DISTRIBUTIONAL AND POVERTY EFFECTS OF
INCOME TAX REFORM IN SERBIA

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Abstract

The fundamental reform of income tax is on the top of policy reform agenda in Serbia. The most of CEE countries have recently implemented some form of flat tax scheme, while Western European countries still stick to comprehensive or (semi)dual income tax model. The aim of our empirical research is to determine if the difference in the size of distributional effects of flat tax and comprehensive income tax reforms in Serbia would be sufficiently large to affect the final decision on the income tax reform scenario to be implemented. Our analysis is based on the tax and benefit micro-simulation model for Serbia (SRMOD) using 2007 household survey data. Our main findings suggest that replacing the current income tax structure by flat tax scheme would somewhat reduce inequality and vertical equity in Serbia. However, in case of introduction of comprehensive income tax considerably larger equalizing and progressivity effects would be generated. At the same time, since in both cases redistribution will not trigger bottom decile group, no significant effects (in either cases) on poverty reduction are to be achieved.
1. Introduction

Fundamental tax reforms have been on the political agenda during last couple of years in many Western European countries. Since the publication of Hall and Rabushka (1995) paper, there has been a live debate in academic and policy circles on options to make the tax system more simple and efficient, by introducing flat tax schemes. Unlike to Western European countries, which still mostly apply some form of comprehensive or (semi)dual income tax, over the last decade many Central and Eastern European (CEE) countries have actually introduced some form of flat tax scheme. The primary aim was to simplify the existing tax systems but also to accelerate economic growth. In Russia, there was a marked increase in tax compliance following the reform (Ivanova et al., 2005), whereas in Slovakia the simplification of the tax law has improved its transparency and business-friendliness, and, hence, the country’s credit rating was upgraded (to A, assessed by S&P), so Slovakia had the best credit rating in the CEE region (Sklenar and Burger, 2006).

Flat tax reforms are usually expected to bring positive effects on efficiency, country’s GDP growth and employment. On the other hand, opponents of the reform usually stress adverse distributional effects of flat tax schemes. Namely, it is often pointed out that flat tax scheme is less efficient in tackling inequality than comprehensive income tax system. Since none of the Western European countries have yet introduced flat tax scheme, the economic and distributional consequences of potential reforms have usually been analyzed using simulation techniques.

Intention of our paper is to contribute to the empirical literature on distributional effects of flat tax and comprehensive income tax by focusing on recent income tax reform proposals in Serbia. The aim of our empirical research is to determine if the difference in the size of distributional effects of these two income tax models is sufficiently large to affect the final decision on the income tax reform scenario to be implemented. We analyze effects of revenue neutral flat tax reform and comprehensive income tax reform on income inequality and (vertical) equity in taxation. Our analysis is based on a tax and benefit micro-simulation model for Serbia (SRMOD) using micro - household survey data.
With its socio-demographic structure, Serbia is often regarded as a typical Western Balkan country. Given that the tax and benefit systems of these economies share many common features, specially among former Yugoslav republics, the qualitative results of our analysis could be of interest to a wider range of countries in the region. All scenarios assume full compliance, and as such, do not estimate potential changes in tax evasion.

Our main results suggest that replacing the current income tax structure by flat tax scheme would somewhat reduce inequality and vertical equity. However, when comprehensive income tax is introduced, we observe considerably larger equalizing and progressivity effects. At the same time, since in both cases redistribution will not trigger bottom decile group, no significant effects (in either cases) on poverty reduction are to be achieved.

The paper is arranged as follows. Section 2 gives an overview of the empirical findings on distributive effects of income tax reforms. Section 3 describes the data and explains the methodology. Short preview of current personal income tax system and proposed income tax reform scenarios is given in Section 4. The results on the effects of these reform scenarios on inequality and poverty are presented in section 5, while the results related to vertical equity are disclosed in Section 6. The last section concludes.

2. Literature review on distributional effects of income tax reform

Empirical studies performed in developed countries which apply comprehensive (strongly progressive) income tax systems have found that replacing current tax schemes with flat tax model would generate considerable negative effects on income distribution. Decoster et al. (2008), using European tax-and-benefit micro-simulation model (EUROMOD), shows that introduction of a flat tax would reduce the progressivity of the of the Belgian tax system. The lowest income deciles would lose while the higher incomes would gain from the reform. On the other hand, applying additionally a micro-econometric labor supply model, they observe some positive incentives effect on the labor
supply. Gains in efficiency, according to their estimates, are not sufficiently high to offset the adverse effects on income distribution.

In a study for the Netherlands, Jacobs, et. al. (2007), using applied general equilibrium model, find that non-linear income tax is more efficient than a linear (flat) tax in achieving redistributive goals. Also, if flat tax is designed to maintain the current level of inequality, that would trigger negative labour supply response and vice versa. In a similar fashion, using the US data, Diaz-Gimenez (2006) study two revenue-neutral flat-tax reform scenarios. These scenarios differ in the tax rates and in the amounts of exemptions. Author concludes that the less progressive flat-tax scenario would be more efficient than the current tax system since it would lead to higher output and labor productivity. Improved efficiency would, however, come at the price of more inequal distributions of earnings and after-tax income. In a study based on simulation model for German tax and transfer system, Fuest et al., (2008) find that in both flat tax scenarios (which were subject to research) top income decile group benefits at the expense of the upper middle class.

Studies in new EU member states confirm prior results. Paulus et al (2009a) have simulated in EUROMOD different flat tax scenario for Estonia, Hungary and Slovenia. Their results indicate that in Hungary and Slovenia the introduction of the flat tax schemes would significantly increase tax burden for the bottom deciles. Additionally, tax reform would increase inequality and poverty in both countries. The impact on inequality and poverty would not be so pronounced in Estonia since the country already has implemented some form of flat tax system and has a relatively high level of inequality. At the same time, it is estimated that flat tax reforms would reduce effective marginal tax rates by 4-9 percentage points, which could improve work incentives or lead to higher tax compliance.

3. Data and methodology
To evaluate effects of income tax reform on inequality and equity and have used microsimulation model for Serbia (SRMOD), which is based on EUROMOD platform. EUROMOD is a static tax-benefit microsimulation model that currently covers the 15 pre-2004 European Union Member States,
plus Estonia, Hungary, Poland and Slovenia. It enables researchers and policy analysts to calculate, in a comparable manner, the effects of taxes and benefits on household incomes and work incentives. As well as calculating the effects of actual policies, it is also used to evaluate the effects of tax-benefit policy reforms and other changes on poverty, inequality, work incentives and government budgets.

SRMOD, as other tax-benefit models, operates on a micro-data for a representative sample of households, within a population to be observed. Baseline data set used in SRMOD is Living Standards Measurement Survey (LSMS) from 2007.¹ This dataset was chosen since it contains detailed information on levels and sources of different types of income. Using elements of income from the survey data and combining them with simulated taxes and benefits, the model calculates disposable income for each household (see Scheme 1). The basic EUROMOD output therefore consists of information on changes in disposable incomes of households, at the micro level, after certain policy reforms (within the sphere of taxation, social contributions, social assistance eligibility criteria, etc.) are introduced. As the analytical tool, the model allows “laboratory experiment”, since the effects of tax-benefit reforms can be determined and studied before their implementation.

Since the baseline tax-benefit policy year and income data reference period are the same there was no need for income uprating. The only modification to the original dataset was net-to-gross imputations. Namely, since tax-benefit calculations are applied to gross incomes these were imputed since the original dataset recorded incomes net of taxes.

4. Current personal income tax and proposed income tax reform scenarios

In Serbia, combined income tax with strong scheduler (proportional) component is applied, which is different form developed countries where some form of comprehensive income tax systems (with progressive tax brackets) exist. Since the year 2000 thorough reform of almost all major taxes in Serbia has been performed. Radical changes have been made in respect of sales tax (VAT introduced), excise duties, social security contributions and corporate income tax. Although in 2001 the new

Personal Income Tax Law has been adopted, no fundamental changes have been introduced. Therefore, in Serbia the so called combined income tax system (mix of scheduler and comprehensive income tax) still applies. It is commonly accepted, in both academia and policy circles, that the reform of personal income tax system in Serbia is necessary. Two frequently discussed reform scenarios are East European style flat tax and comprehensive income tax model. In its pure theoretical (Hall-Rabushka) form, flat tax regime implies that income from labor is taxed at the flat rate (without exemptions and allowances, besides personal exemption), whereas income from capital is exempted, in order to eliminate double taxation. In practice, however, the most of Central and East European flat tax countries have also included capital income into the tax base and in some of them tax exemptions list is extended by certain allowances for dependent family members.

A baseline scenario in our microsimulation refers to personal tax system which was in force in Serbia in 2007 (since the data set is related to 2007). After 2007 certain, yet not crucial, amendments to the income tax system were made. (As mentioned before, since the year 2001 in Serbia combined income tax model applies (combination of strong scheduler and comprehensive income tax). This means that incomes from various sources are taxed at the moment they are generated, at different tax rates (see Table 1).

Individuals whose total annual income exceeds certain threshold (three times average annual salary in Serbia) are also obliged to pay annual income tax at progressive tax rates (10% and 15%). Less than 1% of total number of taxpayers actually pays annual income tax, which is why the impact of this component of income tax system on inequality is very low.

Although several options for reform of personal income tax in Serbia are being discussed, our microsimulation analysis will be focused on two scenarios:

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2 Deductible costs for calculation of tax on income from authorship rights are changed and tax rates on income from capital and capital gains reduced to 10%.
Flat tax – income from all sources, decreased by basic monthly allowance of RSD 9,000 (app. 25% of average wage) and monthly allowances for dependent children of RSD 4,000 (per child), is taxed at the tax rate of 15%.

Comprehensive income tax – family income from all sources, decreased by basic monthly allowance of RSD 8,000 (per earner), monthly allowance for dependent children of RSD 4,000 (per child) and itemized deductions for full amount of medical expenses and educational expenses (up to RSD 4,000 per month) is taxed at the tax progressive tax rates of 12% and 22%. The rate of 12% is applied to family taxable income up to RSD 35,000, while the exceeding amount is taxed at the rate of 22%. Without accounting for behavioral responses, it is expected that these tax reforms would be revenue neutral.

5. Effects of introduction of flat tax on income distribution

Standard methods of measurement of redistribution of income rely on Gini coefficient and the structure of disposable income. Such approach also allows for comparative analysis.

5.1 Redistributive effects of flat tax reform – Gini coefficient approach

The information on Gini coefficient (measured on the basis of disposable income) illustrates the total income inequality in the country, which is result of market processes and public policies. However, the analysis of effectiveness of tax and benefit policies (which serves as the information base for policy making process) may be derived from the data on the structure of Gini coefficient, i.e. from the data on the effects of particular policy instruments on Gini coefficient.

Results presented in Table 2 indicate that the inequality, stemming from market processes, is relatively high – Gini coefficient measured on the basis of original (market) income amounts to 0.47. At the same time, average before-tax and before-transfers “market income” Gini coefficient in developed countries ranges between 0.34 and 0.54 (average value is 0.44). The results also suggest that the tax and benefit policies in Serbia make significant impact on reduction of inequality of income
distribution, i.e. the total inequality (measured based on disposable income) is reduced by approximately 25%. However, according to the data for OECD countries, tax and benefit policies in these countries cut Gini coefficient by approximately 33%, which suggests that further improvement of redistributive features of Serbian tax and benefit policies is possible and necessary.

The structure of Gini coefficient in Serbia suggests that social assistance (benefit) policies are much more efficient in reduction of inequality than tax policy instruments are, which is in line with the results in other European countries. Namely, as a result of benefits policies, Gini coefficient in Serbia is reduced by approximately 0.108, whereas income tax and social contributions trigger decline in Gini coefficient by 0.008 and 0.003 respectively.

The results indicate that redistributive power of current income tax in Serbia is very low (0.008). Opponents of the flat tax usually argue that lack of redistributive effects is important drawback of flat tax system. Our results suggest the opposite: replacement of the current PIT system with the flat tax would considerably increase the redistributive effects of income tax (to 0.012). Furthermore, introduction of comprehensive income tax system would trigger even larger redistributive effects, since it would decrease Gini coefficient by 0.015. However, we should keep in mind that equalizing effects of personal income tax system in Serbia (both the current one and proposed tax reform scenarios) is considerably lower than in the other EU countries. The data for 19 EU member states (included in EUROMOD system) show that, in average, income tax systems in these countries reduce Gini coefficient by 0.044 (Paulus et al., 2009b). This is approximately 9 times more then the current PIT system in Serbia does and 3 to 4 times more than proposed tax systems would generate.

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3 These results are in line with empirical data for other flat tax countries (e.g. Estonia does not show significantly smaller equalizing effect of personal income tax in comparison with other countries). See: Paulus et al. (2009a)
5.2 Redistributive effects of flat tax reform – income composition approach

The analysis of redistribution effects of tax reform based on Gini coefficient may only point out the size and direction of change, but provides no information on losers and winners from the reform. This can be determined based on the information on income distribution before and after tax reform.

According to the micro data on disposable income of individuals in Serbia, three bottom decile groups generate approximately 11.4% of total disposable income, whereas top 3 decile groups generate 54.1% of total disposable income (see Table 3).

Replacement of currently applied combined income tax in Serbia with flat tax would trigger redistribution of 0.4% of total disposable income (see Graph 1). Individuals in decile groups 2, 3, 4 and 6 would be better-off after the flat tax reform, while individuals in decile groups 9 and 10 would be worse-off (their disposable income would decline by 0.1% and 0.3% of total disposable income respectively). However, in case of introduction of comprehensive income tax, 0.7% of total disposable income would be redistributed and full burden of redistribution would be on the top decile group. At the same time, benefits from the redistribution would be almost equally distributed across decile groups 2 to 9. Results depicted in Graph 1 also indicate that under both tax reform scenarios the disposable income of bottom decile group remains unchanged, which is due to offsetting effects of increase in tax rates and increase/introduction of basic allowance, dependent children allowances and itemized deductions.

The conclusion on positive redistributive effects of tax reform is also confirmed by the ratio 80/20\(^4\). This ratio would decline from 6.98 before tax reform to 6.82 after the flat tax reform or to 6.72 under comprehensive income tax reform. This also implies that comprehensive income tax would bring larger decrease in inequality than flat tax reform scenario.

\(^4\) This ratio equals total income disposable to top two decile groups divided by total income disposable to bottom two decile groups.
Although flat tax reform would somewhat reduce inequality in income distribution, this would trigger only slight decrease in poverty. According to our results presented in table 4, under both tax reform scenarios poverty rate would fall from 10.7% to 10.5%. Absence of larger poverty effects are due to the fact that disposable income of bottom decile group would remain steady.

6. Effects of introduction of flat tax on equity in taxation

Equity aspect of taxation has two components: horizontal and vertical equity. While horizontal equity criteria requires that individual with the same income pay equal amount of taxes, vertical equity stands for the principle that those who earn more, have to pay absolutely and relatively more taxes. According to the theoretical view, horizontal equity in taxation is not challenged under flat tax or comprehensive income tax scheme. Therefore, the focus of our analysis will be on vertical equity, which as also a prerequisite for income redistribution via taxation aimed at reduction in inequality. Common approach to evaluation of vertical equity in taxation refers to computation and analysis of tax progressivity. Although there are many different methods for measurement of tax progressivity, we will focus on the two methods usually applied in contemporary empirical studies: pattern of average tax rate (ATR) by income level and Musgrave-Thin Index (M-T).

Given that the slope of the average tax rate/income decile curve is lower for the flat tax reform as compared to the current income tax system, introduction of the flat tax would increase the progressivity of the tax system (see Graph 2). Furthermore, introduction of the comprehensive income tax would imply even larger increase in progressivity since the slope of respective ATR path is lower than in case of flat tax reform.

These conclusions will be further tested through computation of Musgrave-Thin progressivity index (M-T Index), which is based on the Gini coefficient, where \( G(x^p) \) stands for the post-tax Gini coefficient and \( G(x^z) \) for the pre-tax Gini coefficient:

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5 Progressivity is also used as an indicator of redistributive performances of tax system.
The tax system is regarded as progressive if $MT > 1$ (the higher M-T index is, the more progressive is the system).

According to the results of our microsimulation analysis (depicted in Graph 3), current personal income tax system in Serbia is only slightly progressive (M-T index amounts to 1.015). Flat tax reform is expected to trigger increase in M-T index to 1.022, while comprehensive income tax reform would imply rise in M-T index to 1.029. This means that, although both tax reform scenarios would lead to increase in tax progressivity, comprehensive income tax would perform better (in terms of progressivity) than flat tax. However, the level of tax progressivity in Serbia would still be significantly lower than the EU average. Namely, average value of M-T index in EU member states amounts to 1.0719 (Peichl, 2008).

7. Conclusion

Empirical data on the structure of the Gini coefficient and relevant tax progressivity index (Musgrave-Thin index) suggest that equalizing effects and vertical equity in taxation, under current income tax regime in Serbia are very limited. These conclusions represent significant additional arguments in favor of income tax reform in Serbia. Although income tax systems in EU member states are quite heterogeneous, it is evident that all of them apply some form of comprehensive, dual or flat income tax. In the last decade, the most of new EU member states have switched to flat income tax, expecting to improve economic efficiency, some aspects of equity and make the tax system simpler in order to cut direct and indirect costs of administering taxes. Bearing in mind the fact that income tax reform is on the top of policy agenda and that, inter alia, flat tax and comprehensive income tax models are under consideration, we have analyzed the effects of such tax reforms on inequality, poverty and vertical equity in taxation.
We have simulated two reform scenarios. Flat tax scenario refers to application of 15% tax rate and basic monthly allowance of RSD 9,000 (20% of average wage) plus dependent children allowance of RSD 4,000 per child. Simultaneously, comprehensive income tax model stipulates basic monthly allowance of RSD 8,000, plus dependent children allowance of RSD 4,000 per child and itemized deductions for medical and educational expenses. The results of the microsimulation analysis show that introduction of flat tax model would reduce overall Gini coefficient (based on disposable income) from 0.351 to 0.347, while introducing comprehensive income tax reform would further reduce Gini to 0.343.

The results on income distribution per decile groups are in line with above mentioned conclusions. Namely, we find that the flat tax reform would trigger redistribution of income equal to 0.4% of total disposable income, in such a manner that this amount of income would be redistributed from high income earners (individuals in two top decile groups) to lower and middle class (individuals in groups 2, 3, 4 and 6). These results are somewhat opposed to the results of empirical studies in developed countries, where after the introduction of flat tax high income earners and the poorest would be better-off, while middle income earners would be worse-off. The reason for this divergence is related to the difference in the baseline scenario, i.e. developed countries apply some form of comprehensive income tax (with progressive tax brackets), while in Serbia combined income tax with strong scheduler (proportional) component is applied. However, in case of introduction of comprehensive income tax scheme, the scale of redistribution would be significantly larger (0.7% of total disposable income). The burden of redistribution would be fully born by top decile group, while the benefits would be equally distributed across the decile groups 2 to 9.

According to our results, bottom decile group would be neither better-off nor worse-off after the reform (in both reform scenarios), which explains why it would not trigger significant reduction in poverty in Serbia.
Our findings also indicate that flat tax reform in Serbia would slightly reduce inequality and somewhat improve vertical equity in taxation, which is opposite to the results often find in other countries. This is due to very limited progressivity and degree of vertical equity in baseline scenario. However, in case of comprehensive income tax reform, tax progressivity would be improved considerably (although it would still be lower than in EU member states).

The above mentioned results indicate that both flat tax and comprehensive income tax would help in tackling inequality in Serbia, although the comprehensive income tax would generate somewhat better results. However, the question of income distribution is only one important perspective of effects of income tax reform. Namely, it is also necessary to analyze the efficiency effects of both tax reform scenarios in order to determine which scenario would perform better in terms on total social welfare.

References


**Tables and Schemes:**

**Scheme 1. Main Income Concepts in EUROMOD**

<table>
<thead>
<tr>
<th>Original income (employment and self-employment income, income from agriculture, income from capital, income from property (rent))</th>
<th>Social benefits (family benefits, pensions, unemployment benefit, social assistance benefits, housing benefits)</th>
<th>Social Insurance Contributions (employee, self-employed)</th>
<th>Personal Taxes (income and other direct taxes)</th>
<th>Disposable Income</th>
</tr>
</thead>
</table>

Source: Paulus et al. (2009b)

**Table 1: Personal Income Tax Rates in Serbia**

<table>
<thead>
<tr>
<th>Source of income</th>
<th>Statutory rate</th>
<th>Deductible costs/ non-taxable amounts</th>
<th>Effective tax rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income from self-employment</td>
<td>10%</td>
<td>-</td>
<td>10%</td>
</tr>
<tr>
<td>Salary/wage</td>
<td>12%</td>
<td>5,050</td>
<td>10.4%¹</td>
</tr>
<tr>
<td>Income from agriculture and forestry</td>
<td>14%</td>
<td>-</td>
<td>14%</td>
</tr>
<tr>
<td>Income from authorship rights, related rights and intellectual property rights</td>
<td>20%</td>
<td>34%, 43%, 50%</td>
<td>13.2%</td>
</tr>
<tr>
<td>Income from capital</td>
<td>20%</td>
<td>-</td>
<td>10%, 11.4%, 0%, 16%, 20%²</td>
</tr>
<tr>
<td>Income from immovable property</td>
<td>20%</td>
<td>20%</td>
<td>16%</td>
</tr>
<tr>
<td>Capital gains</td>
<td>20%</td>
<td>-</td>
<td>0%, 20%</td>
</tr>
<tr>
<td>Other income</td>
<td>20%</td>
<td>20%</td>
<td>16%</td>
</tr>
</tbody>
</table>

¹) Effective tax rate on average monthly salary in Serbia paid in April 2007

²) Interest on dinar deposits are tax exempted. Dividends received by residents are taxed at the rate of 20%, on the tax base equal to 80% of gross dividend (i.e. effective tax rate is 16%).

Source: Personal Income Tax Law
Table 2: Effects of tax and benefit policies on Gini coefficient

<table>
<thead>
<tr>
<th></th>
<th>Current income tax system</th>
<th>Flat tax</th>
<th>Comprehensive income tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gini coefficient - original income</td>
<td>0.470</td>
<td>0.470</td>
<td>0.470</td>
</tr>
<tr>
<td>- effects of income tax on Gini</td>
<td>-0.008</td>
<td>-0.012</td>
<td>-0.015</td>
</tr>
<tr>
<td>- effects of social security contributions on Gini</td>
<td>-0.003</td>
<td>-0.004</td>
<td>-0.005</td>
</tr>
<tr>
<td>- effects of benefits on Gini</td>
<td>-0.108</td>
<td>-0.107</td>
<td>-0.107</td>
</tr>
<tr>
<td>Gini coefficient - disposable income</td>
<td>0.351</td>
<td>0.347</td>
<td>0.343</td>
</tr>
</tbody>
</table>

Source: Authors' calculations in SRMOD

Table 3: Income distribution per decile groups

<table>
<thead>
<tr>
<th>Racio analiza kvintila (80/20)</th>
<th>% of total disposable income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Current income tax system</td>
</tr>
<tr>
<td></td>
<td>6.98</td>
</tr>
<tr>
<td>1</td>
<td>1.9%</td>
</tr>
<tr>
<td>2</td>
<td>4.0%</td>
</tr>
<tr>
<td>3</td>
<td>5.4%</td>
</tr>
<tr>
<td>4</td>
<td>6.8%</td>
</tr>
<tr>
<td>5</td>
<td>8.0%</td>
</tr>
<tr>
<td>6</td>
<td>9.1%</td>
</tr>
<tr>
<td>7</td>
<td>10.7%</td>
</tr>
<tr>
<td>8</td>
<td>12.6%</td>
</tr>
<tr>
<td>9</td>
<td>15.5%</td>
</tr>
<tr>
<td>10</td>
<td>26.0%</td>
</tr>
</tbody>
</table>

Source: Authors' calculations in SRMOD

Table 4: Effects of tax reform on poverty

<table>
<thead>
<tr>
<th></th>
<th>Current income tax system</th>
<th>Flat tax</th>
<th>Comprehensive income tax</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>10.7</td>
<td>10.5</td>
<td>10.5</td>
</tr>
<tr>
<td>0-15</td>
<td>13.0</td>
<td>12.7</td>
<td>12.7</td>
</tr>
<tr>
<td>16-29</td>
<td>11.9</td>
<td>11.6</td>
<td>11.6</td>
</tr>
<tr>
<td>30-44</td>
<td>10.5</td>
<td>10.4</td>
<td>10.4</td>
</tr>
<tr>
<td>45-64</td>
<td>11.4</td>
<td>11.2</td>
<td>11.2</td>
</tr>
<tr>
<td>65+</td>
<td>8.6</td>
<td>8.5</td>
<td>8.5</td>
</tr>
<tr>
<td>Man</td>
<td>10.4</td>
<td>10.3</td>
<td>10.3</td>
</tr>
<tr>
<td>Women</td>
<td>10.9</td>
<td>10.7</td>
<td>10.7</td>
</tr>
</tbody>
</table>

1) Poverty line is set at 40% of disposable income

Source: Authors' calculations in SRMOD
Graphs

Graph 1: Change in disposable income per decile groups after tax reform

Graph 2: Average tax rate per decile groups

Graph 3: Musgrave-Thin progressivity index under various income tax scenarios