



## THE IMPACT OF A PROGRESSIVE PERSONAL INCOME TAX SCALE ON REDUCING INCOME INEQUALITY: COMPARATIVE ANALYSIS

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### ABSTRACT

**Background:** The tax system of the Russian Federation is guided by the principles of unity, mobility and stability, multiple forms of taxes, one-time taxation, equity and equality. However, criticisms of the existing tax systems are a common trend in many countries. They specifically concern inequitable and unstable tax laws, vague language used in them, tax illiteracy and poor tax discipline, lack of tax exemptions for certain categories of taxpayers; all these problems are frequently cited by tax system researchers in their papers. **Objective:** This research aims to compare the performance of countries using a progressive taxation scale in Russia and countries of Latin America. **Methods:** The article analyzes the impact of personal income tax rates on the level of income inequality and the effectiveness of tax systems in Russia and Latin American countries (Argentina, Uruguay, Colombia and Ecuador) in reducing social differentiation. The analysis relies on mathematical models of correlation and historical and comparative research methods. **Results:** The study compared the results of the effectiveness evaluation of tax systems in solving the problem of reducing income inequality, which can be used in the development of fiscal policy measures aimed at reducing social tension in society. **Conclusion:** The article concludes that the taxation of individuals has a significant impact on the level of income inequality, while the progressive scale of taxation of personal income can be an effective tool for reducing social differentiation in the countries under study.

**Keywords:** Personal income tax; Fixed taxation; Progressive taxation; Inequality; Poverty.



## O IMPACTO DE UMA ESCALA PROGRESSIVA DO IMPOSTO SOBRE O RENDIMENTO DAS PESSOAS SINGULARES NA REDUÇÃO DA DESIGUALDADE DE RENDIMENTOS: ANÁLISE COMPARATIVA

### RESUMO

**Antecedentes:** O sistema fiscal da Federação Russa é guiado pelos princípios da unidade, mobilidade e estabilidade, múltiplas formas de impostos, tributação única, equidade e igualdade. No entanto, as críticas aos sistemas fiscais existentes são uma tendência comum em muitos países. Dizem especificamente respeito a leis fiscais injustas e instáveis, linguagem vaga nelas utilizada, analfabetismo fiscal e má disciplina fiscal, falta de isenções fiscais para certas categorias de contribuintes; todos estes problemas são frequentemente citados pelos investigadores do sistema fiscal nos seus trabalhos. **Objetivo:** Esta investigação visa comparar o desempenho dos países que utilizam uma escala de tributação progressiva na Rússia e países da América Latina. **Métodos:** O artigo analisa o impacto das taxas de imposto sobre o rendimento das pessoas singulares no nível de desigualdade de rendimentos e a eficácia dos sistemas fiscais na Rússia e nos países da América Latina (Argentina, Uruguai, Colômbia e Equador) na redução da diferenciação social. A análise baseia-se em modelos matemáticos de correlação e métodos históricos e de investigação comparativa. **Resultados:** O estudo comparou os resultados da avaliação da eficácia dos sistemas fiscais na resolução do problema da redução da desigualdade de rendimentos, que podem ser utilizados no desenvolvimento de medidas de política fiscal destinadas a reduzir a tensão social na sociedade. **Conclusão:** O artigo conclui que a tributação dos indivíduos tem um impacto significativo no nível de desigualdade de rendimentos, enquanto a escala progressiva da tributação dos rendimentos pessoais pode ser um instrumento eficaz para reduzir a diferenciação social nos países em estudo.

**Palavras-chave:** Imposto sobre o rendimento pessoal; Tributação fixa; Tributação progressiva; Desigualdade; Pobreza.

### 1 INTRODUCTION

The fundamental goal of this policy is the need to provide social guarantees to the people, such as the right to work, gain education, healthcare and other civil rights (Basovskaya et al., 2016). Under these conditions, the financial mechanism of social policy transforms. In addition to the direct use of the financial resources of the state and other economic entities for the implementation of social payments, the production of social services, more and more use is being made of tools that involve indirect intervention with the help of fiscal levers. The main role among the regulatory instruments of indirect action in the field of social policy is played by taxation, primarily the taxation of incomes of the population. The system of taxation of incomes of the population regulates relations between the state and taxpayers, at the same time ensuring the formation of the revenue part of the state budget and acting as an important tool of social policy. By regulating the parameters of taxation of incomes of

individuals, the state adjusts the parameters of property stratification in the context of individual social strata, influencing indicators of public consumption, the volume of savings of the population.

The classic of tax theory E. Seligman (1908) noted that the income of an individual is a stream of wealth, and therefore it must always be assessed for a certain period, and when it comes to income for tax purposes, we mean annual income. It is used by the owner for consumption purposes and thus saves capital. Considering that some incomes are unsuitable for personal income taxation (inheritance or gifts), the idea of the need for regularity of income has been formed. This means that unexpected or unpredictable one-time incomes are not appropriate to include in the tax base. In addition, for taxation purposes, it is more expedient to use cash income (while not applying the assessment of psychological income: if two owners of buildings rent them out, then it is advisable to tax only that which receives a monetary reward for this, and accordingly, not to tax the owner providing housing at no cost to a close person) because they can be easily calculated. In this case, the amount of taxable income should be slightly higher than net income. To ensure the principles of homogeneity (equality) and universality with fair taxation, it is necessary to consider the differentiation of income (depending on the sources of income) and gradation (depending on the amount of income)

A.A. Sokolov (2003) proposed to consider as an income (from a tax point of view) all revenues arising from the pricing process, with the exception of revenues from the sale of property.

One of the significant problems typical for the current tax system of the Russian Federation over the years has been its fiscal focus. Currently, the total tax burden established in the Russian Federation exceeds the respective levels of many developed countries. Also, there is frequently a misalignment with the principle of taxation equity. The current taxation system in the Russian Federation has emerged quite recently (over the past 20 years). The so-called flat tax scale applies in Russia, with a rate of 13% for all social strata.

Amid the increasingly heavy gap between the rich and poor, the scale of personal income tax (PIT) remains flat and unchanged, the tax burden is significantly elevated for small businesses due to the introduction of property tax obligations in the retail and catering sector and other areas of small business (Basovskaya et al., 2016). Despite the debate (Dudin et al., 2019; Martorano, 2019) concerning the potential introduction of a progressive tax rate of PIT to ensure more equitable taxation of this

object, no decision to this effect has been made. The study by N. I. Malis (2018) points at several reasons in favour of its potential viability. Tax revenues steadily growing and outpacing the growth of salaries, being a reliable source of revenue base for regional and local taxes. The application of a progressive PIT scale implies the introduction of an exempt minimum amount for individuals with incomes at the subsistence level. Given the major gap (of approximately 3x to 5x) in the average salary levels in Russian regions (Rosstat, 2020), tax revenues from PIT will be sharply lower in the regions with low salaries, which is the most unwelcome outcome for regional budgets.

The unstable economic situation in many countries caused by the spread of the COVID-19 pandemic makes it relevant to analyze the social role of the PIT, which equalizes the financial situation of the population due to its significant differentiation. The falling labour incomes and narrowing margins of small businesses in many sectors exacerbated by the current crisis have caused further deterioration of living standards. Thus, the fairness of taxation as a mean of maintaining a certain level of social justice is becoming one of the priorities of the tax systems of most countries that are currently in a state of economic and fiscal crises (Cimini et al., 2020; González-Bustamante, 2021).

The main problems of socioeconomic development in many countries relate to economic stability, stable growth and economic well-being of the people (Churin et al., 2019; Saydulaev et al., 2020). The mechanisms of financial controls of social proportions are used to solve them (Abdulkadirov et al., 2020). Such control methods include tax (direct and indirect taxation) and non-tax methods including various kinds of social benefits provided via a budget mechanism or social insurance. There are also indirect forms of such regulation.

The problem of taxation of personal incomes of the population and its optimization has been considered by economic scientists for many years. Among the numerous publications of recent years on this subject, the work of Yu.G. Tyurina and G.I. Nemirova (2013) considers the impact of taxes on the level of public welfare. A.V. Tikhonova (2022) assessed the impact of changes in tax rates on the personal income of the population with different levels of well-being. A.E. Melgui and co-authors (2016) studied the distribution of the tax burden among different segments of the population. N.F. Zaruk and co-authors (2017) examined the social and fiscal effects of the personal income tax reform in Russia. However, scientific publications devoted to the study of the social aspects of the taxation of incomes of the population

are of a single nature, and its key problems remain unresolved. This determines the relevance of scientific research aimed at studying the effectiveness of taxation of household income in the context of solving social policy problems.

D. Duncan and K. Sabirianova Peter (2016) established that all taxes affect motives and incentives. In addition, there are many examples of social losses from taxes far exceeding the funds received. Therefore, it is necessary to track and find out exactly what effects taxes generate to more effectively form and implement tax policy.

R.K. Filer and coauthors (2019) defined the optimization of income taxation as balancing the interests of the state and taxpayers when choosing a tax option by combining and changing the size and scale of income taxes, objects of taxation, tax incentives, and tax administration mechanisms.

The issue of socialization of taxes has long acquired relevance. Thus, the importance of the social component of taxation of personal income from the position of tax regulation in the EU countries was emphasized by O.N. Golovchenko (2016). The need to revise the norms of functioning of the studied taxation systems in developing countries in order to direct it to reduce social inequality is highlighted in the developments of R. Birdand, E. Zolt (2005). H. Šimović (2012) also notes a significant impact of PIT on horizontal and vertical equity in taxation. Rhetorical questions about the possibility of enhancing social justice in taxation were generally raised by A. Abrahám et al. (2016). It should be noted that the issue of reducing tax pressure on employees and increasing the level of socialization of PIT is increasingly being raised in the economic and political circles of different countries. To achieve social justice in taxation, the governments of countries with the highest standard of living apply a progressive tax rate, where its size depends entirely on the amount of income received during the tax period (KPMG, n.d.).

A.Yu. Bykova and L.V. Tikshaeva (2016) compared proportional and non-proportional (progressive, regressive, and degressive scales) taxation and concluded the progressive taxation scale more preferable because of its social and economic effects. The social effect is considered in the context of paying a smaller tax for low-income citizens who receive incomes in the amount of one to three living wages. The economic effect is to increase tax revenues from PIT. The achievement of this effect is possible on the condition of receiving income in the amount of five or more subsistence minimums.

I.V. Balynin (2015) substantiated the need for a proportional personal income tax



rate of no more than 20% to neutralize the destimulating effect of taxation on economic activity and labor efforts.

G. Fack and C. Landais (2010) considered various approaches to personal income taxation, focusing on the proposal for the introduction of a flat tax scale and guaranteed income as the main element of the social security system. The researchers argued that such changes would lead to greater redistribution of income, but emphasized that it is difficult for one reform to satisfy the priorities of different supporters.

Despite the criticism of some scientists about the lack of clear recommendations on the need to introduce a specific approach, it should be noted the importance and complexity of the issues covered regarding optimal taxation using a flat scale and the impact of taxation on incentives to work. The introduction of the flat scale can be seen as a response to the search for an efficient, fair, and simple PIT. At the same time, a simple taxation system means that such a taxation mechanism operates, which allows any taxpayer to easily understand it and assess the marginal and average tax liabilities (Oficina de Planeamiento y Presupuesto, 2016).

M. Bucheli et al. (2012) see the implementation of the regulatory function in increasing the level of social protection of the poor at the expense of the richer part of society and propose to introduce a progressive rate scale that would not eliminate incentives to increase their capital.

While at the national level PIT in OECD member states is most often managed on a progressive scale, at the local level a flat scale is used in 70% of cases. At the same time, in most cases in OECD member countries, personal income taxation at the local level occurs on a flat scale. One exception is the United States, where some states have a local PIT that is paid at progressive rates and is most often applied to earned income, which provides for significant variation in the average PIT per person in different states. Despite the difficulty of determining tax liability, 45.3% of US households do not pay PIT at the federal level (Martorano, 2019).

In Russia, as well as in most economies in transition, flat tax was introduced for the simplification of the tax system, mitigation of tax avoidance and ensuring better economic performance by minimising tax distortions. However, the outcomes were uneven. E. g., the transition to a flat tax from a progressive system in 2001 led to a significant increase in tax revenues as a result of improved compliance and reporting.

A. Ivanova et al. (2005), however, express doubt whether such improvement in compliance was due to the parametric tax reform or to asynchronous strengthening

of tax administration.

Meanwhile, the literature review indicates that there is only a very limited number of comparative studies on the effectiveness of the redistributive function of fiscal policy and its influence on income inequality.

One of the key developmental problems in Russia is the growing income gap, with consequences for economic growth and income redistribution, which can result in intensifying social pressures and conflict.

Addressing these tasks would possibly benefit from an analysis of the redistributive role of tax systems in countries showing positive trends in personal income differentiation. The present work focuses on the development of a progressive taxation system in several countries of Latin America and offers a comparative analysis of the redistributive role of taxes in mitigating income gaps in Russia and other analysed countries.

Research hypothesis. Presumably, the tax burden in personal income taxes is closely tied to income inequality, and the introduction of a progressive personal income tax scale would have a positive impact on reducing the differentiation of incomes of the population.

## 2 METHODS

The evidence base of the study comprises historical facts concerning the emergence of national and regional tax systems; statistical data on the main economic and socioeconomic indicators of Russia and Latin America reported in official documents issued by Rosstat and at the websites of authoritative news and analytical agencies of Russia and Latin America; global statistical databases of the World Bank, statistical resources of the UN system UNdata and the global database on income inequality WILD, WID.world data.

To test the research hypothesis, a mathematical analysis of the relationship of social differentiation was carried out using multivariate correlation and regression analysis.

Correlation analysis was used to interpret the results. Correlation analysis revealed the degree of relationship between indicators based on the scale used:

0-0.3 – no correlation

0.3-0.5 – weak correlation

0.5-0.7 – moderate correlation

0.7-0.9 – strong correlation

0.9-1 – very strong correlation

The dependent variable Y as an indicator of the degree of social differentiation is the rich/poor income ratio (income differentiation ratio).

The indicator measures the degree of economic inequality by income levels and represents the ratio of monetary income levels of the richest 10% and the poorest 10% of the population. The minimum value for this indicator is 1, indicating complete equality of income.

The independent variables are selected socioeconomic indicators laid out in Table 1.

**Table 1.** Input in multi-factor analysis

Variable	Interpretation	Information base
Y	Income differentiation ratio (rich/poor income ratio)	Federal State Statistics Service of the Russian Federation. Statistical review "Socioeconomic indicators of the Russian Federation in 1991-2019"
X1	Effective rate of PIT	Calculated rate based on data from the Federal Tax Service of the Russian Federation Reports on PIT <a href="https://www.nalog.ru/rn77/related_activities/statistics_and_analytics/forms/">https://www.nalog.ru/rn77/related_activities/statistics_and_analytics/forms/</a>
X2	Inflation	Federal State Statistics Service of the Russian Federation. Statistical review "Socioeconomic indicators of the Russian Federation in 1991-2019"
X3	Working-age employment rate, %	
X4	Education index	United Nations Development Programme. Human Development Reports <a href="http://hdr.undp.org/en/indicators/103706">http://hdr.undp.org/en/indicators/103706</a>
X5	Share of skilled labour (% of workforce)	Statistical database MOT ILOSTAT <a href="https://ilostat ilo.org/data/">https://ilostat ilo.org/data/</a>

The effective tax rate of personal income tax measures by the formula:

$$t_{it} = \frac{TA_{it}}{R} \quad (1)$$

where  $t_{it}$  is the effective tax rate of personal income tax for the year, %

$TA_{it}$  is the total calculated PIT, million rubles.

R is the total amount of income earned by the taxpayers of personal income tax, million rubles.

Historical and comparative research methods were used in the analysis of international practice in setting up a progressive taxation system. The selective study covered four Latin American countries, including Argentina, Uruguay, Ecuador and Colombia.

Comparative analysis was conducted based on indicators of income inequality and



poverty rate (Table 2).

**Table 2.** Indicators of income inequality and poverty rate

Indicator	Interpretation of the indicator	Source
Gini index	Demonstrates income distribution between 0 (perfect equality) and 100 (perfect inequality)	World Income Inequality Database (WIID)
Atkinson index	Indicator of an inequality based on welfare. It presents the percentage of total income that a given society would have to forego to have more equal shares of income between its citizens.	
Poverty headcount ratio	Percentage of the population living on less than \$5.50 a day at 2011 international prices	World Bank <a href="https://data.worldbank.org/indicat">https://data.worldbank.org/indicat</a> or
Poverty gap	Mean shortfall in income or consumption from the poverty line \$5.5 a day, expressed as a percentage of the poverty line. This measure reflects the depth of poverty as well as its incidence.	

On the final stage of the study an analysis of the redistributive impact of taxes and social security contributions that measured by the difference between the Gini coefficients of disposable personal income and of the total personal (market) income was conducted. These indicators can be found in statistical databases gathered by the OECD (n.d.) and WIID (n.d.). Where no country data were available in the above databases, the respective coefficients were calculated based on the official data of the respective national statistical agencies.

The Gini coefficient of market income is calculated on income before taxes and transfers, where individuals are ranked according to their market income per household member, including cases with zero income.

The Gini coefficient of disposable income is calculated on incomes less direct taxes on income and wealth, social security contributions paid by households.

$$G=1 - 2 * x * \sum y(cum)i + x \quad (2)$$

where x is the share of the population

Y(cum); is the cumulative share of income of the i-th group of the population

Calculations for this paper were performed in MS “Excel” 365.

### 3 RESULTS

#### 3.1. Results of analysis of the impact of PIT on income differentiation

The input for building a multi-factor correlation matrix is shown in Table 3.

**Table 3.** Input for correlation analysis

Years	Y	X1	X2	X3	X4	X5
2012	16.4	0.091	1.066	0.750	0.793	0.960
2013	16.1	0.097	1.065	0.750	0.794	0.962
2014	15.8	0.104	1.114	0.760	0.801	0.963
2015	15.5	0.105	1.129	0.759	0.804	0.964
2016	15.5	0.106	1.054	0.766	0.815	0.966
2017	15.4	0.103	1.025	0.775	0.823	0.964
2018	15.6	0.103	1.043	0.782	0.823	0.964
2019	15.4	0.101	1.030	0.783	0.823	0.961

The results of correlation analysis indicate that the personal income differentiation coefficient shows strong correlation with the level of the effective personal income tax rate (Table 4).

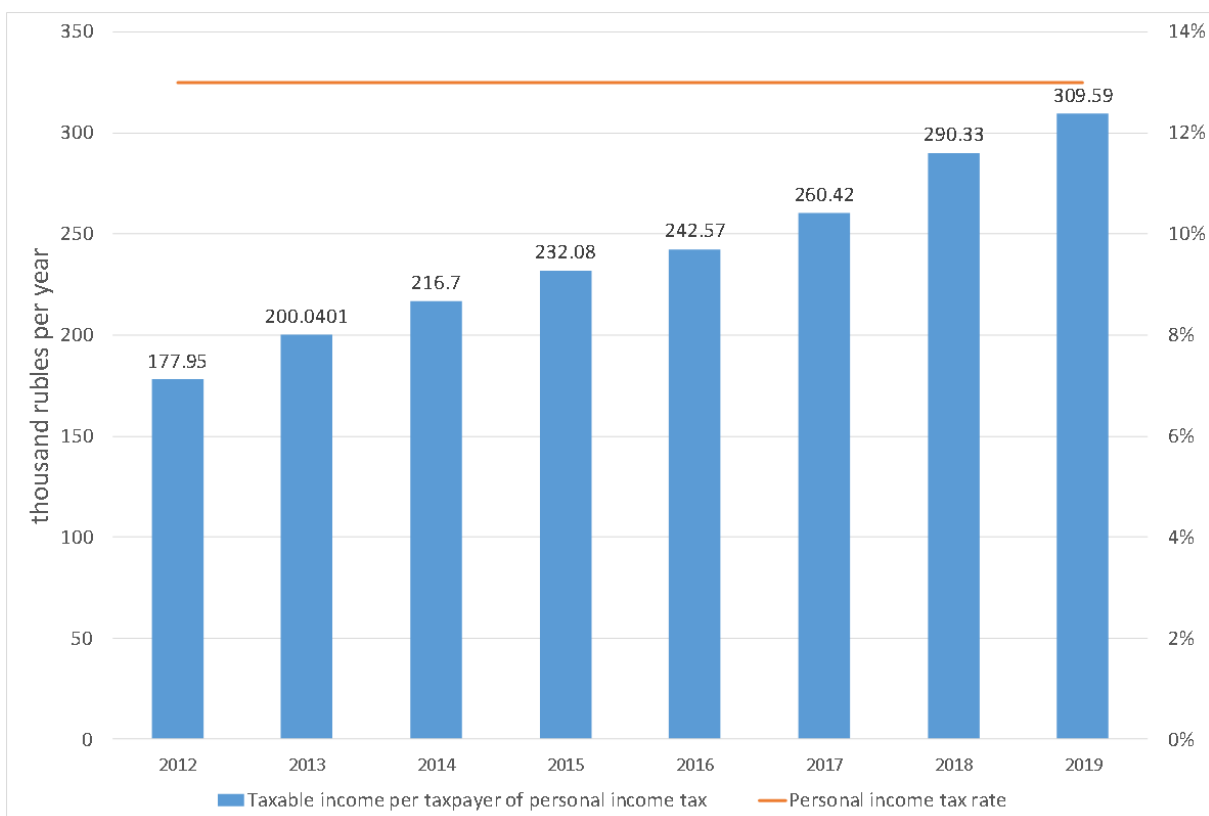
**Table 4.** Results of correlation analysis

	Y	X1	X2	X3	X4	X5
Y	1					
X1	-0.902	1				
X2	0.204	-0.130	1			
X3	-0.777	0.672	-0.592	1		
X4	-0.843	0.775	-0.627	0.968	1	
X5	-0.631	0.784	0.071	0.269	0.432	1

The above results indicate a strong negative correlation between the degree of income differentiation and the personal income tax rate. It means that an increase in the effective personal income tax rate causes a decline in income inequality.

Data in Figure 1 indicates that even with the increase of the total taxable labour income, the tax rate remains unchanged at 13%. I. e., PIT is withheld at the rate of 13% from each individual's income irrespective of the amount.

THE IMPACT OF A PROGRESSIVE PERSONAL INCOME TAX SCALE ON REDUCING INCOME INEQUALITY:  
COMPARATIVE ANALYSIS



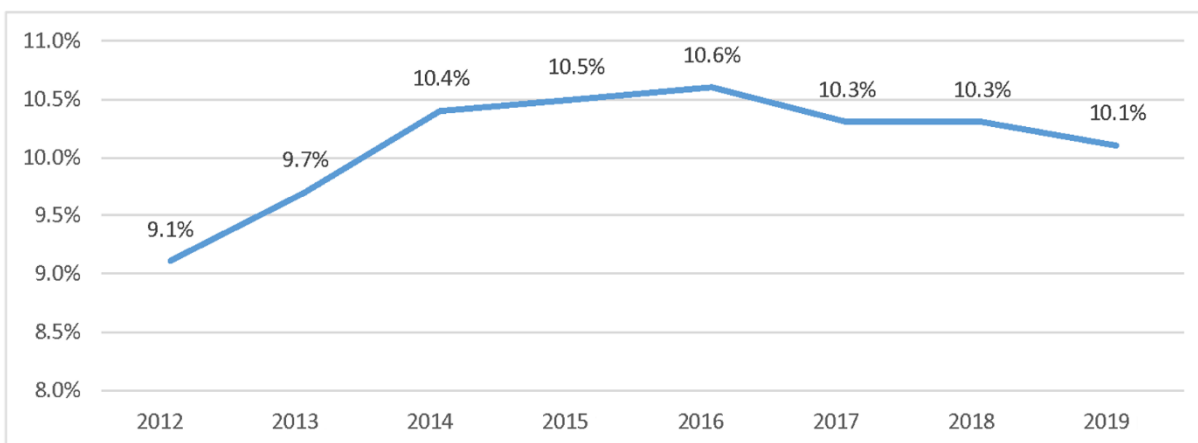
**Figure 1.** Increase in taxable incomes and the rate of personal income tax in Russia in 2012-2019

Over the analysed period, the amount of withheld personal income tax grew, which primarily reflected the increase of the minimum statutory monthly pay. That led employers to revise salaries according to the new minimum statutory monthly pay requirements. Accordingly, the base of personal income tax increases and correspondingly the amount payable also increases.

Moreover, after 2015, a new procedure applies for calculating personal property income tax: the rates are set by local authorities based on cadastral values. These changes are meant to generate additional revenues for regional and municipal budgets but they add to pressures on the middle class (Basovskaya et al., 2016).

Overall between 2012 and 2019, the personal income tax burden in Russia increased to 10.1% from 9.1%. That said, the figure had been growing until 2016 when it peaked at 10.6%. After 2016, the personal income tax burden has decreased and stood at 10.1% in 2019 (Figure 2).

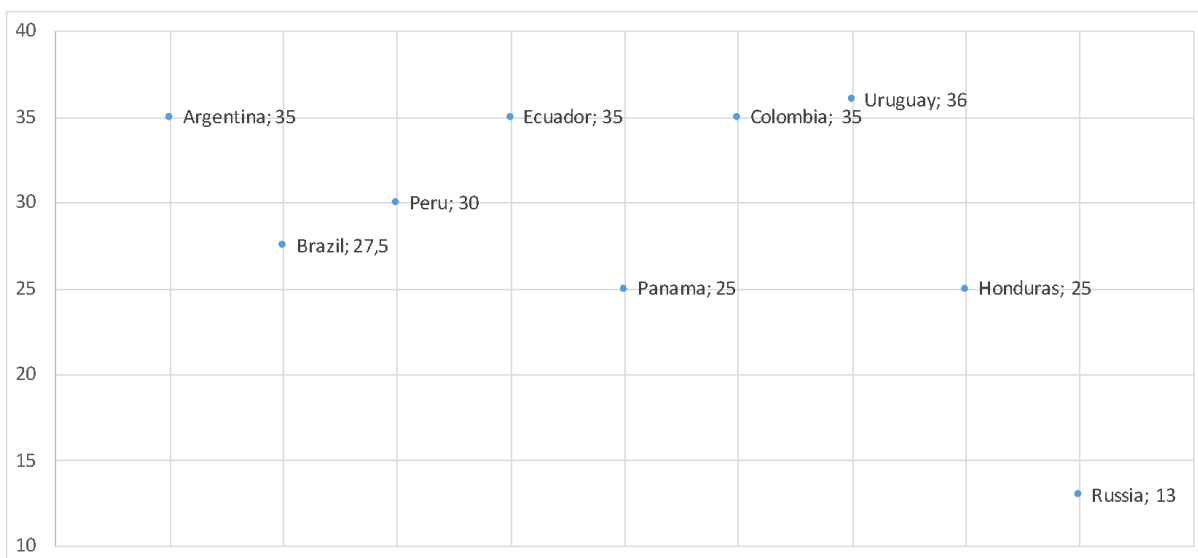
THE IMPACT OF A PROGRESSIVE PERSONAL INCOME TAX SCALE ON REDUCING INCOME INEQUALITY:  
COMPARATIVE ANALYSIS



**Figure 2.** Personal income tax burden for 2012-2019

One of the reasons for the easing of the personal income tax burden is amendments that came into effect in 2017. Primarily, the list of exempt income items was extended.

Note that the rate of tax on labour income in Russia is still one of the lowest in the world. E. g., the rate ranges between 25%—36% in Latin American countries (Figure 3).



**Figure 3.** Rates of PIT in Russia and Latin American countries

The share of personal income tax in the budget revenues in Russia remains rather modest within 3.5% of GDP (Ministry of Finance of the Russian Federation, 2020).

### 3.2. Analysis of the impact of progressive taxation on mitigating inequality and poverty

It is currently being observed that the tax system is not very effective in addressing its social function, which justifies observations of practices of other countries showing positive trends in reducing income inequality over recent decades. To many researchers (Toledo, 2019; Tsagan-Mandzhieva, 2018), such countries include the countries of Latin America, where a shift toward progressive taxation of individual incomes was adopted in the late 2000s after unsuccessful neoliberal tax efforts in the 1990s that had generated a skewed structure of taxation sloping toward indirect taxes and resulted in growing social inequality.

Today, however, Latin America is characterized as one of the global regions with the biggest inequality problem, and the fiscal system shows moderate results in bringing down this income inequality (Bucheli et al., 2018). Table 5 outlines our comparison of the indicators of inequality and poverty in the analysed six countries

**Table 5.** Inequality and poverty indicators in Russia and countries of Latin America

	Argentina	Uruguay	Ecuador	Colombia	Russia
<i>Inequality</i>					
Gini index	38.78	39.4	44.25	50.11	34.7
Atkinson index (0.5)	12.12	12.45	15.89	20.86	9.69
Atkinson index (1)	22.51	22.92	28.77	37.08	18.55
Atkinson index (2)	39.41	39.15	48.29	62.33	34.21
<i>Poverty</i>					
Poverty headcount ratio at \$5.50 a day (2011 PPP), % of population	9.9	2.9	23.3	28.1	3.8
Poverty gap at \$5.50 a day (2011 PPP), %	3.2	0.7	8.2	10.4	0.8

As can be seen from Table 5, the highest inequality levels are observed in Colombia and Ecuador, with Gini coefficients at 50.11 and 44.25 respectively. Compared to these Latin American countries, Russia shows the lowest figure at 34.7.

The table also shows the results for three weight parameters of the Atkinson index, indicating the level of "inequality aversion" ( $\varepsilon = 0,5, 1$  и  $2$ ). In the course of the study the figure characterising strong inequality aversion ( $\varepsilon = 2$ ) primarily analysed. The highest value for the Atkinson index is observed in Colombia, where the loss of welfare to inequality is 62.33% of the potential welfare level that could be achieved given equal distribution of total income. Meanwhile, Russia and Uruguay show the lowest percentage of welfare loss due to income inequality.

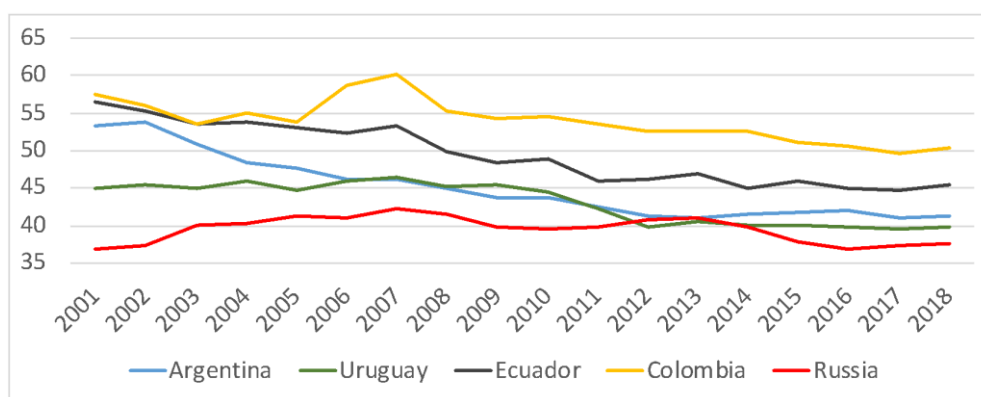
According to poverty statistics the international poverty line is of US\$5.5 PPP per

**THE IMPACT OF A PROGRESSIVE PERSONAL INCOME TAX SCALE ON REDUCING INCOME INEQUALITY:  
COMPARATIVE ANALYSIS**

day (see Table 5). There is a significant disparity in terms of the population living below the poverty line. While in Uruguay only 2.9% of people are poor, then in Colombia and Ecuador this figures rise to 28.1% and 23.3%, respectively.

These differences are also seen in terms of the poverty gap. The poverty gap indicates poverty is deeper in Colombia and Ecuador (10.4% and 8.2% respectively) compared to, for instance, Uruguay and Russia (0.7% and 0.8% respectively).

At the same time, an analysis of the dynamics of the Gini index shows that since the early 2000s it has been on a downward trend in Latin American countries, while Russia has shown disappointing dynamics: an increase from 36.9 in 2001 to 37.5 in 2018 (Figure 4).



**Figure 4.** Gini index change (2001-2018)

It should be noted that over the past decade, tax reforms have been implemented in Latin American countries, mainly related to reforming the income tax and entailing a change in the structure of rates - as a rule, upwards, as well as expanding the tax base to include income from capital gains and dividends. The model for reforming taxation was the Scandinavian model of the so-called "dual system", which involves a combination of a progressive scale on labor income and a relatively low flat scale on capital income (Tsagan-Mandzhieva, 2018).

The profile of personal income tax systems in the analysed Latin American countries is laid out in Table 6.



**THE IMPACT OF A PROGRESSIVE PERSONAL INCOME TAX SCALE ON REDUCING INCOME INEQUALITY:  
COMPARATIVE ANALYSIS**

**Table 6.** Profile of personal income tax systems in the analysed Latin American countries

	Ecuador	Colombia	Argentina	Uruguay
Taxable unit	Individual	Individual	Individual	Individual
Taxable income	gross labour income + additional pay + utility benefits + SICs	labour income, additional pay, retirement income and income on assets	Land rent, capital gains and labour income	gross labour income + additional pay
Tax exemptions	income from retirement benefits, reserve funds and age and disability deductions	income from business ownership subject to business tax; depending on the system, up to 25% of labour income	interest on time deposits and savings accounts; national awards; severance compensations; royalties; donations; inherited estate; lottery prizes; exemptions on environment-related activities.	30% of labour income earned by the self-employed
Base for deductions	Personal spending on food, clothing, education, healthcare and housing	spending on education, healthcare and mortgage	family contributions (children, spouses and parents earning no income); general deductions (spending on healthcare, housing rents, etc.); special deductions on labour incomes	social security contributions, contributions to healthcare and fixed contributions for children. The schedule of deductions for tax purposes includes six tax brackets from 10% to 30%. The tax base is taxable income less tax exemptions
Tax base	Taxable income less exemptions and deductions	Taxable income less exemptions and deductions	taxable income less SICs, non-taxable minimum, exemptions and deductions	according to the tax schedule plus additional IRPF minus base deductions according to tax deduction schedule
Tax schedule	nine tax brackets and rates from 0% to 35%	different brackets depending on the applicable system, rates from 0% to 35%	seven tax brackets and rates from 0% to 35%	eight tax brackets from 0% to 36% within 13 months, the rate of leave bonuses is a maximum rate attained by each individual (additional IRPF)

The results outlined in the table indicate that the current systems of PIT in the considered Latin American countries are characterized by common features:

- a) individual level of income assessment;
- b) the base of PIT largely comprises labour income: salary, income earned through independent work, retirement benefits (in Argentina, Uruguay) and to a lesser extent capital gains;
- c) exemptions and special tax regimes include: financial investments; interest on public securities, exemptions on investment funds, capital gains in property and

**THE IMPACT OF A PROGRESSIVE PERSONAL INCOME TAX SCALE ON REDUCING INCOME INEQUALITY:  
COMPARATIVE ANALYSIS**

equities. Various deductions may apply: deductions provided only on dependents (e. g., spouse, children or parents) (Argentina); deductions on personal expenditure apply, such as personal spending on education, healthcare and housing (Ecuador, Colombia); deductions on personal spending on food and clothing (Ecuador).

Every working individual in the analysed countries of Latin America is obliged to make social insurance contributions (SICs) depending on their gross labour income (Table 7).

**Table 7.** Principal profile of social security contributions for employees and the self-employed in the analysed Latin American countries

Country	Social insurance contributions for employees	Social insurance contributions for the self-employed
Ecuador	The overall rate equals either 9.45% or 11.45% of the minimum salary based on the category of full-time worker or as a share of the minimum salary based on days worked for part-time arrangements.	Self-employed individuals can make SICs voluntarily The base of contributions is declared as the total income from independent self-employed work The overall rate is 20.50%
Colombia	Minimum contribution: 8% of the minimum salary. Maximum contribution: 12% of 25x minimum salary.	The base for contributions is 40% of the gross income from independent self-employed work. Minimum contribution: 28.5% of the minimum salary. Maximum contribution: 30.5% of 25x minimum salary.
Argentina	The overall rate of contribution is 17%, with minimum and maximum limits of remuneration. The contribution covers provisional insurance and medical insurance.	Two systems: "autónomos" (five categories depending on activity types and gross income) and "monotributistas" for low-range taxpayers. Both systems: overall contribution of a fixed amount depending on the category of worker. The contribution covers provisional and medical insurance.
Uruguay	The overall rate of contributions equals 13-17.9% depending on the category of worker and pension fund. Generally, it is 15%. Beginning from the upper limit, the rate of voluntary medical insurance contribution equals 3-8% depending on the category of worker, pension fund and family composition (children, spouses).	Six systems apply depending on the activity type and size of the company. The overall contribution is a fixed amount depending on the category of worker and pension fund. The rate of voluntary medical insurance contribution equals 3-13% depending on the category of worker, pension fund and family composition (children, partner). Employers with more than five employees and "monotributo sociedad de hecho" are not included, "monotributo unipersonal" is a voluntary contribution

In Argentina and Uruguay, SIC covers retirement insurance, survivorship insurance, disability insurance and medical insurance. The overall rate of contributions for workers ranges between 8% in Colombia and 17.9% in Uruguay depending on the sector of employment and labour income.

As to contributions for the self-employed, they are voluntary in Ecuador (Canelas,

**THE IMPACT OF A PROGRESSIVE PERSONAL INCOME TAX SCALE ON REDUCING INCOME INEQUALITY:  
COMPARATIVE ANALYSIS**

2019). In Argentina and Uruguay, policy elaboration is more complex compared to other countries, as subsystems are taken into account depending on business size and gross income (Muinelo-Gallo et al., 2019).

Next, the impact of each tax credit instrument on poverty and inequality was examined in order to understand the role of taxes and credits in reducing poverty and inequality, and to improve tax policy.

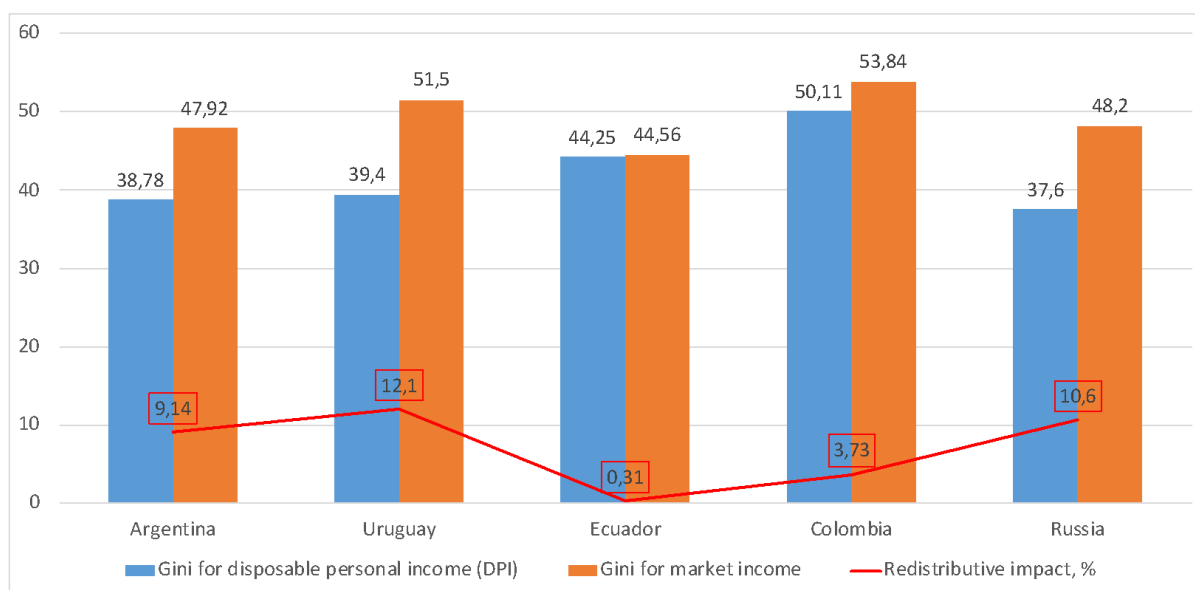
The calculations of the market Gini coefficient are laid out in Table 8.

**Table 8.** Calculations of the Gini coefficient for market income

Population groups	Share of population Xi	Share of income Y1	Cumulative share of income y(cum)i
<b>Uruguay</b>			
1	0.1	0.60%	0.028
2	0.1	1.80%	0.046
3	0.1	2.50%	0.071
4	0.1	3.40%	0.105
5	0.1	5.20%	0.157
6	0.1	6.70%	0.224
7	0.1	8.20%	0.306
8	0.1	10.00%	0.406
9	0.1	15.40%	0.56
10	0.1	46.20%	1.022
Total	1	100.00%	<b>2.925</b>
			<b>51.5%</b>
<b>Ecuador</b>			
1	0.2	4.50%	0.065
2	0.2	7.80%	0.143
3	0.2	10.50%	0.248
4	0.2	16.20%	0.410
5	0.2	61.00%	1.020
Total	1	100.00%	<b>1.886</b>
			<b>44.56%</b>
<b>Colombia</b>			
1	0.2	2.20%	0.028
2	0.2	5.70%	0.085
3	0.2	8.10%	0.166
4	0.2	20.30%	0.369
5	0.2	63.70%	1.006
Total	1	100.00%	<b>1.654</b>
			<b>53.84%</b>
<b>Argentina</b>			
1	0.2	6.30%	0.028
2	0.2	9.90%	0.127
3	0.2	12.80%	0.255
4	0.2	17.20%	0.427
5	0.2	53.80%	0.965
Total	1	100.00%	<b>1.802</b>
			<b>47,92%</b>

Figure 5 graphically maps out the findings of the comparative analysis of the impact of tax exemptions on income inequality.

THE IMPACT OF A PROGRESSIVE PERSONAL INCOME TAX SCALE ON REDUCING INCOME INEQUALITY:  
COMPARATIVE ANALYSIS



**Figure 5.** Impact of tax exemptions on income inequality in Russia and some countries of Latin America

As can be seen from Figure 5, the Uruguayan system of tax exemptions provides the strongest reduction of income inequality, and tops others with more than 12.1 pp of reduction of inequality, followed by Russia (10.6 pp) and Argentina (9.14 pp). Meanwhile, the weakest redistributive impact, i. e., the smallest reduction in income inequality, is observed in Ecuador and Colombia (at 0.31 pp and 3.73 pp respectively).

#### 4 DISCUSSION

The findings of our study allow us to agree with the opinion of other researchers calling for a progressive taxation scale in Russia. The arguments against progressive taxation concerning higher risks of tax avoidance (in case of a high rate) are well-known but lack substance, especially in the context of weakening exchange rate of the ruble, intensifying inflation and declining real incomes of a majority of the Russian population observed since 2015. We cannot fully agree with the views of experts (Dolgin, 2019; Krasnov et al., 2020; Nazarov, 2011) that the tax reform will create some risks of potential tax avoidance and stronger distortions in the market economy, such as rising unemployment, falling incentives to labour and declining investment.

The government's announced goal of recovering salaries from the shadow economy (by adopting a flat tax) can raise doubts, too, as there remains a significant number of individuals working of their own accord (and withholding reporting on their earnings from the state). By some accounts, at least 36% of the working-age

population in Russia is engaged in the shadow economy, which corresponds to 27 million people (Sher, 2015).

We share the views of the proponents of adopting a progressive tax but we also believe such adoption should require a conscious and smart approach based on advanced international practices and adjusted specifically to the national context.

Based on the study findings, only Uruguay's experience, of all analysed countries of Latin America, could be useful for Russia. The idea of exporting some of the elements of the Uruguayan system of personal income tax is supported by the findings of numerous studies (Bargain, Jara and Rodriguez, 2017; Roca, 2010; Bucheli, Lustig, Rossi, Amábile, 2012; Oficina de Planeamiento y Presupuesto, 2016).

Individual earned income (i.e. wages, salaries, etc.) in Uruguay is taxed at progressive rates of 10%-36%. Since only a small part of expenses (Social Security contributions and a notional amount corresponding to education, food, health care and expenses for dependent minor children) are taken into account as deductions, almost all total personal income is subject to this tax. The progressive scale of income tax rates in Uruguay, which applies to resident workers, is presented in Table 9.

**Table 9.** Progressive tax scale applying for personal income tax in Uruguay\*

Gross taxable personal income, USD		Personal income tax, %
Lower limit	Upper limit	
0	8,900	0%
8,900	12,714	10%
12,714	19,072	15%
19,072	38,143	24%
38,143	63,572	25%
63,572	95,358	27%
95,358	146,215	31%
146,215	..	36%

\* Calculated by the author based on figures from PWC (2021) applying the exchange rate of 1 USD = 42,651 Uruguayan peso as of 31.12.2020.

**Table 10.** Progressive tax scale on family income as a family unit in Uruguay as of December 31, 2020

Gross taxable personal income, USD		Personal income tax, %
Lower limit	Upper limit	
0	17,800	0%
17,800	19,071	15%
19,071	38,143	24%
38,143	63,572	25%
63,572	95,358	27%
95,358	146,215	31%
146,215	-	36%

A distinctive feature of the Uruguayan taxation system is that the single payer of

PIT can be a family (PWC, 2021). At the same time, the PIT rate scale depends on the income of each family member. In the event that each family member's income is more than 12 times the minimum wage (1 minimum wage = \$382), then taxable income before deduction must be totaled and then the rate scale according to the various income brackets is applied (Table 10).

Thus, Uruguay has maintained a flexible progressive personal income tax scale that helps to bring down disposable income differentiation (Antía, 2019).

In Russia, a flat tax scale was adopted in the early 2000s. The idea was to legalise incomes and raise budget tax revenues. The debate on getting back to the progressive scale has been active for more than a decade, but only starting 2021 some first steps are being taken in this direction. E. g., a minor increase in the rate of personal income tax (to 15%) was introduced on incomes over a specified threshold (over 5 million rubles per year).

The main reason in Russia for the delayed adoption of a progressive scale of personal income taxation seems to be the lobbying of business elites against bills proposed in the political circles and also the lack of political will. That is why the issue of adopting a progressive tax scale lies in the political, rather than economic or legal domain. Thus, the efforts of governments and legislative bodies and political will of the top leadership should be engaged to expedite a prompt adoption of a progressive individual income tax scale, which holds, we believe, the potential to generate a positive socioeconomic effect beyond any doubt. More profound research into the topic would depend on new data coming for the Latin American region for continued analysis.

To substantiate the adoption of progressive personal income taxation in Russia, a more in-depth analysis of the consequences is needed, including the risks and budget effectiveness of personal income tax. Further research dimensions include analyses of the best practices of progressive taxation adopted in member countries of the Organisation of Economic Cooperation and Development (OECD), evaluation of the impact of a progressive scale on income differentiation in Russian regions, employment and unemployment figures and the effects of tax exemptions on revenues and budget effectiveness of the country.

## 5 CONCLUSION

The findings of the study support the proposed hypothesis and invite the following conclusions.



A strong negative correlation exists between the effective personal income tax rate and the degree of income differentiation. Consequently an increase in the effective personal income tax rate causes a decline in income inequality.

In Russia, the tax rate is set irrespective of the amount of labour income earned and even as taxable income grows it still stands at 13%. The flat tax system is one of the causes of the growing income inequality and leads to increased social tensions.

At the same time, the rate of tax on labour income in Russia is one of the lowest in the world and the share of PIT in the budget system of the Russian Federation remains rather modest within 3.5%.

A comparative analysis of Russia and a number of Latin American countries showed that Russia and Uruguay are characterized by the lowest levels of inequality and poverty. At the same time, in the considered Latin American countries, since the 2000s, the poverty rate has tended to decrease, while Russia has shown a reverse trend.

Progressive taxation of personal incomes can be an effective instrument to ease social pressures and promote income equality. The experience of the taxation system of Uruguay is proposed for partial use as one of the most effective in achieving a reduction in inequality of incomes of the population.

Feasibility studies for adopting a progressive taxation system in Russia would warrant continued theoretical and empirical research into the effects of progressive taxation systems for employment and budget performance and reviews of the best practices of countries with progressive scales of personal income taxes.

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