1989. Economics of Public Sector. Oxford: Oxford University Press
53. STIGLITZ, J.E., CHARLTON, A. 2005. Fair Trade for All. How Trade Can promote Development. Oxford: Oxford University Press.
54. THEIE, M. 2015. Non-tariff barriers, trade integration and the gravity model. Oslo: Norwegian Institute of International Affairs.
55. TROSHKINA, T.N. 2017 Zaprety i ogranichenij v sisteme gosudarstvennogo regulirovaniya mezhdunarodnoj torgovli (na primere razvityh stran). Moskva: Ekonomika.60. TUDELA-MARCO. L., GARCIA-ALVAREZ-COQUE J.-M., MARTINEZ-GOMEZ V. 2014. Are non-tariff measures a substitute for tariffs in agricultural trade? Recent evidence from southern Mediterranean countries. Outlook on Agriculture, 43(4), pp. 235–240 United Nations Conference on Trade and Development. Official site: https://unctad.org
56. WEBB, M., GIBSON, J., STRUTT, A. 2018 Market access implications of non-tariff measures: Estimates for four developed country markets. World Economics, 42, pp.376–395.
57. WEBB, M., STRUTT, A., GIBSON, J., WALMSLEY, T. 2019. Modelling the impact of non-tariff measures on supply chains in ASEAN. World Economics,43, pp.2172–2198.
58. WILSON, J.S., OTSUKI, T. 2002. To Spray or Not to Spray: Pesticides, Banana Exports, and Food Safety. World Bank Working Paper No. 2805. Washington: World Bank.
59. XIONG, B., BEGHIN, J. 2011. Does European aflatoxin regulation hurt groundnut exporters from Africa? European Review of Agricultural Economics, 39(2011), pp. 589–609.
60. YUE, C., BEGHIN, J. C. 2009. Tariff equivalent and forgone trade effects of prohibitive technical barriers to trade. American Journal of Agricultural Economics, 91, pp. 930–941.
61. ZAKI, C. 2010. Does Trade Facilitation Matter in Bilateral Trade? Economic Research Forum, Working Papers 472.

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MUNICIPAL WASTE MANAGEMENT EXTERNALITIES AND THEIR MANAGEMENT IN MOSCOW

EXTERNALITY SPOJENÉ S NAKLADANÍM S KOMUNÁLNYM ODPADOM V MOSKVE A ICH RIEŠENIA

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Abstract

Municipal solid waste is a growing concern for most metropolitan cities globally. The rate of urbanization and population growth places increased strain on traditional waste processing systems which often results in pollution and spill-over effects. This paper evaluates the externalities associated with municipal solid waste management in Moscow, Russia. Local surveys, case studies and interactions further reveal public opinion on environmental issues, urbanization, public administration and welfare.

Key words: negative externalities, municipal waste management, inter-municipal cooperation, Moscow

JEL Classification: D62, Q50

INTRODUCTION

Municipal waste is a growing concern for most governments worldwide especially for metropolitan cities with a growing urban population which have become spatially constrained by their inability for outward city expansion. Moscow, Russia's capital city according to Statistica[1] is the second largest city in Europe with a total urban agglomeration of 12.5 million people. A standard city-wide tariff is applied on waste collection and there are currently no incentives to promote at-source sorting of waste or recycling. Moscow is also considered the most densely populated region in Russia and accounts for the largest volume of Municipal Solid Waste (MSW) in the country. Landfills and waste disposal sites which in decades past had been positioned in the outskirts of the city have now become meshed into the expanding suburban infrastructure of the surrounding Moscow Region. These sites have become largely inefficient in handling the current waste volume and now pose increased environmental and health hazards to the surrounding residential areas further leading to community protests and petitions against the local and federal government. In a bid to ameliorate public dissent all waste landfills in the surrounding Moscow Region have been closed, some permanently and others temporarily for upgrades and restructuring. Waste is now largely being incinerated at an increased rate which many fear is causing even more air pollution.

The government since 2013 has been working actively on restructuring the national waste management system and has rolled out various legislature and phased development plans to streamline activities at both the regional and local levels but continues to face challenges. Why has the waste management infrastructure deteriorated to such an extent? What economic factors could have prevented this collapse and how is the government preventing a total system collapse? These are key questions being addressed by multiple stakeholders involved in the waste sector. This paper however explores the challenges being faced by the waste management sector from a public economics perspective which can be grouped under market and government failure. Market failure being reviewed in terms of the externalities, low impact of public sensitization programs and market monopoly; while government failure is viewed in terms of restrictive bureaucratic policies, inefficient collaborative governance and the challenges with achieving common good. Given the extensive subject coverage, the study focuses mainly on externalities and therefore attempts to answer the following research questions: What positive and negative externalities can be identified within the Moscow municipal waste disposal system? And what is the

1 Statistica https://www.statista.com/statistics/1101883/largest-european-cities/

overall impact of weighted externalities (positive/negative) on the social welfare of the immediate community? The analysis of official public documents, local surveys and focus group interactions further provide public opinion insight to the state of urbanization, public administration and welfare in the municipalities.

MUNICIPAL WASTE DISPOSAL EXTERNALITIES

Waste disposal remains a key problem in population health and global development (Achillas et al., 2013; Agiamoh, 2020; Ayalon et al., 1999; Babu et al., 2007; Cleary, 2009; Fehr et al., 2000; Ferronato and Torretta, 2019; Gabriel and El-Halwagi, 2005; Koester, 2014; Parthan et al., 2012; Vertakova and Plotnikov, 2017 and others). Therefore attaining efficient Municipal Solid Waste Management (MSWM) and understanding its associated externalities has become an important indices for sustainable development and environmental policy development and implementation (Rodić and Wilson 2017; Ayalon et al., 1999). There is no fixed method to address all MSWM challenges in every region, as each country and locality has its own characteristics and therefore requires innovative approaches to address their problems (Rodic et al., 2010; Wilson et al., 2012). The Integrated and sustainable (solid) waste management (ISWM) framework (Anschütz, 2004; Schübeler et al., 1996; Van de Klundert et al., 2001) has been widely used to analyse waste systems in cities globally and this has supported some governments in structuring new waste management approaches; however the 'waste disposal problem' persists in many countries even within the EU which is considered the trailblazer in modern environmental policy adaptation. According to Eurostat (2018), the total waste generated in the EU-28 by all economic activities and households in 2016, amounted to 2533 million tons; 45.5% of waste was landfilled and 37.8% recycled.

Municipalities therefore have a legal responsibility to provide waste management services to their citizens but the massive scope of the sector involving waste collection, transportation, processing and treatment often calls for various stakeholders to be involved in the process so as to ensure an effective SWM system. Funding is also essential to ensure sustainability and this is often the greatest challenge municipalities face when restructuring or upgrading their solid waste system as tariffs are often based on local conditions of affordability and willingness to pay. New waste systems and services also require general public buy-in, behavioural and cultural change by both citizens and the municipal waste departments. Inter-municipal and inter-agency cooperation is also a key driver for an efficient network as communication and exchange with other stakeholders functions as both enabling and supporting factors (Eshet et al., 2006; Agiamoh,

2021). In essence MSWM as a public service is multifaceted and can be seen as an impure public good, that is to say it is not entirely non-rivalrous or non-excludable as this would depend on how the system is structured and implemented on all tiers of administration (Cavé, 2014). This situation makes the evaluation of SWM ever more interesting yet complex as multiple environmental impact externalities arise from the waste product life-cycle yet assigning a monetary value 'per unit pollution' is still a troublesome task (Edwards et al., 2018; Martinez-Sanchez et. al., 2017).

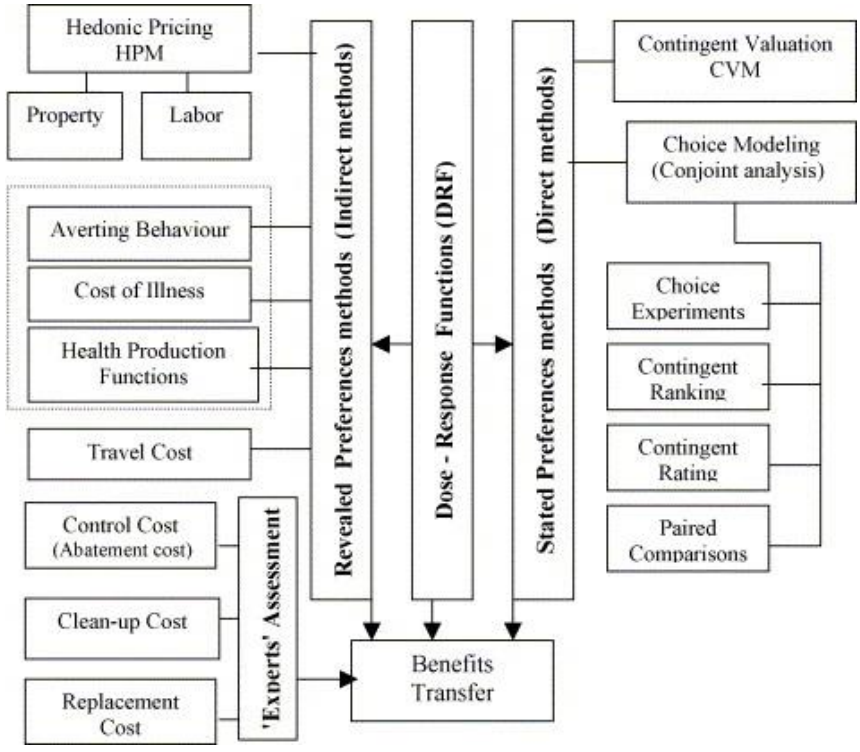
Market failures occur when there is a faulty allocation of resources in an otherwise optimal market. It is often triggered when there is an acute mismatch between supply and demand, when prices do not match reality or when individual interests are not aligned with collective interests. A classic example of market failure is monopoly (imperfect competition). So why do markets fail? The core reason can be experienced through various game theory applications - Human behavioural patterns show that although it is in their best interest to consider the *common good;* self gratification, power and greed often precede logical thinking. Therefore markets are imperfect and the reasons for market failure often stem from: Externalities, public goods, merit & demerit goods, asymmetric information, factor immobility, imperfect competition (monopoly) and unequal distribution of wealth.

Externalities (also known as spillover effects) are the external costs and/or benefits that arise when the social or economic activities of one group has an effect on another without compensation (Clark, 2013; Cornes and Sandler, 1996; Helbling, 2010). Externalities can be positive (for instance the research and development associated with a product can have positive spillover effects into other industries) or negative (such as the air pollution caused by an incineration plant). Negative externalities associated with waste processing such as the emission of greenhouse gases, toxins in to the air, soil and ground water as well as industrial noise, odour and smog; are quite far reaching, hazardous and affect not only the immediate population's health but contributes on a wider scale to global warming, alters the surrounding ecology and promotes urban blight.

Despite extensive research on the subject of quantifying MSWM externalities, uncertainties still present themselves in theoretical and practical applications. Policy choices, social welfare; study costs and shortage of data all make the valuation of externalities quite troublesome in this developing discipline. Eshet et al., (2006) based on their review of existing literature on the topic between 1990 and 2003 categorize four methods of externalities valuation developed on different concepts and principles:

- *Direct versus indirect methods* which rely largely on the economic welfare theory. Individuals are asked directly to ascribe their 'willingness to pay' (WTP) for a benefit; or indirectly via revealed preferences in the purchase of related goods or services
- *Dose-response function (DRF) method* which defines the physical relationship between pollutants and their impacts on relevant receptors and serve as data suppliers to many of the valuation techniques
- *Expert assessments and approximate techniques*;
- *Econometric method* that serves for transferring ready valuations from a study site to a policy site, usually from primary to secondary studies, potentially through all valuation methods.

Figure 1: Monetary Valuation Methods and Techniques

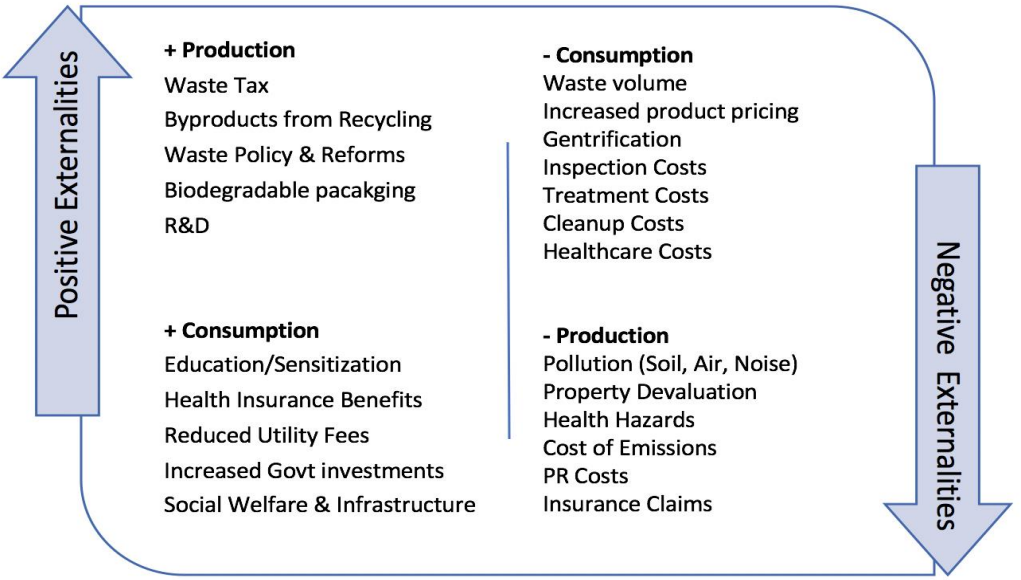


Source: Eshet et al., 2006.

These valuation methods are applied to various kinds of externalities and sometimes they may be combined. Expert-assessment methods are more widely used in practice due to their validity and ease of data collation. The methods

commonly applied for the valuation of externalities from landfill disposal and incineration processes is the DRF method for physical relationships, cost of illness, averting behavior, hedonic pricing; and the Indirect Method for control and clean-up costs (Agiamoh & Larionova, 2020; Eshet et al., 2006). Nonetheless the valuation of externalities is not an exact science, and the valuation of one aspect such as clean-up costs could have multiple or over-lapping values depending on the scope of the research (considering leachate, odour, extent of damage area, test of ground water, test of soil minerals, etc.). Furthermore, determining the process of dealing with the environmental damage may not always be possible or even feasible so the best that can be done is to provide an approximate value for damage reduction to trigger appropriate legislature and policy implementation. However it is important to note that societal costs can become company or government costs in the long run and these could be exponentially damaging (Beloff et al., 2000) as is discussed in the case study of 'Mechel PAO' in the Leninsky District, Moscow Oblast.

Figure 2: Waste Disposal Externalities in Moscow



Source: author.

MUNICIPAL WASTE REFORMS IN MOSCOW, RUSSIA

The Eurostat-OECD[2] defines municipal solid waste to include household waste and similar waste generated through other sources but similar in composition. Cities often adopt their own independent specialized categorization standards of MSW which often depend to a large extent on their budgetary allocation, urban planning infrastructure and preferred disposal methods. Some nations are also caught between traditional public administration and implementing some kind of New Public Management (NPM) reforms, either by downsizing, introducing performance management frameworks or via public private partnerships (PPPs). This implies an increased variance between countries regarding implementation of public sector reforms. It also shows that different support systems are required compared to the one-size-fits-all recommendations for public sector reforms (De Vries and Nemec, 2013).

The Moscow megalopolis is made up of the Moscow city and surrounded in a circular pattern by the Moscow Oblast (Suburb region also known as Moscow Region), as mentioned earlier this territory combined, makes up the most densely populated region in the entire country and accounts for the largest volume of MSW in Russia. According to Finexpertiza (2019) a well known auditing company, these two administrative regions collectively generate an estimated 51 million cubic meters of solid waste per year[3] most of which ends up in landfills as only 4% is currently being recycled[4]. A recent article in the Moscow Times (2018) also mentioned that the volume of solid waste disposal had grown over 30% in the past decade, this spike in waste volume is said to be caused by the ripple effect of urban population growth, increase in consumer demand and urban lifestyle choices (Kaza *et al*., 2018). The Moscow city authorities estimate that more waste is now being generated from consumer packaging and over 8 million tons of waste is generated per annum within Moscow City alone[5].

Waste management in Russia has been quite structured since the soviet times and waste collection systems were for the most part tied to a centralised administrative system. Recycling rates were also high due to the reprocessing of waste materials towards raw feed utilization in industries providing for the implementation of a circular economy model (Sim *et al*., 2013). Urban centres were typically

2 EU Commission: https://ec.europa.eu/eurostat/documents/342366/351811/Municipal+Waste+guidance

3 Crosswrap (Finland) https://crosswrap.com/waste-management-in-russia/

4 Netherlands Embassy in Moscow Report: https://www.rvo.nl/sites/default/files/2018/09/waste-management-in-russia.pdf

5 Data from recent MSWM report by the Mayor's office: https://www.mos.ru/upload/documents/files/1934/1_Proektdokymenta.pdf

designed with utility considerations and standardized tariffs. Moscow's urban design of high-rise multi-apartment blocks facilitated easy collection of mixed household waste through inbuilt conduit pipes which were consequently evacuated and finally incinerated or buried in designated landfills. This structured centralized system collapsed after the economic downturn of the early 90's, industrial recycling also took a downward spiral as most manufacturing plants and factories were shut down and ecological concerns rescinded priority in the public sphere due to the pressing economic depression and socio-political 'Perestroika' of the period (Pierce, 1993; Hunsicker *et al*., 1996). Russia has since been in a period of continuous economic and legislative reform and the government continues to enact and modify policies in a bid to address the growing challenges of waste management (Kovalenko & Kovalenko 2018). Nonetheless evidence of a weakened municipal waste management system is still largely evident through the high rate of externalities caused by land-filling, unstructured tariff policy and inadequate recycling models (Skryhan *et al.*, 2018). The waste reform process has therefore been propelled by the need for attaining societal utility and managing public scrutiny based on community concerns over public health and environmental hazards.

For over two decades the Russian government has been leading efforts towards the control and regulation of waste disposal but this process has been slow due to administrative bureaucracy and has mostly involved the promulgation of new or amended legislation (Safonov *et al*., 2013). On June 24, 1998 Russia promulgated the federal law N 89-FZ[6] on the 'Production and Consumption Wastes'. The legislature established the policy for waste management including procedures for accounting, reporting and general administration. The law also contains vendor engagement procedures; it states that regional operators be selected through a tender process; once engaged, the vendor (regional operator) should comply with the okrug's Local Self Government (LSG) garbage collection program. In reality this 'collection program' is largely structured by the regional operator depending on their fleet volume and capacity, the LSG then helps facilitate the household/community waste collection system. While waste management tariffs are determined by the local authorities, the process of determining the actual cost is dependent on the annual fee paid to the regional operator. Policies were enacted following the traditional bureaucratic system of governance following a top-down approach, this created serious performance challenges leading to a bureaucratic market system within the waste sector. Federal Law N 458-FZ[7] December 29, 2014 further imposed significant waste management obligations

6 Federal Law No. 83-FZ: https://www.mos.ru/eco/documents/control-activity/view/62921220/

7 Federal Law No. 458-FZ amending Federal Law No 89-FZ: http://extwprlegs1.fao.org/docs/pdf/rus140443.pdf

on manufacturers and importers. This law was enacted to encourage reprocessing by manufacturers which would reduce the volume of waste generated and sent to landfills. It was also aimed at propelling the modernization of technology in waste disposal systems, unfortunately many manufacturers and importers still face multiple performance challenges such as incompatible waste classification systems, inconsistency in legal and regulatory frameworks, poor accounting and a defunct reporting system for waste packaging (UNIDO, 2017; AmCham 2016, 2017). Definitions were gradually amended and processes better aligned with EU/OECD standards. Also in 2016 the classification of '*Municipal Solid Waste*' (MSW) was subdivided into '*municipal solid waste*' and '*municipal communal waste*' (meaning neighbourhood or household waste) this was done to facilitate a more efficient waste collection network system (Agiamoh, 2020).

In 2017 the Federal Service for Supervision of Natural Resources (Rosprirodnadzor) released a special order No. 242 on the '*Federal classification catalogue of waste*' this legislature[8] expanded the definitions as contained in Order No. 786 of December 02, 2002 and the "Amendment to the Federal Waste Classification Catalogue" as contained in Order No. 663 of July 30. 2003. This policy came into effect in 2018 and not only defined and classified the type of waste but also specified the type of companies that could handle the collection and disposal of such waste. The classification system however, has its drawbacks as not many understand this new categorization system or how exactly it would facilitate final reuse or recycling of waste products (Dumnov et al 2019). Further amendments have been made to the catalogue, the most recent being November 02, 2018 No. 451 (Russian Federation, 2018).

On December 31, 2017 Federal Law 503-FZ introduced amendments to the Federal Law 'On Production and Consumption Waste' and Certain Legislative Acts of the Russian Federation[9] promulgated the separation of administrative oversight and waste process management, thereby introducing a Federal waste management scheme, regional program and territorial waste management scheme. Through this law powers were delineated thereby stripping the local/municipal governments from administrative/operational powers and vesting same on the Regional operators.

The government in July 2019 by Federal decree 225-FZ established the Russian Ecological Operator (https://reo.ru/) a public company that supports the government in achieving its strategies for waste sector reform by attracting investments, auditing the private sector waste operators and providing key consultations for the government. New administrative processes and innovative technologies have

8 Federal Law No. 242: http://publication.pravo.gov.ru/Document/View/0001201706130004

9 Federal Law No.503 FZ: http://www.consultant.ru/document/cons_doc_LAW_286766/

also been introduced to support policy regulation and the Russian government has recently approved the creation of a Federal waste management scheme with connected territorial waste management schemes to allow for the timely collection, transportation and processing of waste (Gaevaya et. al. 2019). Waste collection companies are required by government decree No. 641 of August 25, 2008 and No. 1156 of November 12, 2016 to equip garbage trucks with GLONASS[10] monitoring. From January 01, 2018 all waste collection vehicles are expected to be equipped with the GLONASS satellite navigation system and monitoring devices to curtail indiscriminate dumping and prevent the emergence of new unauthorized landfills. Furthermore Federal Law N 225-FZ[11] (June 26, 2019) approves the creation of a unified state information system for waste management administration under the 'National Ecology Project'. This system will be developed to provide uniform administrative oversight for the various facilities involved with processing, recycling and treatment of MSW. The proposed GIS system will be managed by the Ministry of Natural Resources and will also provide information on vendor contracts, tariffs and related stakeholder information.

The new waste management structure 'waste reform' is currently being implemented concurrently at three levels: Federal, regional and municipal. A two-tier system for operators at the federal and regional levels is currently in place. The federal operator manages waste with I and II classification while the regional operators manage waste classified as III, IV and V which includes municipal waste. The roles of each have been identified below (culled from CMS Russia via Lexology[12]):

Federal Level: Oversight 'policy & regulation role'

- Licensing, processing and management of I - IV hazard class wastes;
- Approval of federal and territorial waste management schemes;
- Management of MSW investment and production programmes;
- Process development and approval for dispute resolution between stakeholders in the waste management system;
- Process development and evaluation of MSW information and accounting systems; and

10 GLONASSG stands for Globalnaya Navigazionnaya Sputnikovaya Sistema, or Global Navigation Satellite System. Russia's Global Positioning System (GPS)

11 Federal Law No. 225: https://www.garant.ru/products/ipo/prime/doc/72232550/

12 Lexology: https://www.lexology.com/library/detail.aspx?g=c0f5d11d-c753-46f2-8180-7deffb15069fe

- Process development and evaluation of operators and waste management programmes.

Regional Level - Vested with additional powers 'operations role':

- establishing waste generation standards and waste disposal limits;
- approving cap rates for MSW management;
- approving investment programmes related to MSW;
- receiving waste management reports from legal entities and individual entrepreneurs operating at class III category facilities;
- approving the procedure for MSW accumulation;
- regulating regional operators' activities; and
- developing and approving the territorial waste management scheme.

Municipal Level - Scope of powers have been reduced to 'support role':

- set up and maintenance of MSW collection sites
- determine location layouts for such sites
- maintain a register of MSW accumulation sites
- organise environmental education and the formation of an environmental culture related to MSW management

It should be mentioned however that innovation in the governance system comes with its inherent risks and increased costs for both the government and citizenry (Barabashev, Klimenko, 2017) so despite the overwhelming legislative effort to streamline waste management, the implementation of general policy provisions is still largely inadequate (Kovalenko, Kovalenko 2018). Most regions are facing huge budgetary constraints with implementing the new reform and depend largely on Federal subsidies to ensure continued waste collection and processing. Some regions also face challenges with inadequate infrastructure to support the new waste system.

MUNICIPAL WASTE MANAGEMENT IN MOSCOW CITY

A recent report by the Moscow Mayor's office on the *Territorial Scheme for Waste Management in Moscow*[13] (2019), projected that the volume of waste in the city will grow from 8 million tons/annum in 2020 to around 8.5 million tons/annum by 2029. Most of this waste will still be landfilled in designated waste disposal sites located in the Moscow region. Inter-municipal cooperation agreements have been drawn up between both territories to ensure free movement of waste and supporting infrastructural budgetary allocation to facilitate the construction of four thermal waste-to-energy processing plants in the Moscow Region each having an operating capacity of 700,000 tons/yr and 75 MWe in power generation which would also be fed into the grid supplying electricity to approximately 1.5 million people[14](Agiamoh, 2021). Two of these plants are expected to be in operation by October 2021[15] and to provide thousands of new job opportunities over the lifetime of the project. So far 39 landfills have been closed within the Moscow region as part of the government's green initiative efforts towards suburban regeneration. While this has ameliorated public dissent regarding landfills and their spill-over effects, it has also placed added pressure on the existing waste treatment infrastructure causing increased illegal waste dumping and pollution. 'Dobrodel' an e-governance regulatory framework by the Moscow Oblast recently conducted a public satisfaction survey regarding the work of municipal authorities in the elimination of unauthorized waste dumps. The survey revealed that while the majority of the population was concerned about illegal waste dumps, the municipal authorities were not providing sufficient information and did a poor job of cleaning up such sites[16]. Unfortunately the separate waste collection system has not been very successful[17] especially with the onset of the COVID-19 pandemic. However some civic organisations like the Rsbor[18] are trying to sensitize the public and create a platform for greater community participation in the waste recycling process. Major negative externalities that have been identified in Moscow is associated with the devaluation of residential property specifically in relation to proximity of waste disposal sites (Agiamoh, Larionova, 2020).

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13 Moscow Mayor Official Website: https://www.mos.ru/upload/documents/files/1934/1_Proekatdokymenta.pdf

14 Although unnecessary since the city is already powered by nuclear plants

15 BioEnergy International: https://bioenergyinternational.com/heat-power/consortium-to-build-four-waste-to-energy-plants-in-moscow

16 https://dobrodel.mosreg.ru/polls/stats/292

17 Daily Afisha https://daily.afisha.ru/cities/14297-chto-proishodit-s-musorom-v-moskve-i-pochemu-razdelnyy-sbor-ne-rabotaet/

18 Rsbor https://rsbor-msk.ru/vnedrenie-rso-v-moskve/

Stakeholders, Competition and Common Good

Municipal waste management is typically referenced as a utility service, competition is minimal or often non-existent and usually only focused upstream at the stage of market entry, licensing and public bidding processes. This structure therefore encourages market monopoly, corruption and inefficiency in most government systems. Research shows that competition in the waste sector has its advantages when measured in terms of operational expenditure (Soukupová, Vaceková, 2015), however competition in this industry also tends to create anticompetitive tendencies by major stakeholders (Soukupová, Vaceková, 2018) leading to the problem of operator collective action.

There are currently five major regional operators that have been licensed for waste collection and disposal in Moscow, each of these companies cover an average of two districts each (approximately 2.5 million inhabitants). These companies obtained their licences through a public bidding process conducted by the mayor's office. However, some okrugs were unable to conclude on the bidding process and now have separate annual contracts with their pre-selected regional operators. There have been allegations of public corruption and interference in the waste sector but so far the system in place offers an efficient collection system. Currently payments to regional operators are facilitated by the district's department of housing and communal services but exact figures are not publicly available. These operators hire subcontractors to support their activities and hold partnership agreements with sorting and recycling facilities. According to government reports, it is estimated that their involvement in the recycling process will reduce landfill waste by 40-50% in the near future[19]. There are currently 81 companies altogether that have been approved for recycled waste processing (paper, metal, glass, electronics and plastic) within Moscow city (31 companies) and the Moscow region (50 companies). Plans are already under-way to have one central regional operator for waste management by 2022 this company will be responsible for coordinating uniform waste management oversight across board and it is believed that having one private sector company overseeing this sector will bring about better transparency within a centralized network and provide data that will enable the government establish better environmental policy reforms and resource planning[20]. The central regional operator is expected to cap tariffs at 5,133 rubles (VAT inclusive) per ton and this tariff is projected to grow to 5,540 rubles by 2029. However it is unclear if such a move within the quasi-market process will ultimately lead to total-monopoly within the sector and further cripple new market entrants and technological advancement at the local

19 Russian Gazette: https://rg.ru/2019/08/08/v-moskve-poiavitsia-edinyj-operator-po-sboru-i-vyvozu-musora.html

20 RBC News: https://www.rbc.ru/trends/green/5d66940a9a79475b4d71346e

level. Considering that this company will ultimately have the authority to decide the waste management strategy for the entire region as well as provide operational oversight and vetting rights for engaging other waste management companies and operational stakeholders, it may end up being another bureaucratic bottleneck in the waste management sector if free market forces are hindered or if regulatory oversight is not fully implemented. The results of the tender process should have been released on the 30th of April but so far there has been no public announcement regarding the winning bid.

Municipal Solid Waste Management for the most part is seen as an impure public good (Cavé, 2014), which means parts of the service are accessible to all members of a given public and the government carries responsibilities of providing a clean and safe environment yet members of the public are obliged to pay for the services rendered such as waste collection and transportation. However the issue of non-excludability and non-rivalrous consumption are also part of the system. For instance, Moscow is characterised by high-rise apartment style buildings with over 300 apartments in one building block, each apartment receives a monthly utility bill which includes waste collection services. The tariff is calculated based on the number of residents in a given apartment space (For instance if the apartment is rented out to a family of five), however sometimes such information is not available and the tariff is calculated based on how many people are registered as owners of the apartment. Currently, Moscow residents pay around 30.49 rubles for 1 sq.m so the owner of a 45 sq.m apartment pays around 235.35 rubles monthly for garbage collection[21]. However, all waste is deposited in general collection bins usually located beside the building. The waste collectors therefore clear all waste in such bins regardless of the percent of utility bills covered as they cannot determine if all waste deposited is from paying residents. In this case, there could be several free-riders who simply deposit their waste in the general collection bin without settling their monthly bills, or residents from adjoining single home or small estates who do not have a subsidized tariff plan and may prefer depositing their waste in a bin meant for condominiums. The government takes measures to ensure that bills are settled and oftentimes non-paying residents are called to court. Also in the case of waste deposited in public areas such as parks and bus stops the government covers such collection costs. There are currently no public incentives to promote at-source sorting of waste or recycling and home owners who live in enclosed estates or own their homes in the suburbs are required to make their own arrangements for waste evacuation which is often priced based on current market rates by the waste collection companies and evacuated once or twice a week.

21 https://www.rbc.ru/business/24/01/2020/5e2842f79a7947083e30e599

The Russian Federation provides social welfare for its citizens which includes free medical insurance, transport subsidies, and other welfare packages and utility subsidies, especially for young families, pensioners and veterans. Pensioners are also provided with added welfare benefits, more so for veterans and invalids. The law also ensures that communal waste collection points are cleared regularly; especially in multi-apartment buildings; even if some residents do not pay their utility bills as previously explained, the government covers this cost to maintain a clean and safe environment. In 2020, 8.9 Billion rubles was allocated by the federal budget in support of regional operators. The Ministry of Finance and the Ministry of Natural Resources together with the Russian Environmental Operator (reo.ru) have also developed financial instruments to support investment in the waste sector such as equity loans, bonds and subsidies[22]. Such government intervention on multiple fronts complicates the calculation of the cost of externalities specifically for health insurance claims since the government provides access to free healthcare and medicines. Residents who live in close proximity to landfills or waste disposal sites are also given subsidies on their waste bills (up to 70% for veterans). One can of course look at the budgetary allocations for such expenses but the data would simply reflect funds allocated to healthcare, the waste sector, etc. Data can also be pulled for mortality rates but these also would reflect a broad spectrum of causes e.g. heart failure, lung infections, etc most of these are typically linked to lifestyle choices such as alcohol dependence, smoking, etc; for which the government already has dedicated support programs and policies. In effect, the cost of externalities is borne by the government on a federal scale maintaining the constitutional social governance structure; which also inadvertently poses some challenges to improved efficiency in institutional development (Barabashev & Klimenko, 2017). So while it can be argued that based on the social government structure provided to citizens, the 'Common Good' is being upheld by improved infrastructure, employment opportunities and relatively low utility bills reflected in the current cost of living index[23] (compared to other cities in Europe), the current externalities costs - environmental, social and economic, may far exceed the accepted norm but are still covered by the government which exerts an overall stalling effect on the country's Gross Domestic Product (GDP).

Case Study - Mechel's Harmless Odours

Mechel PAO formerly known as Public Joint Stock Company Mechel, is one of Russia's leading mining and metals companies. The company is headquartered

22 https://www.rbc.ru/business/25/09/2020/5f6c90ad9a79477833703e9a?from=materials_on_subject

23 Cost of Living Index by City: https://www.numbeo.com/cost-of-living/region_rankings_current.jsp?region=150

in Moscow and ranks globally within the Top 10 metallurgical producers of coal and coking coal concentrate. Mechel is also Russia's second largest producer of long rolls and Russia's largest and most diversified producer of specialty steels and alloys. Mechel's metal trading network comprises over 80 branches including 18 service centers. It consists of a Russian company and subsidiaries in the CIS member states, Western and Eastern Europe; in 2020 the company's revenue exceeded 265 bn rubles. Mechel is the first and only coal mining and metals company in the region of Central and Eastern Europe and Russia having its shares placed on the New York Stock Exchange. The manufacturer has supplied over 35,000 tonnes of rolled steel products and 85,000 tonnes of rails for construction of Moscow Metro in the past five years (www.mechel.com).

One of Mechel's plants is located 4 kilometers from Moscow in the city of Vidnoye within the Leninsky Gorodskoy District of Moscow Oblast. Construction of the plant began in 1938, works stopped during World War II and the plant began operations in Spring of 1951 when Vidnoye was still a workers settlement village that accommodated most of the factory employees. Currently the plant serves as a major employer in the region with over a thousand employees. Vidnoye city has since grown and new estate condominiums have also popped up relatively close to the plant. The 2020 population of Leninsky Gorodskoy District was 167,927 and 78,034 in Vidnoye city. The district as a whole is growing rapidly with large infrastructural development of condominiums underway. One of such mega estates near the plant is Prigorod Lesnoe[24] which when completed should house a projected population of 88,000.

Recently there have been hundreds of environmental pollution complaints to the Federal Service for Supervision of Natural Resources (Rosprirodnadzor) by nearby residents alleging that the plant has begun incinerating construction and municipal waste which now affects the air quality of the area especially at night. Complaints vary in intensity from perceiving foul or toxic waste odours causing nausea, headaches, itching and respiratory problems which further prevent a holistic suburban lifestyle. The plant administration however maintains that all processes are controlled and within the agreeable norm with no negative impact on the surrounding environment.

The Interregional Directorate of Rosprirodnadzor for the Moscow and Smolensk Regions evaluated the plants adherence to environmental safety standards (order No. 08-36/165) previously issued on the elimination of violations on the mandatory requirements. The audit showed that the facility did not fulfill several points specified in the order: gas treatment plants still do not provide design treatment for coke dust and soil contamination has not been eliminated.

24 Prigorod Lesnoe: https://samolet.ru/project/prigorod-lesnoe/

Furthermore the plant has failed to coordinated with the Ministry of Ecology and Nature Management of the Moscow Region measures to reduce emissions of pollutants into the air during periods of unfavorable meteorological conditions. Environmental requirements are not fully observed when operating biochemical waste-water treatment during coke production, and there is insufficient water purification from phenols and oil products.It was also noted that the enterprise allowed concealment or distortion of environmentally important information: when calculating the amount of payment for the disposal of production waste, the formation of 6 types of waste was identified, as opposed to their filing of 2 type of waste byproducts (2-TP). In July 2021, Rosprirodnadzor completed the verification of production, which showed that the baseline indicators for pollutants emitted into the atmosphere, including carbon monoxide and coke dust, were significantly underestimated in the company's reports. These data are the basis for the establishment of a sanitary protection zone (SPZ), inventory and obtaining a permit for emissions into the atmosphere. In October 2021, Rosprirodnadzor took the Mechel plant to court demanding temporary closure and a fine till the leakages have been addressed. Initially it was announced that the court had ordered a fine of 1.28 million rubles and issued a stop-work order however a couple of days later Mechel announced that the fines amounted to 70,000 rubles only and no stop-order was applied since the plant was not in violation of any environmental policy. Mechel also made a case that it is surrounded by other industrial plants such as waste processing plants and an asphalt concrete plant which could be contributors to the foul odour perceived by communities nearby. According to Solidarmost.org[25] Vladimir Kokorev, head of the coke shop had this to say. "We have a waste processing plant behind us, there is an asphalt concrete plant nearby, several spontaneous dumps that periodically burn, and there are also a few scrap metal collection points: they burn wires at night to remove the braiding from the metal wires. And we ourselves suffer from the smell of the waste recycling plant when the wind blows towards the enterprise". According to the workers of the plant, there are about 100 legal entities in the Vidnoye city industrial zone, and only 20 of them have officially declared harmful emissions. "What other legal entities are doing is unknown. Moreover, it is not the first time that extraneous odors are attributed to the plant, and it has to solve the problem". Mechel is also lobbying based on the volume of employees it caters to and the overriding economic advantage associated with the plant. Environmental activists are not letting up however and continue to petition the municipal authorities and the state to ensure the 'harmless odour' ceases. These environmental groups have become quite organised and are mostly utilizing social media platforms to solicit public participation in the oversight of ecological projects in the district.

25 https://www.solidarnost.org/articles/kto-zakazal-moskox.html

Interestingly these environmental groups are seeking to apply spill-over costs to various processes as suggested by Beloff et al., (2000): Reports are made regularly to various municipal agencies detailing the problem and stating the cost to health and well-being (often with evidence of doctors reports and bills for medicines) thereby increasing government expense in the way of time spent, investigation, equipment and clean-up. Mechel has also been forced to increase PR spending and lobbying costs as was recently witnessed when the plant invited residents of the Prigorod Lesnoye condominium complex to visit the plant for a tour and gifted the estate trees as well as provided free snacks and entertainment for the residents.

CONCLUSION

Municipal waste management as a segment of public utilities often needs to be revamped to meet the growing demands of the community. This however is often a complex process and involves policy, infrastructure and economic reforms. Moscow city has been in the process of innovating its municipal waste system which also has its challenges due to the sheer population of the city and outward spatial development constraints. The city depends largely on its cooperation with the surrounding Moscow Oblast for waste processing, treatment and landfills.

Over the years new legislation has been introduced and amended to facilitate higher rates of at-source separation of waste and recycling. Unfortunately this has not yielded the expected outputs since there are still no incentive programs and now the city is dependent on new MSW technologies specifically incineration and waste-to-energy to help cater to the growing volumes of municipal waste generated by the city. This solution is particularly necessary to address the growing discontent by communities located near landfills and waste disposal sites. So far the environmental impact assessment reports project it as an ecologically safe alternative to traditional open dumping systems. It is still difficult to measure the full cost of externalities involved with this development. Currently however, research has focused on the rate of property devaluation in relation to distance from existing or dormant waste disposal sites.

In summary the municipal waste challenges in Moscow can be identified as follows:

- Spatial constraints within the scope of urban planning and design for new waste processing infrastructure
- Inadequate policy implementation with regards to public sensitization, information access and practical application

- Volume of waste generated far exceeds the capacity of current waste treatment infrastructure
- Variations in tariff pricing, municipal budgeting and unidentified cost of externalities due to the current decentralized system of waste collection and management of waste collection companies (also duplicate reporting and budgeting)
- Community dissension, environmental protests and poor public relations in general which hinders local cooperation with some municipalities in the Moscow Oblast (surrounding Moscow Region).

The Moscow government indeed recognizes these set-backs and has put programs in place to manage these challenges through the new waste territorial scheme which has effectively shut-down thirty nine (39) landfills and waste disposal sites and created some administrative structure to support with measuring the volume of waste generated. Information is key in developing this sector and the new structure allows for centralized data collection which should provide much needed insight and in-turn help improve projections and future planning initiatives. Public sensitization programs have also been launched to quell public discontent. Inter-municipal cooperation with the Moscow Region government and the establishment of quasi-government agencies to manage oversight of this sector through open governance initiatives have also been a high-priority for the government both at the Federal and State level. The case study of Mechel reveals that while public petitions contribute to good governance, actual change may hardly be implemented without first assigning an economic cost to negative externalities.

Future research in this sector should provide more in-depth evaluation of the performance of the new waste territorial scheme and perhaps also review the networks between inter-government agencies in relation to more efficient waste management in Moscow city.

LITERATURE

1. AGIAMOH, R. 2020. From bureaucracy to market? Ongoing reform and performance challenges of solid waste administration in Moscow. Public administration issues, (5), 149-170.
2. AGIAMOH, R. 2021. Inter-Regional Cooperation in Waste Management: New Trends in Moscow and the Moscow Region, The NISPAcee Journal of Public Administration and Policy Volume XIV Number 2 Winter 2021

3. AGIAMOH, R. G., & LARIONOVA, A. N. 2020. Impact of Waste Disposal Sites on Property Value in Moscow, Russia. Journal of Urban Ethnography 71. Urbanities, Vol. 10 · No 2· November 2020
4. ACHILLAS,C.,MOUSSIOPOULOS,N.,KARAGIANNIDIS,A.,BANIAS, G., PERKOULIDIS, G. 2013. The use of multi-criteria decision analysis to tackle waste management problems: A literature review. Waste Management and Research, 31(2), 115-129.
5. AmCham (American Chamber of Commerce) in Russia. 2016. Law on Production and Consumption Waste (Accessed 04 April 2021), <https://www.amcham.ru/uploads/AmCham%20Policy%20Paper%20Waste%20Management%202016-04-06%20eng.pdf>
6. AmCham (American Chamber of Commerce) in Russia. 2017. Waste Management Law Bulletin (Feb 2017). (Accessed 04 April 2021), <https://www.amcham.ru/uploads/AmCham%20Waste%20Management%20Law%20Bulletin%202017-02.pdf>
7. ANSCHÜTZ, J., IJGOSSE, J., SCHEINBERG, A. 2004. Putting integrated sustainable waste management into practice. Waste Netherland.
8. AYALON, O., AVNIMELECH, Y., SHECHTER, M. 1999. Issues in designing an effective solid waste policy: the Israeli experience. The market and the environment: the effectiveness of market based instruments for environmental reform. UK: Edward Elgar, 389-406.
9. BABU, B.R., PARANDE, A.K., BASHA, C.A. 2007. Electrical and electronic waste: A global environmental problem. Waste Management and Research, 25(4), 307-318
10. BARABASHEV, A., KLIMENKO, A. V. 2017. Russian Governance Changes and Performance. Chin. Polit. Sci. Rev. (2017) 2:22–39. DOI 10.1007/s41111-017-0057-z
11. BELOFF, B. R., BEAVER, E. R., MASSIN, H. 2000. Assessing societal costs associated with environmental impacts. Environmental Quality Management, 10(2), 67-82.
12. CAVÉ, J. 2014. Who owns urban waste? Appropriation conflicts in emerging countries. Waste Management & Research, 32(9), 813-821.
13. CLARK, C. W. 2013. Commons, Concept and Theory of. In Encyclopedia of Biodiversity (Second Edition) 2013, Pages 149-154 https://doi.org/10.1016/B978-0-12-384719-5.00026-5 ISBN 9780123847201

14. CLEARY, J. 2009. Life cycle assessments of municipal solid waste management systems: A comparative analysis of selected peer reviewed literature. Environment International, 35(8), 1256-1266

15. CORNES, R., SANDLER, T. 1996. The theory of externalities, public goods, and club goods. Cambridge University Press.

16. DE VRIES, M., NEMEC, J. 2013. Public sector reform: an overview of recent literature and research on NPM and alternative paths. International Journal of Public Sector Management.

17. DUMNOV, A.D., PYROZHKOVA, N.V., KHARITONOVA, A.Y. 2016. Municipal solid waste statistics: trends, problems, objects. Voprosy statistiki. 2016;(6):28-51. (In Russian) <https://doi.org/10.34023/2313-6383-2016-0-6-28-51>

18. EDWARDS, J., BURN, S., CROSSIN, E., OTHMAN, M. 2018. Life cycle costing of municipal food waste management systems: The effect of environmental externalities and transfer costs using local government case studies. Resources, Conservation and Recycling, 138, 118-129.

19. ESHET, T., AYALON, O., & SHECHTER, M. 2006. Valuation of externalities of selected waste management alternatives: A comparative review and analysis. Resources, Conservation and Recycling, 46(4), 335-364.

20. Eurostat. 2018, Waste statistics. Available from: https://ec.europa.eu/eurostat/statistics-explained/index.php/Waste_statistics#Waste_ treatment (accessed 07 November, 2021).

21. FEHR, M., DE CASTRO, M.S.M., CALÇADO, M.D.R. 2000. A practical solution to the problem of household waste management in Brazil. Resources, Conservation and Recycling, 30(3), 245-257.

22. FERRONATO, N., TORRETTA, V. 2019. Waste mismanagement in developing countries: A review of global issues. International journal of environmental research and public health, 16(6), 1060.

23. Finexpertiza. 2019. Russians accumulate up to 337 million cubic meters of garbage per year. Article in Russian (Accessed 15 April 2021), <https://finexpertiza.ru/press-service/researches/2019/337-mln-kubometrov-musora/?YEAR=2019&ELEMENT_CODE=337-mln-kubometrov-musora>

24. GABRIEL, F.B., EL-HALWAGI, M.M. 2005. Simultaneous synthesis of waste interception and material reuse networks: Problem reformulation for global optimization. Environmental Progress, 24(2), 171-180.

25. GAEVAYA, E., TARASOVA, S., UDARTSEVA, O. 2019. Development of territorial scheme of municipal solid wastes treatment in Tyumen region. In

IOP Conference Series: Earth and Environmental Science (Vol. 337, No. 1, p. 012026). IOP Publishing.

26. HELBLING, T. 2010. Back To Basics: What Are Externalities?. Finance & Development, 47(004). https://www.imf.org/external/pubs/ft/fandd/basics/external.htm

27. HUNSICKER, MD, CROCKETT, TR AND LABODE BMA. 1996. An overview of the municipal waste incineration industry in Asia and the former Soviet Union. Journal of Hazardous Materials 47: 31–42.

28. KAZA, SILPA; YAO, LISA C.; BHADA-TATA, PERINAZ; VAN WOERDEN, FRANK. 2018. What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050. Urban Development;. Washington, DC: World Bank. © World Bank. <https://openknowledge.worldbank.org/handle/10986/30317> License: CC BY 3.0 IGO."

29. KOESTER, U. 2014. Food loss and waste as an economic and policy problem. Intereconomics, 49(6), 348-354.

30. KOVALENKO, K., KOVALENKO, N. 2018. The problem of waste in the Russian Federation MATEC Web of Conferences 193, 02030 (2018) DOI 10.1051/matecconf/201819302030

31. MARTINEZ-SANCHEZ, V., LEVIS, J.W., DAMGAARD, A., DECAROLIS, J. F., BARLAZ, M. A., & ASTRUP, T. F. 2017. Evaluation of externality costs in life-cycle optimization of municipal solid waste management systems. Environmental science & technology, 51(6), 3119-3127.

32. PARTHAN, S.R., MILKE, M.W., WILSON, D.C., COCKS, J.H. 2012. Cost estimation for solid waste management in industrialising regions precedents, problems and prospects. Waste Management, 32(3), 584-594.

33. PIERCE, N. 1993. Waste management challenges in Russia, Ukraine, and Estonia. Waste Age 24: 194–196.

34. RODIC, L., SCHEINBERG, A., WILSON, D. C. 2010. Comparing solid waste management in the world's cities. Key-note paper at ISWA World Congress 2010. Urban Development and Sustainability–a Major Challenge for Waste Management in the 21st Century, Hamburg, Germany, 15-18.

35. RODIĆ, L., WILSON, D.C. 2017, Resolving governance issues to achieve priority sustainable development goals related to solid waste management in developing countries. Sustainability (Switzerland), 9(3), 404.

36. Russian Federation. 1998. Federal Law of June 24, 1998 N 89-ФЗ "On Production and Consumption Wastes" (in Russian)

37. Russian Federation. 2014. Order of the Ministry of Natural Resources of Russia dated 04. 12. 2014 N 536 “On approval of the Criteria for classifying wastes as I-V hazard classes by the degree of negative impact on the environment” (in Russian)

38. Russian Federation. 2016. The rules for the treatment of solid municipal waste, approved by Decree of the Government of the Russian Federation of 11. 11. 2016, N 1156 (in Russian)

39. Russian Federation. 2018. Federal Waste Classification Catalogue, Order of Rosprirodnadzor of May 22, 2017 No. 242 (as amended on November 2, 2018 No. 451) (in Russian) <http://kod-fkko.ru/>

40. SAFONOV G., BOBYLEV S., PERELET R., DAVYDOVA A., KOKORIN A., et al. 2013. Sustainable development in Russia. St. Petersburg, Berlin: German-Russian Exchange Berlin and Russian-German Environmental Information Bureau, 2013.

41. SCHÜBELER, P., CHRISTEN, J., WEHRLE, K. 1996. Conceptual framet work for municipal solid waste management in low-income countries (Vol. 9). St. Gallen: SKAT (Swiss Center for Development Cooperation).

42. SIM, N.M., WILSON, D.C., VELIS, C.A. SMITH, S.R. 2013. Waste management and recycling in the former Soviet Union – Case study of Bishkek, Kyrgyz Republic (Kyrgyzstan). Waste Management and Research, 31 (10 Supplement), 106-125

43. SKRYHAN, H., SHILOVA I., KHANDOGINA, O., ABASHYNA, K., CHERNIKOVA, O. 2018. ‘Waste Management in Post-Soviet Countries: How far from the EU’ DETRITUS Multidisciplinary Journal for Waste Resources & Residues, Volume 03 - 2018, pp 193-203. DOI 10.31025/2611-4135/2018.13657

44. SOUKUPOVÁ, J., VACEKOVÁ, G. 2015. Competition and municipal waste management expenditure: Evidence from the Czech Republic Olomouc Region. Scientific papers of the University of Pardubice. Series D, Faculty of Economics and Administration. 35/2015.

45. SOUKOPOVÁ, J., VACEKOVÁ, G. 2018. Internal factors of intermunicipal cooperation: what matters most and why? Local Government Studies, 44(1), 105-126.

46. The Mayor of Moscow Official Website. 2019. Report on the Territorial Scheme for Waste Management in Moscow, accessed 12 April 2021, <https://www.mos.ru/upload/documents/files/1934/1_Proektdokymenta.pdf>

47. UNIDO Centre for International Industrial Cooperation in the Russian Federation. 2017. Project Overview: BAT/BEP Center for Environmentally Safe Disposal of Potentially Hazardous Consumer Products and Industrial Wastes. Accessed 05 April 2021. <http://www.unido.ru/upload/files/b/bat_bep_project_overview_broshure_eng.pdf>
48. VAN DE KLUNDERT, A., ANSCHÜTZ, J., SCHEINBERG, A. 2001. Integrated sustainable waste management-the concept. Tools for decision-makers. Experiences from the urban waste expertise programme (1995-2001).
49. VERTAKOVA, Y., PLOTNIKOV, V. 2017. Problems of sustainable development worldwide and public policies for green economy. Economic Annals XXI, 166(78), 4-10.
50. WILSON, D. C., RODIC, L., SCHEINBERG, A., VELIS, C. A., ALABASTER, G. 2012. Comparative analysis of solid waste management in 20 cities. Waste management & research, 30(3), 237-254.

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ARTS IN MEDICINE AS AN ALTERNATIVE COST-EFFECTIVE MEDICAL TREATMENT

VYUŽÍVANIE UMENIA V MEDICÍNE AKO NÁKLADOVO EFEKTÍVNA ALTERNATÍVA LIEČENIA

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Abstract

This article deals with the implementation of Arts in Medicine into the healthcare system and presents supporting research that focuses on the positive outcomes of Arts in Medicine. As a result of the introduction of art programs, there was a reduction in staff turnover, length of hospital stays, a reduction in the cost of inpatient care, and a reduction in the necessity of medicines for depression and dementia. Research conducted in the USA and Great Britain supports the arts as a solution to global healthcare problems that the Czech Republic also faces. From an economic point of view, this work deals with cost-effectiveness and social return on investment in the Arts in Medicine. This work presents legitimate and convincing conclusions that evokes support for state investments into Arts in Medicine.

Key words: arts in medicine, dementia and depression treatment, imperfect information in the healthcare system, role of the state in the healthcare system, turnover of hospital staff

JEL Classification: I10

INTRODUCTION

Arts in Medicine is an alternative treatment method commonly utilized in both the U.S.A. and U.K. It has garnered promising results which justifies an

investigation into the outcomes of art intervention methods. Positive outcomes, such as a reduction in nursing turnover, have been observed in health systems of Titusville, Florida (Center for Health Design, nd; Rollins, Sonke, Cohen, Boles, Li, 2009). Additionally, the health system of the U.K. has seen significant positive returns on their investment in art intervention programs (Jones, Windle, Edwards, 2018) and deserves attention from stakeholders. Art intervention also improves patient recovery (Beauchemin, Hays, 1996) and hospital staff satisfaction (Staricoff, Duncan, Wright, 2003). Music and art therapies have increased the quality of life of patients (Windle, Joling, et al., 2018) by lessening the need for medication, especially among patients being treated for mental disorders (Stouffer et. al., 2007). Therefore, reduction in healthcare expenditures is a direct result of Arts in Medicine from improvements in patient and staff satisfaction. Additionally, evidence in presented studies demonstrates a reduction in rehospitalization and medical personnel turnover (Walworth, 2005). These results yield promising possibilities for innovation in healthcare.

The aim of the article is to present cost-effectiveness of Arts in Medicine with supportive research to address issues such as staff turnover or overloading of the healthcare system especially concerning excessive use of health care. The offered variant of Arts in Medicine brings positive externalities for the state, which strives for efficient allocation of funds and proper social redistribution. The methodological approach this work will conduct is a literature review of various research projects which provide insight into the challenges that the Czech Republic currently faces in fulfilling its role of supporting the healthcare system. The literature also provides possible actions that the state may take to overcome these challenges. Evaluating the data from these results will determine if the economic and societal benefits of Arts in Medicine is worthwhile for the Czech Republic to invest in. To conclude, this article aims to direct the reader towards next steps in the field of Arts in Medicine while raising awareness of potential obstacles which necessitate additional research to make the implementation of Arts in Medicine more advantageous for the Czech Republic.

1 THE ROLE OF THE STATE IN HEALTHCARE

Goals of government intervention include producing efficiency, equity, liberty, and security (Gupta, 2010). These goals ought to prioritize population health by seeking to continuously improve Czech healthcare organizations measuring efficiency by opportunity cost while ensuring consumer protection and improving quality of life (Stiglitz, 1997).

Government intervention measures rely on the provision of resources the market provides or protection of the population in order to be successful. The market provides the healthcare system private funds through insurance companies offering rivalrous, excludable private goods or services that a consumer must be willing to pay for (Gupta, 2010). Issues contributing to state intervention are the socioeconomic differences across the population where disadvantaged citizens, without insurance, would be rejected by the private market due to their inability to pay for health services. Most innovations in healthcare such as medicine are public goods. An ethical concern arises when the market patents medicines creating them as private goods, which could lead to patients being excluded from needed medication. Unrivaled private goods cause increased cost of drugs, a reduction in their use, and provokes research on generics that are just as effective but are not covered by any of the existing patents (Stiglitz, 1997). In contrast to private goods which are rivalrous and excludable, public goods are neither rivalrous nor excludable (Berry, 2021). In general, health is not a pure public good and therefore should not be fully funded by public budgets. There should be some degree of private surcharges (Lawson, Nemec, 2003).

Critical components of the state's intervention into the public health sphere involve the maintenance of the healthcare system to ensure and guarantee the availability of basic health care for all citizens. Consumer protection is the chief justification for state intervention as it is appropriate for the government to identify market imperfections (Feldstein, 2002). The state should implement an economy that is characterized by a conceptual approach and reach conclusions on how to optimally allocate resources to bring the greatest benefits to people while not neglecting cost-effectiveness. Cost reduction in medical expenditures with limited reliance on generating additional tax revenues is the ideal outcome of state intervention. It is important that the state supervises the competition and intervenes in the pricing of health services, which is usually based on acquiring clients who are willing to pay for services in cash or are guaranteed by insurance with reliable health insurance companies (Gladkij, Strnad, 2002).

The functioning of healthcare depends on the development of basic macroeconomic variables of the state, including social and health insurance (Gladkij, Ivanová, Koldová, Králová, Strnad, Zlámal, 2003). The role of the state in relation to health services has remained one of the most controversial issues as the state and market balance trade-offs to finance an efficient, equitable, free, and secure healthcare system.

According to Stiglitz, the main rationale for state intervention in healthcare is market failure, which manifests itself in three main issues: limited competition between suppliers, imperfect information provided to consumers, and externalities

(Stiglitz, 1997). In concurrence with Stiglitz, Fran Berry lists five reasons for market failure: information asymmetries, externalities (negative and positive), natural monopolies, social equity concerns, and pure public goods (Berry, 2021).

In contrast to other goods provided in the market, the patient is completely dependent on the doctor's judgment. This imperfect information reduces the degree of efficiency of the competition. Additionally, the state has taken on the role of licensing doctors and licensing medicines that can be placed on the market. This is precisely because the consumer does not have sufficient information to decide on his own medication or surgical procedure (Stiglitz, 1997).

The existence of externalities adds to the justification of government intervention in the healthcare system. The role of the government is to calculate the magnitude of externalities and respond with an appropriate tax or subsidy system. For example, in-kind demand and supply subsidies are justifiable to support the poorer population with medical care, reducing social inequity. Direct demand subsidies are faster and more efficient for increasing the use of services for a beneficiary group (Feldstein, 2002).

Another cause of market failure is limited competition. The theory of free competition is characterized by maximizing the profit of sellers in the market, the provided commodity is homogeneous, customers are well informed, they know the price and quality of goods of all traders, and consumers pay the full price of what they consume. These assumptions, which characterize a well-functioning competitive market, are not met in connection with the healthcare market. The competitive environment of the private sector (natural and legal persons, joint-stock companies, charities, etc.), is the most developed in the field of outpatient care and helps the healthcare structure to implement transformative care (Nemec, Pavlík, Malý, Kotherová, 2015). There is a shortage of hospitals in the healthcare market, which are ultimately not a public good, as they provide different quality, each hospital has a limited capacity and because doctors share information with their colleagues, competitive pressures between doctors in hospitals are reduced. Limited competition is also associated with a comparison of price and quality. Unlike standard commodities, medical care, which sets a higher price for a service, is perceived by patients as better (Stiglitz, 1997).

Health care is different from other commodities in that the customer pays for it in advance and is isolated from health care costs due to health insurance and government programs. This problem is associated with insurance causing longer and even excessive hospital stays. As inpatient care is largely covered by insurance, the patient is not forced to leave the hospital on a cost basis, so he stays longer. As doctors have recently been under pressure from litigation over medical malpractice, they prescribe drugs and examinations that are likely to be of little

benefit to the patient. Such prescriptions have led to excessive use of health insurance, which in turn has caused excessive consumption and overloading of the health system. This leads to the conclusion that insurance is the primary factor in the growth of healthcare spending. Most hospitals do not exist for profit and the costs of procedures are largely borne by a third party. Insurance that consumers pay in advance is one of the reasons why healthcare markets are characterized by limited competition (Stiglitz, 1997).

2 ARTS IN MEDICINE

Arts in Medicine consists of visual arts, music, dance, theater, and written expression. Professional artists called „Artists in Residence" are invited to hospitals and offer creative activities not only for patients but also for family members and hospital staff. These are professional artists who facilitate art in hospitals on a volunteer basis. Arts in Medicine offers an individualistic approach and the opportunity to choose from the activities offered, which contribute to a more pleasant climate in the hospital. The Arts in Medicine programs also consider the environment in which patients and hospital staff operate (Center for Arts in Medicine, University of Florida). By implementing Arts in Medicine, healthcare organizations may reduce the impact of negative externalities. This is because art itself is a positive externality which creates an aesthetically pleasing environment. The enhanced aesthetics made possible by art provide medical personnel a sense of belonging and patients with improved medical outcomes in both their physical and mental health.

A study by Beauchemin and Hays revealed that the hospital environment influences the rate of recovery. This study found that patients who are in wards or rooms exposed to sunlight and who have a comfortable environment are discharged from the hospital earlier than patients who are in depressing environments lacking sunlight and color (Beauchemin, Hays, 1996). Patients experienced less stress and exhibited less anxiety in rooms with a decorative light fixture mounted in the ceiling containing nature art (Dutro, 2007). Further measures may be hospital corridors turned into galleries, with hospital gardens also considered. According to Park, a hospital environment that functioned as a gallery, with colors and drawings, contributed to the healing process in pediatric patients (Park, 2009). Research reviewing the effectiveness of music intervention found that the inclusion of music in the hospital treatment process contributes to the healing process in pediatric patients (Stouffer et. al., 2007). Additional research has determined that music assists those of the aging population in the healing process just as music contributes to pediatric patients (Abbas, Ghazali, 2012).

The share of older people in the total population is growing significantly in the coming decades, and this will lead to a burden on the social system and people of working age. As a result, there will be a burden on healthcare. Therefore, strategies need to be put in place to deal effectively with an aging population (Eurostat, 2020). Loneliness is common in the aging population of society, potentially leading to detrimental health consequences from both a mental and physical health perspective. Loneliness is a risk factor for depression, higher blood pressure, troubled sleep, a worsened immune system, and stunted cognitive abilities (Luanaigh, Lawlor, 2008). Intervention strategies targeting loneliness, such as art intervention, is a promising alternative practice that meets several challenges the state faces. Through art-based intervention, those at risk for depression, especially amongst the aging population, can enhance their social network, self-esteem, and overall quality of life, thus reducing hospitalization of depression patients (Windle, Joling, et al., 2018). Music therapy aids in the mental, physical, and social lives of aging patients which causes a decrease in the use of medication and visits to their doctor (Stouffer et. al., 2007). These improvements in the social and mental health of aging patients bring economic benefits. Art-based intervention improves the quality of life of patients and caregivers garnering positive social value and leads to a reduction in antidepressant medication usage. As visible from the above text, many studies analyzed socio-economic dimensions of Arts in Medicine. In the following text are presented the results from selected studies illustrating the importance of art activities.

2.1 Rehospitalization of patients with menal disorders

One of the concerning outcomes of current medical procedures at the hospitals includes a high retention of patients, as many of those who are discharged quickly return for long-term care and medication. This occurrence of rehospitalization has been found to be common amongst patients who are prescribed antidepressants. For example, an interesting study published in *Frontiers in Psychiatry* examined a pool of 151 patients across two hospitals in Zurich, Switzerland. Of those patients, 54 were antidepressant users, and 97 were non-antidepressant users. Out of this pool, 45 of the antidepressant users were compared to 45 of the non-antidepressant users. The results of the study showed that 35.6% of the antidepressant users returned for rehospitalization at least once with another 22.2% returning two or more times with the duration of rehospitalization lasting a mean total of 22.22 days. This is contrasted to 22.2% of non-antidepressant users returning for rehospitalization at least once and only 2.2% returning two or more

times with the duration lasting 8.51 mean total days (Hengartner, Passalacqua, Andreae, Heinsius, Hepp, Rössler, Wyl, 2019).

Table 1: Rehospitalization Averages

Taking antidepressants	YES	NO
Rehospitalization occuring at least once	35.60 %	22.20 %
Rehospitalization occurring twice or more	22.20 %	2.20 %
Time spent in rehospitalization	22.22 days	8.51 days

Source: Hengartner, Passalacqua, Andreae, Heinsius, Hepp, Rössler, Wyl, 2019.

1.2 The role of arts in medicine in the retention of nurses

Art programs can create a less stressful work environment for nurses and other healthcare professionals. Arts in Medicine provides a means for dissatisfied employees to develop a sense of belonging with the provision of art for patients, and it provides a means for employees to find physical, mental, and emotional rest. The pleasant environment of the hospital increases the satisfaction of patients and families with the health care provider, which improves the satisfaction of employees in the workplace (Center for Health Design, nd; Rollins, Sonke, Cohen, Boles, Li, 2009).

The quality of health care provision is linked to staff turnover (Ondřichová, 2008). The investment in the qualifications of medical staff is costly, so staff retention is a very important issue. U.S. studies have found that the availability of an active arts program integrated into the healthcare environment was found to be a major consideration for healthcare staff when seeking employment or considering whether to remain in their current position (Staricoff, Duncan, Wright, 2003). Nurses at the Feist-Weiller Center in Shreveport, Louisiana, say patients require less attention when participating in art programs. In terms of medical cost savings, this was a 3.1% cost reduction (Rollins, Sonke, Cohen, Boles, Li, 2009). The Medical Center in Titusville, Florida, opened a new hospital facility in 2002, in which art had already been implemented in the new hospital setting. A survey conducted two years later showed a reduction in staff turnover from 20% per year in the old hospital to 13% in the new hospital (Center for Health Design, nd; Rollins, Sonke, Cohen, Boles, Li, 2009).

With continued growth in healthcare, nursing shortages are expected to continue through the next two decades, with demand for registered nurses (RNs) growing 2% to 3% annually (Auerbach, Buerhaus, Staiger, 2009). According to

the Journal of Nursing Administration, the cost of RN turnover ranges between a remarkable $62,100 and $67,100 per nurse (Jones, 2005). Thus, strategies that enable healthcare organizations to simply maintain their skilled labor force have their own measurable economic benefits.

Physical and psychological stress has also been found to be a factor of low retention rates among nurses. One study included a quantitative questionnaire to examine the reasons why nurses leave their department in favor of another. The study found that 59% of nurses cited physical exhaustion as the reason, 53.3% cited mental exhaustion, and 15.6% cited emotional exhaustion and a feeling of hopelessness. Of those surveyed, nearly half of the respondents experienced these feelings ‚very often", ‚often", or ‚sometimes" (Bártlová, Hajduchová, 2010). According to the research, it is stated that nurses who have an emotional relationship with the workplace remain so even in unfavorable circumstances, however, it does not reflect satisfaction in the workplace.

1.3 Arts in medicine and employee satisfaction

The forthcoming foreign research reveals hospitals which implemented Arts in Medicine in the hospital environment resulted in less staff turnover and reductions in procedural cost, medication usage, and length of hospitalizations. Hospitals that offer Arts in Medicine are more appealing for medical professionals to work at and improve the overall care for patients by offering additional services (Walworth, 2005).

Walworth's research examined the cost effectiveness of music therapy as a procedural support in the pediatric healthcare setting (Walworth, 2005). When the music therapy interventions were successful, no registered nurses were required to be present to assist, thus reducing floor time. There was a 100% success rate of eliminating the need for sedation for pediatric patients receiving echocardiograms (ECGs), an 80.7% success rate for pediatric CT scan completion without sedation, and a 94.1% success rate for all other procedures. Cost analysis on the ECG patients alone for the 92 patients was $76.15 per patient, totaling $7,005. 80. This cost is based on the following reasons:

- The RN was not required to assist, eliminating $55 per procedure.
- The sedation cost of $9.45 per dose was eliminated.
- The sonographer time was reduced from one hour to 20 minutes, decreasing the cost of the sonographer from $23.00 to $5.75 per procedure.
- The cost of the music therapist averaged $5.55 per procedure.

The economic benefits of introducing the creative arts among aging patients has been evaluated by researcher Gene Cohen in his Creativity and Aging study. The study compared a group of patients who participated in a chorale group and those who did not. The results recorded a decrease in the use of medication and visits to the doctor for those who were involved in singing activities. The calculated annual health care savings per participant was $172.91 (Cohen, 2009). As the aging population continues to rise, music programs offer potential for significant savings. The value of art programs offers additional benefits other than monetary savings. Accounting for the social value of Arts in Medicine, studies have recorded improvements in the quality of patients' lives.

1.4 The use of CBA to evaluate arts in medicine

The Centre for Health Economics and Medicines Evaluation, Dementia Services Development Centre, and the School of Health Sciences at Bangor University in the United Kingdom, conducted a yearlong study utilizing a social return on investments (SROI) analysis (a type of cost-benefit analysis) to measure the value of arts intervention in the lives of dementia patients, their families, and caregivers. The healthcare system should not only be concerned about extending the life of patients but also improving their quality of life. Therefore, the SROI in this study includes measuring the quality-adjusted life years (QALY) of the patients and their caregivers. The SROI approach is especially useful for governments to evaluate the impact of intervention on the economy, environment, and the local people. The SROI used in this study, and two other studies referenced by the researchers, found that art-based intervention has positive returns on investments (Jones, Windle, Edwards, 2018).

The study included 125 participants with mild to severe dementia and 146 caregivers divided into three groups at three sites. There were 12 participants in an art intervention group with 11 groups total amongst the three sites. A professional artist knowledgeable in teaching art to cognitively impaired patients was assisted by a second artist who together conducted two-hour art sessions once a week for twelve weeks with each group. The first site was for home care patients with family members or hired caretakers taking them to a local art gallery for their sessions. At the second site, patients were in a hospital with art being brought to the intervention group for weekly discussions. Lastly, the third site was hosted at a community library with art exhibited in an exhibition room. Sessions were conducted at the artist's discretion but typically began with art viewing and discussion, followed by creating art with the patients and caregivers who chose to participate (Jones, Windle, Edwards, 2018).

At the conclusion of one year, the results were calculated, measuring the scope and involvement of the stakeholders, mapping outcomes, evidencing, and valuing outcomes, establishing impact, and calculating the SROI ratio. The stakeholders in this study include the dementia patients and their caregivers but also the state, as the financial provider for the intervention groups, became a significant stakeholder. The chart below indicates the SROI ratio expressing the social values of the art-based intervention. The results show that for every 1(£/$/€) invested the base return is 5.18 (£/$/€) (Jones, Windle, Edwards, 2018).

Table 2: SROI Analysis Results

	SROI ratio (£/$/€)	
Scenario	Output: £980,717 ($1,445,577/€1,331,814)	Input: £189,498 ($279,320/€257,338)
Base case	5.18	1
Assuming a £0 value for the time of people with dementia, their families, and staff caregivers.	6.62	1
Assuming only 50% of outcomes materialize for people with dementia.	3.20	1
Assuming only 50% of outcomes materialize for family caregivers.	4.95	1
Assuming only 50% of outcomes materialize for staff caregivers.	5.01	1
Assuming all outcomes last up to 2 years instead of 1 year.	6.36	1
Assuming the financial proxy for a year of well-being is 75% lower.	3.75	1

Source: Jones, Windle, Edwards, 2018.

The greatest social value output was improved well-being for people with dementia, which generated a social value of £373,350 ($550,318/€507,009). The joint study evaluating the QALY supports this finding through its revealing data confirming improved interest, attention, pleasure, and self-esteem, with a reduction in loneliness and sadness in dementia patients (Windle, Joling, et al., 2018). Additionally, among those treated for depression, art intervention did result in enhancing their social network, self-esteem, and overall quality of life, ultimately reducing hospitalization of depression patients (Windle, Joling, et al., 2018).

Further positive social return on investments can also be observed from a study conducted at Tallahassee Memorial Healthcare. Research completed by (Rollins,

Sonke, Cohen, Boles, Li, 2009) selected data and evaluated that Tallahassee Memorial HealthCare, which used art during the preparation process for pediatric CT patients, saved $567 per exam. The hospital reported a 98% success rate of CT tests, which is difficult for pediatric patients to manage. This approach saved staff three hours of floor time and reduced the amount of medication needed for young patients, as well as reducing the number of nights spent in the hospital (Walworth, 2005). With at least four million CT scans performed annually on children, the potential cost savings exceed $2.25 billion (Wood, 2008).

Lastly, a report of The All-Party Parliamentary Group on Arts, Health and Well-being (APPGAHW), ‚Creative Health: The Arts for Health and Wellbeing", published in 2017 serves as support for the implementation of arts in hospitals in the Czech environment. The research lasted two years and is also relevant because it was created in cooperation with the Royal Society for Public Health, the ministers and parliamentarians from both Houses of Parliament, National Alliance for Arts Health and Wellbeing and King's College London, which all support science and research (The Welsh NHS Confederation, 2018). The results of their research are as follows:

- £1 spent on early care and education saves up to £13 in future costs.
- 79% of people in poor parts of London choose a healthier lifestyle after participating in art programs, 77% engage in more physical activity, and 82% of those involved feel mentally better.
- The study showed that the use of prescription drugs decreased as a result of the implementation of the Arts on Prescription project. There has been a 37% reduction in general practitioner (GP) consultations and a 27% reduction in hospitalizations, saving £216 per patient. As a result, the social return on investments in the arts is between £4–11 for every £1 invested in the arts.
- Music therapy reduces agitation and the need for medication in 67% of people with dementia.
- Every £1 spent on park maintenance brings £34 in community benefits.

CONCLUSION

The proposed alternative treatment Arts in Medicine will help the state achieve the proper balance accomplishing an increase in competition, while simultaneously reducing inpatient care, rehospitalization, medical cost and staff turnover. The state fulfills its role in healthcare by researching and implementing methods

that extend beyond preserving physical life but holistically improves the lives of the patients and hospital staff.

Arts in Medicine is versatile, allowing for numerous methods to be considered; hospitals, such as Huntsville Hospital for Women & Children, offer many activities in support of non-classical arts. With this method, it was found that patients experienced improved blood pressure, heart rate, and salivary immunoglobulin, which are measurable indicators for the impact of Arts in Medicine in the hospital environment (Gilpin, Ulrich, 2003). Furthermore, visual art and music, in general, are very cost-effective interventions, which according to the presented studies, reduce hospital stays due to the fact that art reduces the perceived anxiety of invasive procedures performed in hospitals. From relevant, foreign research mentioned above, it is proven that the solution for faster patient recovery is Arts in Medicine. Through the use of nature art, improved environments, social interaction, a sense of fulfilment, and increased cognitive activity, all contribute to treatment and recovery.

Investigative research in the field of Arts in Medicine is heavily focused on health benefits of dementia patients. Additional research for the discipline of Arts in Medicine ought to include returns on investments (ROI). A limited selection of research focuses solely on the economic returns Arts in Medicine produces. The SROI analysis conducted by Jones, Windle, Edwards, is one such project. While this article focused on the health and economic benefits that the implementation of Arts in Medicine can bring in a broader sense, future studies that evaluate the most cost-effective strategies in implementing individual subdisciplines are necessary whether it be musical, visual, written, or dramatic arts.

The mentioned research proves the effectiveness of Arts in Medicine and strongly encourages the implementation of this current world phenomenon into the Czech healthcare system.

LITERATURE

1. The Welsh NHS Confederation. 2018. Arts, Health and Well-being Available at: https://www.nhsconfed.org/-/media/Confederation/Files/Wales-Confed/Literature-review-of-arts-and--health-and-wellbeing.pdf. Last accessed November 26, 2021.
2. AUERBACH, D., BUERHAUS, P., STAIGER D. 2009. The Recent Surge in Nurse Employment: Causes and Implications. Health Affairs 28(4), 657–668.
3. BÁRTLOVÁ, S., HAJDUCHOVÁ, H. 2010. Psychofyzická zátěž a příčiny fluktuace sester. Zdravotnictví v České republice 8, 110–115

4. BEAUCHEMIN, K., HAYS P. 1996. Sunny hospital rooms expedite recovery from severe and refractory depressions. Journal of Affective Disorders 40(1–2), 49–51.
5. BERRY, F. 2021. Markets and Governments: Failures and Corrections. Askew School of Public Administration, Florida State University.
6. BJÖRKMAN, J., ALTENSTETTER, C. 1998. Health Policy. Cheltenham: Edward Elgar Publishing.
7. COHEN, G. 2009. New theories and research findings on the positive influence of music and art on health with ageing (online). Arts & Health: An International Journal for Research, Policy and Practice, 1(1), 48–62.
8. CRAEMER, R. 2009. The Arts and Health: From Economic Theory to Cost-Effectiveness. The University of Melbourne Refereed E-journal 2009, (1), 1–10.
9. DONABEDIAN, A. 1980. Definition of Quality and Approaches to Its Assessment: Explorations in Quality Assessment and Monitoring. Michigan: Health Administration Press.
10. DUNCAN, J., STARICOFF R., WRIGHT M. 2003. A study of the effects of visual and performing arts in health care (online). London: Chelsea and Westminster Hospital Arts.
11. DUTRO, A. 2007. Light Image Therapy in the Health Care Environment. East Tennessee State University.
12. FELDSTEIN, P. 2002. Health care economics. Clifton Park: Delmar Publishers.
13. FUCHS, V. 1988. The "competition revolution" in health care. Health Affair, 7(3), 5–24.
14. GHAZALI, R., ABBAS, M. 2012. Assessment of Healing Environment in Paediatric Wards. Procedia: Social and Behavioral Sciences, 38(1), 149–159.
15. GLADKIJ, I., STRNAD, L. 2002. Zdravotní politika, zdraví, zdravotnictví. Olomouc: Univerzita Palackého.
16. GLADKIJ, I., HEGER, L., STRNAD, L.1999. Kvalita zdravotní péče a metody jejího soustavného zlepšování. Brno: Institut pro další vzdělávání pracovníků ve zdravotnictví.
17. GLADKIJ, I. 2003. Management ve zdravotnictví: ekonomika zdravotnictví: řízení lidských zdrojů ve zdravotnictví: kvalita zdravotní péče a její vyhodnocování. Brno: Computer Press.

18. GLOVER, S., RIVERS P. 2008. Health care competition, strategic mission, and patient satisfaction: research model and propositions. Journal of Health Organization and Management 22(6), 627–641.
19. GUPTA, D. 2010. Analyzing Public Policy: Concepts, Tools, and Techniques. Washington DC: CQ Press.
20. HENGARTNER, M., PASSALACQUA, S., HEINSIUS, A., HEPP, U., RÖSSLER, W., WYL, A. 2019. Antidepressant Use during Acute Inpatient Care is Associated with an Increased Risk of Psychiatric Rehospitalization over a 12 – Month Follow-Up after Discharge. Frontiers in Psychiatry Available at: doi:10.3389/fpsyt.2019.00079. Last accessed November 29, 2021.
21. HOLČÍK, J., KOUPILOVÁ, I. 2000. Primary health care in the Czech Republic: brief history and current issues. International journal of integrated care 1(1), 1–11.
22. JONES, C., WINDLE, G., EDWARDS, R. 2020. Dementia and Imagination: A Social Return on Investment Analysis Framework for Art Activities for People Living with Dementia. The Gerontologist, 60(1), 112–123.
23. KIRKLIN, D. 2003. The Healing Environment: Without and Within. London: Royal College of Physicians of London.
24. LAWSON, C., NEMEC, J. 2003. The Political Economy of Slovak and Czech Health Policy: 1989–2000. International Political Science Review 24(2), 219–235.
25. LINDER-PELZ, S. 1982. Toward a theory of patient satisfaction. Social Science & Medicine, 16(5), 577–582.
26. LUANAIGH, C., LAWLOR, B. 2008. Loneliness and the health of older people. International Journal of Geriatric Psychiatry 23(12), 1213–1322.
27. NEMEC, J., PAVLÍK M., MALÝ, I., KOTHEROVÁ, Z. 2015. Health policy in the Czech Republic: General character and selected interesting aspects. Central European Journal of Public Policy, 9(1), 102–125.
28. ONDŘICHOVÁ, L. 2008. Nemocnicím chybějí sestry – a bude hůře. Medical tribune, 4(10)., 1-10.
29. PARK, J. 2009. Color Perception in Pediatric Patient Room Design: Healthy Children vs. Pediatric Patients. Health Environments Research & Design Journal, 2(3), 6–28.
30. ROLLINS, J., SONKE, J., COHEN, R., BOLES, A., LI, J. 2009. State of the Field Report: Arts in Healthcare. Washington, DC: Society for the Arts in Healthcare.

31. RYCZEK, K. 2010. Art for Health: Use of Art in Hospital Space. Health Management 3(12). Available at: https://healthmanagement.org/c/it/issuearticle/art-for-health-use-of-art-in-hospital-space. Last accessed November 29, 2021.
32. STIGLITZ, J. 2000. Economics of The Public Sector. New York: W. W. Norton & Company.
33. STOUFFER, J., SHIRK, B., POLOMANO, R. 2007. Practice Guidelines for Music Interventions with Hospitalized Pediatric Patients. Journal of Pediatric Nursing, 22(6), 448–456.
34. ULRICH, R., GILPIN, L. 2003. Healing Arts: Nutrition for the soul. Putting Patients First: Designing and Practicing Patient-Centered Care. San Francisco CA: Jossey Bass.
35. WALWORTH, D. 2005. Procedural-support music therapy in the healthcare setting: a cost-effectiveness analysis. Journal of Pediatric Nursing, 20(4), 276–284.
36. What is Arts in Health? 2021. Florida: College of the Arts & University of Florida.
37. WIKOFF, N. 2004. Cultures of Care: A Study of Arts Programs in U.S. Hospitals. Americans for the Arts.
38. WINDLE, G., JOLING, K., HOWSON-GRIFFITHS, T., WOODS, R., JONES, C., VAN DER VEN, P., NEWMAN, A., PARKINSON, C. 2017. The impact of a visual arts program on quality of life, communication and well-being of people living with dementia: A mixed-methods longitudinal investigation. International Psychogeriatrics 30(1), 2–27.
39. WOOD, B. 2008. CT Scans and Radiation Exposure. Aap Grand Rounds, 19, 28–29.

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STATE REGULATION OF BROKERAGE ACTIVITIES IN THE RUSSIAN FEDERATION

ŠTÁTNA REGULÁCIA SPROSTREDKOVATEĽSKÝCH AKTIVÍT FINANČNÉHO TRHU V RUSKEJ FEDERÁCII

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Abstract

The paper deals with the regulation of financial markets in the Russian Federation. The goal of this article is to discuss the role of the state in regulating brokerage market and to present the current situation in the Russian Federation. Qualitative research methods are used to achieve this goal. The Russian experience shows that too tight regulation leads to poor market performance. We argue that it is necessary to develop regulation of brokerage activities with the help of nudge tools and soft law. These measures are necessary to ensure the quality of regulation, sufficient for the development of the financial market and protection of the rights and interests of citizens.

Key words: financial markets, regulation

JEL Classification: G10, G18

INTRODUCTION

One of the main elements of the country's successful economic development is the presence of an efficient and developed financial market. Its availability provides the possibility of effective savings and asset growth for investors, as well as allows borrowing capitalized on the state and private companies. As a result, researchers are studying the question of whether it is necessary to regulate the financial market and the brokerage market in particular. Moreover, if the need for

regulation is recognized, then the question arises of what should be the scope of regulation and the instruments for its implementation.

A feature of financial market regulation is the sensitivity of the population to issues affecting their financial interests. The priority value of the investor, especially the private one, is the safety of his funds. Yield and cheapness are also an important requirement for investing of financial services.

Thus, regulation in this area, taking into account these priorities of investors, should balance between two goals. With one the regulator needs to ensure the reliability and integrity of brokerages, which requires a significant regulatory burden on them. The other regulatory requirements should not lead to a significant increase in the costs of brokerage organizations, as they will be transferred to clients, which means that investor returns will be reduced. Only if both areas are provided can it be possible to involve the population in the investment process and the growth of the financial market.

In Russia, which does not have a sufficiently developed financial market, the problem of insufficient quality of regulation financial institutions are particularly visible. In general, the need to eliminate unnecessary administrative burden in the country was outlined in the message of President of the Russian Federation to the Federal Assembly of the Russian Federation on December 4, 2014 (Putin, 2014). The need to improve financial regulation, taking into account its impact, was also noted in the "Basic Measures for the Development of the Financial Market Russian Federation for the period 2016-2018." However, the scope of regulation not only remains significant, but also continues to increase.

The goal of this article is to discuss the role of the state in regulating brokerage market and to present the current situation in the Russian Federation. Qualitative research methods are used to achieve this goal.

1 GENERAL SOCIO-ECONOMIC PURPOSES FOR REGULATION (OF BROKERAGE MARKETS)

To assess the regulation of brokerage activities, it is necessary to consider the basis of regulatory activity of the state.

In general, regulation is a state activity, usually implemented through regulatory requirements and restrictions, aimed at preventing the negative economic or social consequences of individuals and organizations. Normative Regulatory Theory substantiates the need of Regulation. Most often, the need for regulation is due to the existence of market failures (Baldwin, Cave, Lodge, 2012). Market

failures lead to undesirable consequences for society, which can be solved through government intervention.

The main market failures are the problem of monopolies, the need to create public goods and minimize the phenomenon of "stowaways", the existence of external effects, asymmetry of information, unfair competition and others.

The main purpose of government intervention is to limit negative effects of the market failure. For example, in the case of the market, if it were worked perfectly (according to the criterion of achieving Pareto-optimal state), there would be no need for regulation. However, social and economic reality is rarely like an ideal model.

In view of the theoretical frameworks described, it is appropriate to consider scientific justification for regulating the financial sector, and in particular brokerages. First of all, the regulation of the financial sector is explained by the theory of limited rationality. According to it, the individual before the choice may not always make the most advantageous decision because of the impossibility of independently analysing the benefits of all alternatives. At the same time, unlike other spheres in this area, decisions relate to the financial security of the individual (Gunningham, 2010).

This effect is amplified by the existence of information asymmetry and unfair competition in the financial services market (Arora et al., 2011). According to the theory of information asymmetry, a market participant with exceptional information is inclined to hide it and use it for his own interests in order to generate additional income. In the case of consideration of the brokerage market, this phenomenon is especially typical because brokerage organizations may lose additional revenues if reliable information and data are disclosed to the regulator. Thus, according to these theories, clients of brokers may not understand deception on the part of the broker, and the regulatory body can often be limited in its ability to objectively assess the quality of regulation for objective reasons. And this problem should be solved not by the amount of regulatory pressure, but by its quality.

In addition, the need to assess regulatory outcomes is due to the existence of a principal-agent problem. Under this theory, agents can in relation to citizens, it may even if there is an objective understanding of the problem to solve it in ways that are most convenient for themselves, not individuals. Therefore, the interests of investors can dominate regulation nominally, and their actual priority requires a critical assessment of regulatory requirements.

However, while the risks of the financial market necessitate government intervention in its functioning, they should also be taken into account in the development of regulatory requirements. In the case of regulatory development without

taking into account these risks, the effect of its implementation usually turns out to be the opposite and only increases the likelihood of financial institutions collapsing (Moloney, 2010).

2 REGULATION THEORIES

Theories of positive regulation consider regulation for actual organization and implementation. In particular, in the framework of public administration of researchers and practitioners, the decision-making process governing the life of society until the end of the last century was perceived through the policy cycle model. The model, developed in 1956, suggests the presence of chronological consistent steps in assessing the situation (Lasswell, 1956), as well as developing and implementing solutions that are regularly restarted by following one of the other. At the same time, within the framework implementation of the stages takes into account the benefits of possible solutions, as well as evaluating the result of their implementation, which makes the model the most effective in Theory. This is what was the prism of the policy-administrative cycle model that regulation was considered (Parsons, 1995).

At the same time, this model has been criticized, which has led to the emergence of different theoretical approaches to the study of regulation. In particular, theories focused on methods of analysing the effectiveness of regulation. Ex Ante public policy analysis was proposed, which suggested the implementation of forecasts benefits and costs based on available historical data and economic instruments (Wollmann, 2006). A model of political networks has been developed (Dye, 2002) regulation was seen as a result of the influence of society, individuals and organizations, usually interested, on the authorities, developers and decision-makers. Moreover, the development of this direction has led to a stable theory of the regulator's capture, which explains imperfections of regulation by the fact that the state satisfies not the interests of society, but the needs of business, which originally had to be limited.

There were also theories that focused on the issue of regulatory implementation, which had previously been given a secondary role, as it turned out that the decision developed and made could be significantly distorted by the local officials (Lipsky, 2010).

More detailed, large-scale and in-depth research has resulted from the need for development. The impetus for the New Public Management paradigm has emerged and implemented. It reduced the state's share of the economy, government functions and services in private hands, minimizing direct management tools. However, in order to ensure the production of public goods, and to protect

the public interest in the new environment, the state needed to focus on the function of regulating markets (Osborne, Gaebler, 1992).

As a result of these circumstances, at the end of the last century, the science of public administration developed the concept of quality regulation (Sunstein, 1993). Its peculiarity was the consideration of regulation as a bureaucratic process based on analytical backgrounds, as well as taking into account the positions of stakeholders. It should be noted that many of the scientific papers, as well as in the practice of public administration, approaches that imply the concept of quality regulation. These include "responsible regulation", "meta-regulation," "really responsible regulation," "better regulation" and "smart regulation." The change in approaches is due to a slight change in emphasis and also seems to be a desire to give a new impetus to the implementation of regulatory reforms in practice.

The smart regulation approach is the most well-known, developed and common at the moment. It was proposed in 1998 in a study by Gunningham and Grabosky (1998). The authors argue that while involving the state, interested organizations, their associations and civil society, as well as the use of a wide range of regulatory tools, the specifics of regulation are taken into account as much as possible, which as a result improves its quality. Characterizing this approach, it is intended to strike a balance between government influence and market autonomy.

To do this, some of the powers are delegated to non-state structures, regulatory impact assessments and public consultations are carried out, regulatory requirements are reduced and simplified, indirect regulation tools are introduced, and the exact duration of regulatory requirements are established. According to the authors, this approach allows the state to transfer some of the responsibility for regulation to other market actors, while coordinating their activities. Such actors can be self-regulating organizations, public associations, non-profit organizations, international organizations. The ways in which these actors are affected may be informal, but their effectiveness and approval are often higher, resulting in lower regulatory objectives.

A number of studies have looked at the impact of regulation on the functioning of the financial market. They note that regulatory conditions have a significant impact on the performance of financial institutions, their effectiveness and sustainability (Islam, Yahanpath, 2015; Spendzharova, 2016). It should be noted, in some cases, regulatory requirements do not have the regulator's expected impact or have an impact on other organizations/financial market instruments (Pancotto, Gwilym, Williams, 2019).

As a result, it is advisable to implement a number of measures in the implementation of regulatory activities to ensure that the final objectives of regulatory activities in the development, change or exclusion of regulations are appropriate.

One of the main such tools is an assessment of the impact of regulations on regulatory facilities. This tool was formed within the framework of regulatory theories considered earlier and became the most developed within the Smart regulation approach. The regulatory impact assessment tool has been successfully applied to financial market regulation in many countries. However, the researchers note the negative impact of excessive business participation in the assessment of regulatory requirements, allowing it to lobby its interests. (Kirkpatrick, Parker, 2004; DeMenno, 2019).

In general, the study of foreign experience of regulators' application of a regulatory impact assessment mechanism shows its development in the regulation of the financial market in a number of countries. This tool is most effectively used in the public administration of the financial sphere in New Zealand, where the procedure is the most complete and transparent. Less high-quality, but fairly effective models of the regulator's assessment of the impact of regulatory requirements on the financial market exist in Kazakhstan, Kyrgyzstan, Italy, Ukraine.

3 SYSTEM OF BROKERAGE ACTIVITIES REGULATION IN RUSSIA

Taking into account these features, it is possible to consider the state of regulation of brokerage activities in Russia. The Bank of Russia is the mega-regulator of the financial market in the country. According to the Bank of Russia's third quarter 2020 (Bank of Russia, 2020), Review of Key Indicators of Professional Securities Market Participants, despite the increase in the number of clients, the profitability of brokers is declining. One of the main reasons for this trend is the growth of the regulatory load. This fact has been unanimously voiced for several years by all market representatives in the financial market, uniting brokers.

In general, brokers regulation complies with regulatory theory and is built in accordance with the policy cycle model. To date, there are about 60 regulations in the area of regulation of brokers, each of which is regularly amended up to 5 times a year (Bank of Russia, 2021). At the same time, although formally the Bank of Russia, similar to other state bodies of the Russian Federation, carries out a procedure to assess the regulatory impact of the draft regulations being developed, the results of its study show the insufficient quality of the said event (Golodnikova, Tsygankov, 2015). In addition to the fact that the procedure does not comply with the formal rules for the assessment of the regulatory impact: due to the absence of the regulator's obligation to carry out such an assessment, there is a selective conduct of such events, not a public, but a behind-the-scenes discussion of initiatives, the results of which are not public. It seems that this

procedure at the Bank of Russia is initially based on the goals and principles that do not contribute to the development of brokerage activities and its quality. Thus, the regulatory impact assessment procedure does not reach its goal.

This fact leads to excessive regulatory burden on brokers. The main regulations in force today set formal requirements. Thus, the requirements for accounting and internal accounting, for the employees of the broker, formally financial indicators, for reporting, compliance, individual operations, the order of interaction with customers on individual issues. However, compliance with these formal requirements is costly. Thus, accounting and internal accounting requirements alone, as well as the number (more than 20 regular forms, and many more forms on demand), format (XBRL requiring significant technical and staff costs), regularity (mostly monthly) and reporting periods require significant financial and labour costs from organizations because of their technological component (Bank of Russia, 2019). If we talk about compliance with less technical requirements, their cost, though not so clear, may be much more. Thus, the cost of ensuring and regularly monitoring compliance with licensing requirements, staff requirements, accounting systems, internal control and risk management units, as well as the calculation of mandatory regulations may exceed the income from the broker's activities, not leading captive or sham activities. At the same time, at the moment the Bank of Russia is scheduled to develop / adopt 35 regulations with the priority of the first stage, of which at least 10 belong to the field of brokerage, with the priority of the second stage planned 199 regulations (Bank of Russia, 2021).

These facts show that the regulation does not take into account and does not apply the provisions of the Smart regulation approach, the theory of the capture of the regulator. This is one of the main reasons for the high cost and lack of competitiveness of financial institutions' services. As a result, despite the availability of technological infrastructure, the participation of the population in investing remains low.

These shortcomings in the regulation of brokerage activities are manifested in practice. As the data of the Bank of Russia, research of scientific organizations, analytical materials of other state bodies show, most of the assets of the population are concentrated in banking organizations, whose competitiveness in the market is low. The investment of money through brokers repels the population because of the large size of commissions charged by brokers, including implicitly, exceeding the size of commissions in countries with developed financial markets. As a result, brokers sometimes have to resort to scheme operations that allow them to earn additional income without increasing the cost of their services.

In this case, the risks of their sustainability and solvency increase, which again scares off potential investors (Bank of Russia, 2019).

The small scale and underdevelndity of the Russian financial market clearly manifested itself in 2014. The financial crisis and foreign policy restrictions led to the flight of foreign investors, which could not be compensated by domestic market participants. As a result, the cases of Russian companies entering the IPO, for example, are still isolated.

In addition, the existence of cases of investors losing funds in interactions with financial institutions in which an unscrupulous participant is not responsible demonstrates the imperfection of the system of protection of investors' rights. For example, depositors of the Trust Bank, who purchased credit notes instead of deposits (for a total of about 20 billion rubles), were unprotected during the sanitization jar. And clients of the IFC company (mostly individuals) lost securities worth at least 200 million rubles as a result of illegal write-off of securities from their accounts. These facts are due to the fact that the regulation and control of formal indicators allow the possibility of late identification or non-identification of transactions / transactions / broker services, which lead to the collapse and loss of investor funds. In addition, measures to encourage investors to protect their assets are also not enough (Bank of Russia, 2021).

Thus, in order to develop the market in Russia and attract the population into investment activities, it is necessary to form regulation in the sphere of financial organizations, which would not put undue pressure on the organizations and allow them to provide attractive conditions for customers, but at the same time ensured the safety of investment for the population. Since a number of requirements should be removed in order to reduce unnecessary burdens, new tools should be created by regulators to ensure investor protection.

The consideration of current research on this subject has revealed the use by many regulators of behavioral economics mechanisms for this purpose. One of the main such tools is the policy of "nudge." In addition, it is possible to regulate financial institutions with soft law tools (Golodnikova, Tsygankov, 2018). The regulator's issuance of non-strict regulations can have a beneficial effect on the functioning of the market without unnecessary costs. However, the implementation of such tools is only possible if the compliance service is effectively operating in financial institutions. Thus, the effectiveness of soft regulation depends on reciprocal actions on the part of regulators and market participants. Only if the supervised organizations are interested in it, its application will ensure the protection of the rights of customers. It should also be noted that the use of soft regulation is unusual in Russian practice, so its enforcement will require some efforts to adjust its approaches by supervisory bodies.

CONCLUSIONS

Thus, it can be concluded that regulation of the financial market and brokerage is necessary. It must ensure the financial security of the population. However, in order to achieve regulatory goals, it is necessary to limit the scope of regulation and apply flexible regulatory instruments. The Russian experience shows that too tight regulation leads to poor market performance. In our opinion, it is necessary to develop regulation of brokerage activities with the help of nudge tools and soft law. These measures are necessary to ensure the quality of regulation, sufficient for the development of the financial market and protection of the rights and interests of citizens.

LITERATURE

1. ARORA, S. et al. 2011. Computational complexity and information asymmetry in financial products. Communications of the ACM. 54(5), pp. 101-107.
2. BALDWIN, R., CAVE, M., LODGE, M. 2012. Understanding Regulation: Theory, Strategy, and Practice. New York: Oxford University Press.
3. Bank of Russia. 2019. The concept of proportional regulation and risk-based supervision of non-bank financial institutions.
4. Bank of Russia. 2019. The main directions of development of the financial market.
5. Bank of Russia. 2020. Overview of key indicators of professional participants in the securities market for the third quarter of 2020.
6. Bank of Russia. 2021. List of unfair practices posted on the Bank of Russia's website.
7. Bank of Russia. 2021. List of regulations governing brokerage activities.
8. BITKOV, V.P., MAINULOV, K.E. 2018. Impact of sanctions on the Russian financial market. Problems of national strategy 2. 2018. – №. 3., p. 145.
9. BRUMMER, C. 2011. Soft law and global financial system: Rule making in the 21st century. Cambridge: Cambridge University Press10. DEMENNO, M. 2019. Banking on burden reduction: how the global financial crisis shaped the political economy of banking regulation. Journal of Banking Regulation, 21(4), pp. 315–342.
11. DYE, T.S. 2002. Understanding Public Policy. Upper Saddle River: Prentice Hall.

12. GOLODNIKOVA, A.E., TSYGANKOV, D.B. 2015. "Targeting" of regulatory impact assessment: international approaches and Russian practice. Public Administration Issues, no 4, pp. 7-40.
13. GOLODNIKOVA, A.E., TSYGANKOV, D.B., YUNUSOVA, M.A. 2018. Potential for using the concept of "nudge" in government regulation. Public Administration Issues, no 3, pp. 7-31.
14. GUNNINGHAM, N., GRABOSKY, P., SINCLAIR, D. 1998. Smart Regulation: Designing Environmental Policy. Oxford: Oxford University Press.
15. GUNNINGHAM, N. 2010. Enforcement and compliance strategies. The Oxford handbook of regulation, no 120, pp. 131-135.
16. ISLAM, S., YAHANPATH, N. 2015. Evaluation of post-GFC policy response of New Zealand Banking and macro-prudential perspectives. Journal of financial regulation and compliance, 2015, pp. 410-417.
17. KABANOVA, N.A., PORUBAYEV, G.V. 2018. Complance Control as a tool to minimize the risk of involvement in the process of legalization (laundering) of income received criminal means in the system of credit organizations. Russian transport business, 1/2018, pp. 68-79.
18. KIRKPATRICK, C., PARKER, D. 2004. Regulatory impact assessment and regulatory governance in developing countries. Public Administration and Development: The International Journal of Management Research and Practice, 24(4), pp. 333-344.
19. LASSEWLL, H. D. 1956. The decision process: Seven categories of functional analysis. Bureau of Governmental Research, College of Business and Public Administration, University of Maryland.
20. LIPSKY, M. 2010. Street-level bureaucracy: Dilemmas of the individual in public service. New York: Russell Sage Foundation.
21. MOLONEY, N. 2010. Financial Services and Markets. The Oxford Handbook of Regulation.
22. OSBORNE, D., GAEBLER, T. 1992. Reinventing government: How the entrepreneurial spirit is transforming the public sector. New York: Plume.23. PANCOTTO, L., GWILYM, O., WILLIAMS, J. 2019. Market reactions to the), pp. implementation of the Banking Union in Europe. European Journal of Finance, 26(7-8), pp 640-665.
24. PARSONS, D.W. 1995. Public policy: An introduction to the theory and practice of policy analysis. New York: Edward Elgar.

25. PUTIN, V. 2013. President Vladimir Putin's message to the Federal Assembly of December 12, 2013. Russian newspaper, 2013.
26. SELIVANOVSKY, A.S. 2014. Protection of Investors' Rights in the Stock Market: Modern Challenges, Economy and Law, 1/2014, pp. 68-81.
27. SELMIER, W.T., WINECOFF, W. 2017. Re-conceptualizing the political economy of finance in the post-crisis era. Business and Politics, 19(2), 167-190.
28. SPENDZHAROVA, A. 2016. Regulatory cascading: Limitations of policy design in European banking structural reforms. Policy and society, 2/2016, pp. 230-241.
29. SUNSTEIN, C.R. 1993. After the rights revolution: Reconceiving the regulatory state. Harvard: Harvard University Press.
30. WOLLMANN, H. 2006. Policy Evaluation and Evaluation Research. In: FISCHER, F., MILLER, G.J., SIDNEY, M. Handbook of Public Policy Analysis. New York: Routledge, pp. 393-403.