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**AN ANALYSIS OF THE EFFECTS OF THE  
PROPOSED TAX CHANGES ON POVERTY  
AND VULNERABLE GROUPS**



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## Table of Contents

On the Potential Tax Reform	4
Direct Versus Indirect Taxes?	7
Methodological Remarks	10
The Initial State: The Standard of Living and Poverty in 2009	16
An Analysis of the Proposed Tax Changes	25
Introduction	25
Effects on the Standard of Living	27
Effects on Poverty	36
Instead of a Conclusion	41
Annex	43

## ON THE POTENTIAL TAX REFORM

During the past months, there was much talk about changes in Serbia's tax system. Namely, the Serbian Ministry of Finance, together with its expert team, announced a fundamental reform of the tax system that should be conducted already this autumn. In this connection, the Letter of Intent sent by the Serbian Government to the International Monetary Fund states as follows: "We are also considering further reforms of the tax system. The basic aim is to reduce the labour burden imposed by social contributions and earnings taxation, in addition to offsetting revenue losses through the adjustment of indirect taxation".

The basic idea behind the set of similar proposals is to accelerate economic growth and increase employment by disburdening earnings as a factor of production. Making labour cheaper should increase the attractiveness of its hiring in production and thus employment (including its transfer from the grey economy), on one side, and spur investment by reducing the total cost of the economy, on the other.

Since the aim of tax reform would not be to change fiscal balances (revenues, that is, deficits), it is planned to increase the value-added tax as the compensation for the disburdening of earnings and resultant revenue losses, thus ensuring that total revenue remains unchanged. As an additional reason for these tax changes, it was pointed to the need to reduce the excessive consumption of the population relative to the country's GDP, which could be achieved by increasing the value-added tax.

One complex reform proposal is presented in the study: M. Arsić (ed.), *Tax Policy in Serbia – A Look Forward*, March 2010 (in further text: Proposal 1). The Minister of Finance has supported this proposal. The proposed changes are big because it is anticipated to abolish social contributions that are used to finance state health care and unemployment benefits, as well as to carry out essential changes in earnings taxation and increase VAT rates to a considerable extent. As it was stated: "This study describes a revenue-neutral tax reform that would shift a significant part of the fiscal burden borne by earnings to the taxation of consumption – by abolishing contributions to health and unemployment insurance, increasing the VAT rate by 4% and introducing the more progressive taxation of earnings".<sup>1</sup> It is also estimated that the abolition of these two contributions would imply the revenue loss of 3.6% of GDP and that the VAT revenues should be increased as much.

Finance Minister Diana Dragutinović advanced a similar proposal. In one interview,<sup>2</sup> she proposed her version of the reform (in further text: Proposal 2).

1. Let us take a look at the current taxes on earnings:

- Earnings tax, whose rate is 12% and non-taxable portion 6,554 dinars;
- Contribution to old-age pension and disability insurance, whose cumulative rate is 22%;
- Health insurance contribution, whose cumulative rate is 12.3% ;
- Unemployment insurance contribution, whose cumulative rate is 1.5%.

One half of the cumulative rate of each contribution is paid out of earnings to the debit of the employed and the other half to the debit of the employer.

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<sup>1</sup> *Poreska politika u Srbiji - pogled unapred* (Tax Policy in Serbia – A Look Forward), March 2010,

<sup>2</sup> *Biznis magazin*, p. 36, 20 June 2010.

The value-added tax has two rates: the general rate of 18% and the lower rate of 8% (payable mostly on goods of utmost significance for the standard of living).

Proposal 1 is as follows:

- to abolish contributions to health and unemployment insurance and transfer the financing of these expenditures to the republican budget;
- to increase the earnings tax rate to 20%;
- to increase the non-taxable portion of the earnings subject to the earnings tax to 16,500 dinars, and
- to increase VAT rates to 22% and 12%.

Proposal 2 is as follows:

- to decrease social contributions by one-third;
- to decrease the earnings tax rate to 10%;
- to increase the non-taxable portion of the earnings subject to the earnings tax to 16,500 dinars, and
- to increase VAT rates to 21% and 11%.

The mentioned decrease in contributions by one-third is not quite clear – does it refer to a decrease in all three contributions by one-third or not? We shall interpret it as a decrease in contributions to health and unemployment insurance by one-third, similarly to Proposal 1. It can also be assumed that the complete abolition of contributions to health and unemployment insurance is not anticipated because, in the opposite, Proposal 2 would not be revenue-neutral. It would bring about a significant increase in the fiscal deficit, since the revenue loss would be doubled relative to Proposal 1: due to a lower earnings tax rate (10% instead of 20%) and lower VAT rate (21% and 11% instead of 22% and 12%), without the compensation. The disruption of the principle of revenue neutrality would certainly generate more favourable effects on the population from this proposal, as compared to Proposal 1.

There are also some other ideas. So, Vice Premier Dinkić supported an earnings tax cut from 12% to 10%; as for the VAT increase, he stated that the Government had “some ideas“ about an increase in the VAT rate from 12% to 18%, without changing the general rate. A little later, however, he opted against the VAT increase.

2. The revenue neutrality of reform is not only a useful analytical tool for separating structural and macroeconomic effects of tax changes, but is also the substantive feature of every good tax reform. However, aggregate revenue neutrality, that is, neutrality at the level of the Republic of Serbia, does not mean that each actor (individual, group, firm or budget) will benefit equally from the tax reform. On the contrary. In general (i.e. as a rule), some will fare better, some will fare worse, but this is the aim of such a reform. Should all fare equally well, the tax reform would not make any sense.

The change of taxation rules according to either of the mentioned proposals would have a different effect on the status of specified sectors and groups, depending on the taxes they pay now and those they will pay in the future. It can be predicted with significant certainty that, at least over a shorter term, the population would fare worse than the economy, since the compensation burden (through the VAT increase) would be borne by citizens, while the benefit from earnings disburdening would accrue to the economy and, partly, to the population (i.e. to those who are employed and receive salary/earnings). There is no doubt that the economy would also suffer a loss from tax reform, albeit a non-tax one, due to a decline in population demand and fall in sales, that is, profits.

3. The perspectives of these proposals are not quite clear – whether they will be adopted by the

Government and Parliament and then implemented, or when exactly that would happen. It is evident that there are different opinions within the Government: the Finance Minister expressed her expectation and hope that the proposals would become law, together with the 2011 budget, while Vice Premier Dinkić stated that there would be no major tax changes (especially not in the value-added tax) over the next two years. The current relaxation of tension was achieved by Prime Minister Cvetković, who said in a conciliatory manner that the direction of tax reform was still not determined. He also predicted that the strategic paper on the potential tax reform intended for public debate would appear until the autumn.

Regardless of further developments, it is necessary to investigate how the poor and members of other vulnerable groups would fare should these tax changes be effectuated. This social aspect should not be neglected while making preparations for such big changes. Would the status of more vulnerable people be improved or it would deteriorate which groups are in question? Would any deterioration be acceptable? Is it possible to do something in order to alleviate it or eliminate it? Therefore, the task of this study is:

- to assess the effect of the proposed tax changes on the poor and members of other vulnerable groups, and
- to propose the compensation measures that would alleviate any adverse effect of the proposed tax changes on these population groups should that be necessary and feasible.

So far, there has been no research on the social effects of the potential tax reform. It is time to begin such practice.

## DIRECT VERSUS INDIRECT TAXES?

In this section we shall briefly examine the conceptual questions of the proposed tax reform in order to get a picture of the theoretical framework within which our analysis of the possible effects of such a reform will be carried out.

The debate on the choice of the best tax structure has been going on for a long time and, at least among economic theorists, has not yet been concluded. The discipline that deals with it – optimal taxation theory – is very complex, but does not abound in practically useful results, at least on this plane. Its most important results suggest that the yield on capital should not be taxed and that tax rates should be more equal in the case of both indirect and direct taxation.<sup>3</sup> The one-time strongest argument that consumption taxation is not necessary when income taxation is well designed,<sup>4</sup> is not valid any more because, in the meantime, enough reasons were found that indirect taxes should be retained.

In general, taxes are most often considered on the basis of two important criteria: equity (is the tax equitable?) and efficiency (does the tax adversely affect or improve the functioning of the market?).

Equity is observed as horizontal (that equals should pay equal taxes) and as vertical (that unequals should pay unequal tax). Although there are some problems in the operationalization of both horizontal and vertical equity (e.g. what tax rate should be applicable to income tax: regressive, proportional or progressive?); it is widely held that people with more ability to pay should pay more tax, either according to the ability-to-pay or benefit approach principle. However, there is no distributive justice theory that would accept that the rich pay less than the poor, or that they pay equal taxes.

Efficiency is certainly one of the central economic concepts, and the problem concerning taxes lies in the fact that they usually bring inefficiency – regardless of whether it is the question of direct or indirect taxes. Therefore, when choosing the tax forms, the aim is to minimize inefficiency, at least from this aspect. Taxes cause market distortions or, in other words a change in the behaviour of taxpayers who, in order to reduce their tax burden, change their activity and thus cause market distortions and inefficiency relative to the purely market outcome.<sup>5</sup>

Two good examples of such distortions are the consumption tax and labour supply. So, the introduction of differentiated consumption taxes prompt individuals to buy the product that is taxed less instead of the desired one, which reduces their well-being. Likewise, a progressive income tax, at least in some situations, brings about a decrease in labour supply, because an individual finds that the increment of labour pays less than leisure, which reduces his well-being, that is, total economic activity.

Like in many other choices in economics, when choosing the tax structure, the greatest problem is posed by the conflict between equality and efficiency. Something that enhances efficiency usually does so at the expense of equity and vice versa.

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<sup>3</sup> See: N. G. Mankiw, M. Weinzierl, and D. Yagan - *Optimal Taxation in Theory and Practice*, Journal of Economic Perspectives, American Economic Association, Vol. 23(4), 2009.

<sup>4</sup> A. Atkinson, and J. E. Stiglitz - *The Design of Tax Structure: Direct Versus Indirect Taxation*, Journal of Public Economics 6, 1976.

<sup>5</sup> Here we disregard the taxation of externalities, or Pigouvian taxes.

It is often held that for encouraging economic growth it is good to reduce income taxation and increase consumption taxation. Such a change should bring about the following improvements: (1) a decrease in the taxation of savings (which are taxed under the income tax and not under the consumption tax), which is good for growth, and (2) the mentioned discouragement of labour supply is reduced, which also generates favourable effects. However, the problem remains complex. In order to reduce the production costs of firms and encourage an increase in the level of economic activity, it is necessary to reduce earnings in accordance with the reduced taxes. However, if consumption taxes are increased, the employed will probably not agree to work for a lower real salary than before the tax change, since they are interested in real earnings. And if salaries are increased by the amount of price increase, positive effects on growth will be offset by the VAT increase.

Second, sales taxes also bring inefficiency, so that the efficiency problem is confined to the comparison of two inefficiencies: which is greater – the inefficiency of the sales tax or that of the income tax?

It seems that the indisputable advantage of consumption taxation lies in the lower taxation of savings, which is good for investments and risk readiness. However, the favourable tax treatment of savings does not have to be achieved by shifting to indirect taxes. This can be done by changing the income tax base: it is sufficient to exclude savings and obtain the tax that is economically equivalent to the consumption tax. In other words, the exclusion of savings would enable consumption taxation solely through the income tax as well.

As usual, empirical studies dealing with the effect of different tax structures on economic growth give different assessments. Truly, older studies mostly failed to find the causal relationship, while more recent ones mostly ascertain the favourable effect of a shift to consumption taxation on economic growth.<sup>6</sup> Nevertheless, it is not the question of dramatic changes: so, the QUEST model for 15 EU member states has shown that the mentioned shift would accelerate economic growth by only 0.25%. However, someone has to pay the bill: either the employed or recipients of fixed transfers (pensioners, recipients of social assistance, etc.) at the time when the prices go up due to the VAT increase.<sup>7</sup>

All things considered, there is no consensus among economists about the positive effects of the mentioned tax change on economic growth either on the theoretical or empirical plane. However, even if there is a consensus in favour of taxing consumption, negative redistributive effects would remain. On one side, the decrease in the income tax especially suits affluent population groups, since they were much more affected by the previous tax progression. On the other side, the consumption tax is usually regressive, i.e. lower-income groups have the higher share of this tax in income. This is how the tax burden is shifted from richer to poorer population groups, which can easily be regarded as inequitable.

Negative distributive effects impose two kinds of problems: first, they can also be inequitable from the aspect of a reasonable distributive justice theory; second, they can cause significant political problems for the government because the affected groups can put up considerable resistance. This is what happened in Slovakia, so that it had to introduce compensation for poorer population groups in order to alleviate the economic effects of the reform. When considered from this perspective, it becomes clear why the income tax was introduced and expanded during the 20th century – it was more equitable than indirect taxes prevailing in the 19th century.

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<sup>6</sup> See: J. Martinez-Vazquez, V. Vulovic, and Y. Liu, Direct Versus Indirect Taxation: Trends, Theory and Economic Significance, WP 09-11, Andrew Young School of Policy Studies, November 2009.

<sup>7</sup> Macroeconomic effects of a shift from direct to indirect taxation: a simulation for 15 EU member States, Note presented by the European Commission Services (DG TAXUD) at the 72nd Meeting of the OECD Working Party No. 2 on Tax Policy Analysis and Tax Statistics, Paris, 14-16 November 2006.



In addition, a shift to indirect taxes weakens the stabilization potential of tax policy because, in the opinion of most economists, direct taxes represent built-in economic stabilizers, since they vary considerably, depending on the phase of the business cycle, and thus stabilize aggregate demand. Indirect taxes do not have such a stabilization role.

## METHODOLOGICAL REMARKS

This section deals with the basic characteristics of the methodology applied to the computation of the effects of the proposed changes in tax policy on individual population groups.

Our basic tool is the simulation model, based on the Household Budget Survey in Serbia, which will be called the CLDS model in further text.<sup>8</sup> By using this model, it is possible to analyze the effects of the relevant policies on the consumption of the population, as the basic indicator for the standard of living and well-being of the population.

### Consumption Survey

The statistical basis of the CLDS model has been provided by the Household Budget Survey, which is conducted by the Republican Statistical Office each year. We have selected the latest complete survey for 2009, being convinced that it most accurately represents the economic and social status of the population. Namely, some earlier surveys are becoming increasingly outdated with the passage of time. For this reason, we have rejected the Living Standard Survey of 2007 which – despite its statistical and conceptual qualities – is increasingly less giving the realistic picture of Serbia and the socio-economic status of its population, especially due to the changes that occurred during the economic crisis.

The Household Budget Survey of 2009 encompassed 4,592 households. It has been conducted since 2003 according to the international standards (Eurostat, ILO, UN), thus providing international data comparability. It is based on a two-phase stratified sample, with enumeration districts as primary and households as secondary selection units. Every fifteen days, 200 households are interviewed, i.e. 4,800 households annually.

It can be said that this survey includes three sets of data:

- On the household and its members, housing conditions, durable consumer goods of the household and the like;
- On household income and disposable household income, such as income from employment, income outside regular employment, pensions, other social insurance receipts, income from agriculture, hunting and fishing, receipts from abroad, property income, gifts and gains, consumer and investment credits, etc.;
- On household expenditures, recording 663 different items grouped in the following categories: food and non-alcoholic beverages, alcoholic beverages and tobacco, footwear and clothing, housing, water, electricity, gas and other fuels, household furniture, equipment and maintenance, health care, transport, communications, recreation and culture, education, restaurants and hotels, other goods and services.

More detail about this survey can be found in the publications of the Republican Statistical Office.<sup>9</sup>

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<sup>8</sup> The recent implementation of this model was related to the analysis of social policy; see: G. Matković and B. Mijatović: *Analiza uticaja državne finansijske podrške siromašnima* (An Analysis of the Impact of Government Financial Support to the Poor), Vice Premier's Team for the Implementation of Poverty Reduction Strategy, 2009.

<sup>9</sup> See, for example, *Anketa o potrošnji domaćinstava 2008* (Household Budget Survey 2008), Republican Statistical Office, Bilten 508, 2009; *Anketa o potrošnji domaćinstava 2009, konačni rezultati* (Household Budget Survey 2009, Final Results), Republican Statistical Office, Saopštenje 78, 31 March 2010.

## Measuring Consumption and Poverty

By employing the appropriate methods, it is possible to derive very useful data on the socio-economic status of the population: on incomes and expenditures of the population, poverty and status of different population groups, regional differences, housing conditions, demographic characteristics of the population, government policies and their effects and the like.<sup>10</sup>

### *The Basic Indicator for the Standard of Living*

In order to analyze poverty and related phenomena, on the basis of the data from the Household Budget Survey, it is necessary to supplement the survey with the methodology for the analysis of the poverty and status of the population in general. Three major steps are: the selection of the aggregate for measuring well-being, that is, the standard of living or poverty, then the poverty line and, finally, units of equivalent consumption. Let us take a closer look.

The two most important candidates for the measure of the standard of living of the population are consumption and income. It is usually held that consumption in transition countries is a more reliable measure of the standard of living than income for several reasons. The first and most important reason is the incomplete reporting of income by interviewed citizens. Namely, some interviewees are not quite sure who will obtain the data from this survey (tax authorities, criminals, etc.), so that they often report lower incomes than they actually are. In this survey, too, highest-income households reported relatively low incomes, so that the relationship between consumption and disposable income was much higher than one in the top disposable income deciles.

The next reason for giving preference to consumption is its greater uniformity relative to income, thus producing more reliable results. Namely, the incomes of most households are rather variable from month to month, or from season to season (farmers, private entrepreneurs, liberal professions, etc.), due to which the measure of the standard of living of the population, both in the current month and at the annual level, would be less credible in comparison with consumption. In addition, in countries in transition, including Serbia, irregularity in salary payments and earning other income was, or still is recorded. This problem is aggravated in times of crisis, as is now the case, when some employers fail to pay their employees and associates on a regular basis. Finally, some of the employed are engaged in the grey economy, where earnings are very variable, while consumption is more stable.

The third reason is the presence of subsistence consumption, that is, the consumption of own-produced goods (usually food). It certainly influences the level of consumption, but is not included in the standard incomes of the population, so that the assessment of the standard of living of the population based on (classical) income would be lower than it should actually be.

For these and similar reasons, consumption is usually used as a standard-of-living measure in poverty analyses in less developed countries outside the EU. This is regularly done by the World Bank in its poverty analysis, including the poverty of the Serbian population, and was also done in poverty analyses conducted by domestic researchers.<sup>11</sup>

Therefore, we shall continue to use consumption as the measure of the standard of living, that is, well-being of the population in our analysis. Naturally, the quality of life includes not only consumption, but also accessibility to education, health care quality and other important parameters. However, this broader framework surpasses the measurement possibilities, so that in further text we shall limit ourselves to consumption which, truly, includes one part of health care and education services.

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<sup>10</sup> See, for example, B. Bogičević, G. Krstić, B. Milanović and B. Mijatović *Siromaštvo i reforma finansijske podrške siromašnima* (Poverty and Reform of Financial Support for the Poor), CLDS and Ministry of Social Affairs, 2003.

<sup>11</sup> For example, Serbia and Montenegro - *Poverty Assessment*, Vols. 1 and 2, The World Bank, 2003.

### *Units of Equivalent Consumption*

There is no doubt that the poverty line cannot be the same for a single-member household and multi-member household, since the necessary costs of a larger household are certainly higher than the costs of a single-member one. Therefore, the poverty line must be adjusted to household size and characteristics in such a way that it can be increased to some extent for each additional household member. The question that imposes itself here is to what extent. Should the increase in the poverty line be proportional to the number of household members, so that the poverty line for a two-member household should be 2,000 dinars if it is 1,000 dinars for a single-member household, or just 1,800 dinars? The standard economic analysis based on empirical research holds that for maintaining the same standard of living the necessary costs per household member decrease with an increase in the number of household members.

The mentioned slower increase in the necessary expenditures per household member in order to maintain the same standard of living is called economies of scale. The basic reason for their existence is the different character of goods that are used in the household: while some goods can be consumed by only one member (e.g. food), other goods are available not only to one but to all household members, regardless of their number (e.g. newspapers, TV set, etc.). There are also goods with mixed characteristics (e.g. clothes that are inherited by the younger child).

The fact that in one household not all individuals are equal – they differ by sex, age or some other characteristics – causes new complications, since each of them, as an additional household member, may incur different additional costs – a baby, a youth, an adult and an elderly person have essentially different needs and thus incur different costs.

In other words, when assessing the needs of individuals living in one household, it is necessary to take into account two components: 1) economies of scale, according to which the costs per additional member are increasingly lower, and 2) demographic composition of the household, because the costs of different individuals are different.

In this paper, like in other similar papers based on the Household Budget Survey, we shall use the so-called OECD scale, which includes both household size and household structure. So, the first adult is assigned the coefficient 1.0, other adults – 0.7 and children up to 14 years of age – 0.5. Consequently, it looks as follows:

The number of equivalent adults in the household =  $1 + 0.7 \times (\text{adults} - 1) + 0.5 \times \text{children 0-13}$

For a household consisting of two parents, one child aged 16 and one child aged 12, the number of equivalent adults in the household is as follows:

$$1 + 0.7 \times 2 + 0.5 = 2.9$$

which means that the poverty line for the household with such a structure is  $2.9 \times 8,022$  dinars, or 23,264 dinars monthly.

## *Poverty Line*

In our analysis of the possible effects of the proposed tax changes we shall use the consumption of two population groups. The first is the average consumption of different vulnerable groups (children, elderly, low-educated, unemployed...) in comparison with the rest of the population. In this way we shall determine the effects of tax changes on the whole group that is considered to be vulnerable, or of special interest (not only the poor, but also all members of a given group). The second group consists only of the poor, that is, one part of the population, by the mentioned groups that are exposed to a high poverty risk, or are of special interest.

There are two standard types of poverty measurement. One is the absolute poverty line and the other is the relative poverty line. Here we shall use the absolute poverty concept, which proceeds from the sensible idea that poverty implies such a low level of possession of goods and services that an individual cannot satisfy his basic needs expressed by the poverty line. In other words, everyone who fails to reach the poverty line is poor. But, what are the basic needs which, if not satisfied, mean that a person is poor? A precise and widely accepted list does not exist, so that determining the poverty line is always arbitrary to a degree. Nevertheless, it is still possible to lower the poverty line by employing specified objective techniques, such as the use of professional standards and econometric methods.

In the analysis that follows the poverty line will be the one used by the Republican Statistical Office in its analyses.

This poverty line consists of two components: the food poverty line and other necessary household expenses. The food poverty line is defined as the consumption necessary to satisfy the basic food needs, which is the product of the average calorie needs of the population, defined by the standards of the World Health Organization, and the price of one calorie. In Serbia, the average daily calorie need is 2,253 Kcal per capita.

The next step is to determine the overall poverty line which, apart from food expenses, includes other expenses (on clothing and footwear, hygiene supplies and household furniture, transport, health care, education, etc.). It is determined as the overall consumption of the households whose food consumption is equal to the minimum consumer basket. In this way the poverty line for 2006 was determined; next year, it was adjusted for inflation, while in 2009 it amounted to 8,022 dinars per equivalent adult.

## The Model of Assessing the Effects of National Policies

In order to enable the assessment and analysis of the effects of the potential tax and social policies, it is necessary to add two things to the quantitative data from the survey. Namely, it is necessary to (1) build in the instruments of national policy (taxes, social benefits, etc.) and (2) include the rules of citizens' behaviour, that is, model the population reaction (or its absence) to the change of the mentioned instruments.

This model superstructure has been made in the CLDS model: the taxes and contributions relevant for this research have been added. They include the earnings tax, contributions to old-age pension,<sup>12</sup> health and unemployment insurance, and value-added tax. The earnings tax and social contributions have been calculated on earnings, that is, on those on which are

<sup>12</sup> The rate of contribution to old-age pension insurance will not be changed in the analyses that follow but, depending on the tax policy and reaction of those affected by the tax, gross earnings, i.e. the old-age pension insurance base, will be changed, so that revenue from this contribution will change as well.

paid in accordance with the current and anticipated tax rules. This is also the basic difference between the formal and informal sectors, at least from the viewpoint of the government and its budget. The value-added tax, with the prescribed rates payable on the relevant goods, has also been included.

Since we assess the effects of changing policies over a short/medium term, the analysis does not include indirect effects, which might be generated by a change in economic activity, that is, economic growth over the next years. Therefore, the results of this analysis can be considered as the approximation of the direct effects of tax changes on the income and thus consumption of the population, as an expression of the standard of living.

The mechanism of change in disposable income, depending on taxes and contributions, as well as national tax policy, has also been incorporated. This means that when taxes and contributions change, the income and thus total disposal income of the population change as well. However, the quantitative relationship between these variables is not clear, because it depends not only on changes in taxes (and accounting relations), but also on the reaction of the economy to them. So, for example, whether a decrease in the earnings tax will lead to an increase in net earnings (or, in other words, whether the employed will benefit), or a decrease in the cost of labour (whether employers will benefit) is not certain in advance. Instead, that depends on labour market characteristics, openness to foreign trade and many other factors. In other words, tax changes, especially big ones, cannot be analyzed using elementary schemes and partial analysis. Instead, it is necessary to use the concept of general equilibrium, that is, general linkage in economic life. Unfortunately, this is the most difficult kind of modelling, which entails serious difficulties.

In order to solve (or avoid) the mentioned problem with not knowing the reaction to tax changes, we have made three simulations for each tax changes in the analyses that follow:

1. On the assumption that the tax change will not bring about a change in the gross earnings of the employed and that the adjustment to new taxes will be made through net earnings; here we have assumed that the current gross earnings represent the “real“ cost of labour that is derived from labour market circumstances, legislation and collective contracts, and which is observed and paid by employers (both private and government) with no regard to tax changes; so, in firms with strong unions, where collective contracts are observed and foreign-owned firms strictly observe the legal system, it is likely that gross earnings will remain unchanged and be observed, while net earnings will increase after the tax disburdening of earnings; this group also includes (or should include) the government sector which is, considered from a legal viewpoint, subject to the regime of determining gross earnings, so that the employed should benefit from the disburdening of their earnings, just as they should bear the losses from additional taxes; naturally, it is possible that the government changes the system after the implementation of one of the proposed tax changes, freezes net earnings and adjusts gross ones;
2. On the assumption that the tax change will not change the net earnings of the employed and that the adjustment to new taxes will be made through gross earnings; this assumption is opposite to the previous one, since it is believed that the net cost of labour is the “real“ one, considering market circumstances and agreement reached between the employed and employer, and that tax changes will have the impact on gross earnings and change them; thus, in many smaller firms in which the union is not strong, the employer and employed agree on net earnings and it is probable that net earnings will remain unchanged after a change in their taxation, while the benefit from disburdening will accrue to the employer;
3. The median variant anticipates that the adjustment will be made partly through gross earnings and partly through net earnings; we hold that this is the most realistic opinion in view of the fact that the labour market segments are differently structured and that the uniform reaction of all actors is unlikely.

Two different mechanisms have been incorporated into the relationship between the disposable income and consumption of each household. For most households (those in which disposable income is higher than consumption in the initial state) it has been assumed that the relationship between disposable income and consumption is maintained. This reminds of the constant average and marginal propensity to save. For this group of households, the consumption model has the following characteristics:

- If the household budget (or disposable income) changes, the share of specified goods in the expenditures will remain the same, while the budgetary elasticity of demand will be equal to 1.0, and
- If the prices of goods change, the demand for them will change in the same proportion, but in the opposite direction.

Such a simple approach is consistent with the Cobb-Douglas utility function, which is rather frequently used.

A somewhat different mechanism has been assumed for a smaller number of households (whose consumption exceeds disposable income in the initial state):<sup>13</sup> consumption changes in the same proportion as disposable income; this is due to the fact that it would not be reasonable to increase consumption more than disposable income, as would be the result of applying the first mechanism to this household group. This means that the mentioned two characteristics of the consumption model are also applicable to this smaller group of households, provided that the first one is adjusted and that the relationship still holds, but only within the disposable income limits (the increment of consumption cannot be higher than the increment of disposable income), and that the second is fully applicable.

The model also includes the VAT. Whereas changes in the taxes and contributions levied on earnings change net earnings in the general case and in our model, in two simulations out of three, and thus disposable income, changes in VAT rates influence the prices of goods (in our simulations they increase them) and thus the "real" consumption of each household.

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<sup>13</sup> It is mostly the question of reporting lower than actual incomes.

## THE INITIAL STATE: THE STANDARD OF LIVING AND POVERTY IN 2009

Before embarking on an analysis of the potential effects of the mentioned tax changes, it will be useful to consider the current situation, that is, the situation in 2009. In this way, we shall obtain not only the information about the social status of the population and specified target groups, but also the basis for assessing the effects of tax policies. Namely, in all simulations of tax changes, the assessment of their effects will be made by comparing the new situation (with changed taxes) with the initial state in 2009. The difference between two states can be attributed to tax changes, because only tax rates, as instrumental variables, have been changed.

Otherwise, in late 2008, Serbia was faced with an economic crisis, which gained momentum during 2009 and was not over in 2010. During 2009, real earnings stagnated, nominal pensions were frozen and real pensions were declining, employment was also declining, just like the possibility of making money in the grey economy. The standard of living was declining as well.<sup>14</sup>

One of the most important aims of government policy is to provide support to the poor and vulnerable groups, that is, to those who are incapable of caring for themselves for some objective reason. Therefore, vulnerability does not simply mean a poor socio-economic status. Under vulnerability, we shall imply, as is customary, the existence of some special barrier that prevents the members of certain groups from caring for themselves and their needs in a satisfactory manner. Those can be children, elderly people, unemployed (to the extent that there are objective reasons for such a status and that it is not the question of free will to be unemployed), poor and the like. Insofar as the financial aspect is concerned, under vulnerability we shall imply an increased risk that a household or an individual will experience the episode of being poor. Considered from a broader aspect, vulnerability also means the greater probability of exposure to other risks, such as violence and crime, early school leaving and the like.

The government usually takes care of the members of vulnerable groups in various ways, among which the fiscal one is certainly important. Thus, on one side, the government provides various benefits and subsidies, such as MOP (material support for poor families) and child's allowance for the poor, pensions for the elderly and the like. On the other side, it taxes them more mildly, granting tax concessions and exemptions, such as income tax credits or the lower VAT rate on existential goods. In general, the government usually tries to shift the larger part of the tax burden to the more affluent sections of the population through a progressive tax system.

### The Consumption of Individual Population Groups

In our survey of the social situation in Serbia in 2009, we shall first deal with the standard of living of individual population groups, based on their socio-economic and demographic characteristics as a whole, and then with the poverty of these population groups as a whole. Our basic indicator will be consumption, as has been mentioned and substantiated in the previous, methodological section.

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<sup>14</sup> For more detail see: G. Matković, B. Mijatović and M. Petrović, *Uticaj krize na tržište radne snage i životni standard u Srbiji* (The Impact of the Crisis on the Labour Market and Standard of Living in Serbia), Center for Liberal-Democratic Studies, January 2010.



Table 1  
Consumption per equivalent adult

	Monthly, in dinars	Serbia=100
Republic of Serbia – total	18132	100
Republic of Serbia – urban area	19624	108
Republic of Serbia – other area	16188	89

In 2009, the monthly consumption per equivalent adult in Serbia was 18.1 thousand dinars. Let us recall that the equivalent adult is equal to 1.0 for the first adult household member, while the coefficient for other adult members and children are lower, due to economies of scale within the household. At the same time, consumption at the poverty line was 8,022 dinars in 2009, which means that, on the average, the consumption index of Serbian citizens was 226% or, in other words, they were above the poverty line by 126%.

Like in all similar researches, it is shown that the consumption of urban inhabitants is greater than in other (rural and suburban) areas. However, this difference is not great: consumption in cities is greater by only one-fifth.

Table 2  
Consumption by  
age

	Monthly in dinars	Serbia=100
0 - 6	17166	95
7 - 14	17189	95
15 - 19	16827	93
20 - 64	18881	104
65 and over	16907	93

Considered by age, the standard of living of children and elderly people is lower than that of economically active adults. These natural relations are, on one side, the result of the fact that children and young people are dependent, that is, they share income with their parents; on the other side, elderly people are not economically active any more and, at best, receive pension which is usually lower than earnings. If we define children as those aged 0-17, then their consumption is 94% of the average consumption in Serbia.

Table 3  
Consumption per household type (1)

	Monthly in dinars	Serbia=100
Childless	19146	106
With children	17086	94
Single parent with children	20499	113
Married couple with children	19645	108
One child	21873	121
Two children	19751	109
Three or more children	16433	91
Other households with children	15781	87

In general, childless households have a higher standard of living than households with children. The consumption ratio is 106 vs. 94. Nevertheless, a considerable number of households with children has an above-average standard of living; those are also single-parent households and married couples with one or two children. The favourable status of these households is the result of the relatively high level of the parents' economic activity and resultant higher incomes. Only two-parent households with three or more children and other households with children have a below-average standard of living. This especially refers to the latter households, which have a mixed structure and often include adult dependents and elderly members.

Table 4  
Consumption by household type (2)

	Monthly in dinars	Serbia=100
Single-member	19605	108
Two-member	20014	110
Three-member	19946	110
Four-member	18893	104
Five-member and multi-member	15450	85

Likewise, households with less members (up to four) have an above-average standard of living. Below-average consumption is recorded only in households with five or more members. In these households there is evidently a smaller number of economically active members, in relative terms, than in households with less members.

Table 5

Consumption of elderly people

	Monthly in dinars	Serbia=100
Aged 65 and over	16677	92
With pension	17337	96
Without pension	14451	80

As already mentioned, the elderly (aged 65 and over) have a below-average standard of living on the average. However, among them there are no significant differences, depending on whether they are pensioners or not. Those with pension are only slightly below the overall average, while those without pension are below it by one-fifth. It is evident that the pension system provides great old-age support.

However, the elderly without pension have not plunged into poverty; they are considerably above the poverty level. The reason lies in the fact – and this must always be borne in mind in these analyses – that many of them live in households with someone who has own income, either from labour, or pension, or something else. Thus, living together with others enables many elderly people without pension to have a decent standard of living. The same logic also applies to other members of so-called vulnerable age or social groups: children, unemployed, people without school and the like. They also have a decent standard of living, because they live with those who have income, or higher income, so that they have a better standard of living than they would have should they live alone (naturally, this is impossible when children are in question).

Table 6  
Consumption by education level

	Monthly in dinars	Srbija=100
Incomplete elementary school	13992	77
Elementary school	15980	88
Secondary school	18939	104
Two-year postgraduate school	22584	125
University	26155	144

The standard of living of individuals certainly depends on their educational background: the higher the education level, the higher the consumption (at least on the average). We can see that this relationship has also been confirmed in the Household Budget Survey for 2009. Those with incomplete elementary education have a rather low standard of living, lower than that of all analyzed population groups.

Table 7  
Consumption by socio-economic status

	Monthly in dinars	Serbia=100
Self-employed	19421	107
Employed	19632	108
Unemployed	15363	85
Pensioners	18112	100
Other economically inactive	17328	96

Among the groups considered by socio-economic status, the employed and self-employed (independent private businessmen) have an above-average standard of living, but not much above the average. It is evident that they often have dependent members, children or someone else in their households. Pensioners have the average standard of living, while the standard of living of other economically inactive persons is slightly below the average. Among these large groups, the unemployed are in the least favourable position – their consumption is below the average by 15%.

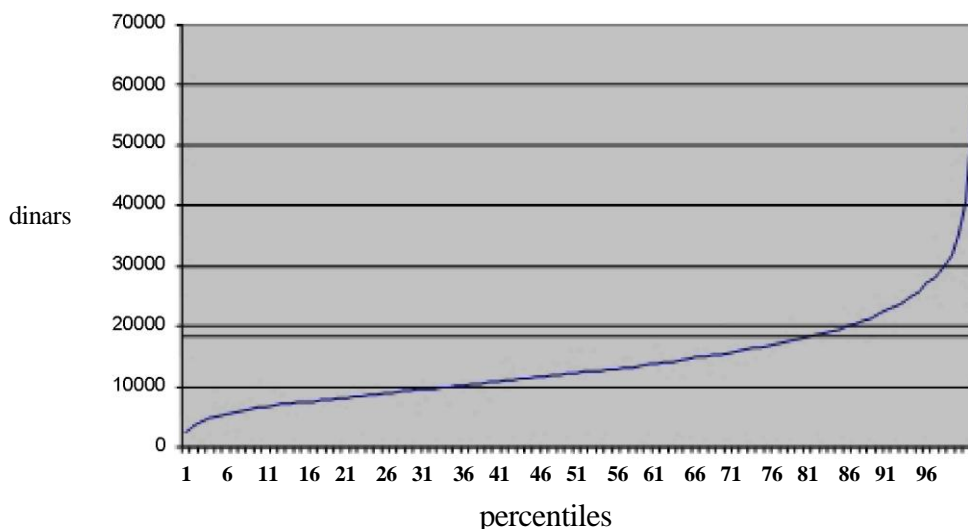
Table 8  
Consumption by  
gender

	Monthly in dinars	Serbia=100
Men	18237	101
Women	18034	99

Finally, the consumption of men and women is practically the same.

Let us finally look at the graph that shows the percentile levels of consumption. Percentiles are the groups each containing one percent of the population, arranged from the lowest (left) to highest (right) consumption. This means that the population groups with low consumption are on the left side and those with high consumption on the right.

### Percentile consumption



The percentile of the population (i.e. one percent) with the lowest consumption has the monthly consumption of hardly 2,452 dinars, the next percentile 3,572 dinars and so on up to 40,746 dinars for the 99th percentile and 58,320 dinars for the 100th percentile, which has the highest consumption. In fact, the curve shows the distribution of consumption in Serbia, that is, relative relationships among individual population groups.

The broken horizontal line (slightly below 20,000 dinars) shows the average consumption in Serbia. As can be seen, the great majority of Serbian citizens live below this line, which implies that their consumption is below the average. This group includes the population that constitutes the first 81 percentiles, which means that the consumption of 81% of the population is below the average. Accordingly, only 19% of the population have an above-average consumption and they practically “draw” the consumption of all population up to the average level.

A more complete measure of consumption uniformity is the Gini coefficient. In 2009, the Gini coefficient for Serbia was rather low 2009 – 27.4. Compared to other countries in the region, this is a relatively low level of inequality.<sup>15</sup>

### Poverty in Serbia in 2009

In continuation, we shall show poverty in Serbia in 2009, both for the population as a whole and by group, thus completing the picture of the country’s socio-economic status and paving the way for an analysis of the mentioned tax policies.

<sup>15</sup> Gini coefficients for selected countries are as follows: Albania 26.7 (2005), Bulgaria 29.8 (2008), Croatia 29 (2008), Hungary 28 (2005), Macedonia 39 (2003), Montenegro 30 (2003), Serbia 26 (2008), Slovakia 26 (2005), Slovenia 28.4 (2008), Romania 32 (2008), CIA Factbook, 2010.

Table 9  
Poverty in Serbia

	Share of poor people (%)	Number of poor people	Depth of poverty
Republic of Serbia – total	6.9	527261	21.9
Urban area	4.9	209460	22.6
Other area	9.6	317801	21.4

In 2009, according to the Household Budget Survey and the already mentioned methodology, 6.9% of the total Serbian population could be considered poor. In absolute terms, there are about 530 thousand poor people. This figure does not seem high, but the fact that half a million people cannot satisfy their basic needs is worrying when such a small country like Serbia is in question.

During the past decade, poverty was declining until the outbreak of this economic crisis, i.e. from 10.6% in 2002<sup>16</sup> to 8.3% in 2007 and to 6.1 in 2008<sup>17</sup>, thanks to economic growth, foreign capital inflow and the increase of all kinds of income. Poverty slightly increased only in 2009 due to a decrease in some incomes and the stagnation of some others.

The above table shows the so-called depth of poverty. This is a supplementary measure of poverty, which shows how much a given population is below the poverty line,<sup>18</sup> that is, to what extent is its situation is difficult because not all poverties are equal.

In urban areas the poverty rate is considerably lower than in other areas – by one half. This is a standard result, because incomes in cities are usually higher than in other areas due to more productive technologies and higher qualifications. The depth of poverty is almost the same.

Table 10

Poverty by age

	Share of poor people (%)	Number of poor people	Depth of poverty
0 - 6	9.8	39595	26.5
7 - 14	9.6	59415	28.1
15 - 19	7.9	34345	25.2
20 – 64	6.0	276495	21.9
65 and over	7.5	117411	16.2

Considered by basic age group, the poverty of children is the greatest. The poverty rates for small children (up to 6 years of age) and the next group (7 -14) are high and similar – 9.8% and 9.6% respectively. This means that every tenth child of this age falls into the category of poor people. The poverty of secondary school youth aged 15-19 is somewhat lower – 7.9%. If we proceed from the UNICEF standard definition of children (0-17 years), their poverty rate is 9.5%.

<sup>6</sup> Data from the Living Standard Survey 2002.

<sup>17</sup> Data from the Living Standard Survey 2007 and 2008.

<sup>18</sup> It is computed as the percentage by which the average consumption of the population is lower than that at the poverty line. In 2009, the poverty line in Serbia was set at 8,022 dinars; deficit in the consumption of the poor is 1,757 dinars, or 21.9%

The poverty of children is followed by that of the elderly, whose poverty is also above the average (7.5% vs. 6.9%). Thus, the elderly are also exposed to an above-average poverty risk. Only the poverty of economically active adults (20-64) is below the average – their poverty rate is 6.0%.

The depth of poverty of children is also high and higher than that of older groups: whereas poor children need more than one-fourth to reach the poverty line (i.e. to come out of poverty), the older population groups need much less: the middle-aged 21.9% and the elderly only 16.2%; the latter group is in the least favourable position according to the depth of poverty.

Let us examine more closely who are exposed to a greater or lesser degree to poverty risk among children and elderly people.

Table 10  
Poverty by household type (1)

	Share of poor people (%)	Number of poor people	Depth of poverty
Childless	5.7	218824	17.1
With children	8.2	308437	25.3
Single parent with children	6.9	4488	44.2
Married couple with children	6.2	73540	29.3
One child		11133	28.8
Two children	4.8	28607	22.6
Three or more children	13.3	33800	35.1
Other households with children*	9.2	230410	23.7

\*Other households with children are extended families which, apart from parents and children, include other household members.

Poverty among childless households is less frequent than among households with children (5.7% vs. 8.2%). However, households with less children are in a better position: poverty among single parents is even at the average level (6.9%), while poverty among households consisting of parents with one or two children is below the average (3.3% and 4.2% respectively). Poverty is very high only among households consisting of parents with three or more children – 13.3%. The poverty of other households with children (mixed, with other members) is also above the average (9.2%). This last group is dominant in absolute terms: 230.4 thousand poor people come from such households, thus constituting even three-fourths of the poor from households with children. Consequently, poverty risk is considerably higher for households with more children, or larger mixed households with other dependent members.

The data on poverty by number of household members are also consistent with that:

Table 11  
Poverty by household type (2)

	Share of poor people (%)	Number of poor people	Depth of poverty
Single-member	5.7	29772	17.9
Two-member	5.6	74832	14.6
Three-member	5.0	64409	23.4
Four-member	4.7	87117	19.8
Five-member and multi-member	10.3	271130	24.7

Small households – up to four members – are exposed to a low poverty risk: their poverty rate is below 6%. Only five-member and multi-member households are exposed to a higher, twice as high poverty risk, which is consistent with the usual concentration of poverty in large households. Therefore, they account for even 51.4% of the total number of poor people.

Table 12  
Poverty by education level

	Share of poor people (%)	Number of poor people	Depth of poverty
Incomplete elementary school	16.7	152614	-2008
Elementary school	9.5	136781	-1646
Secondary school	3.8	132288	-1273
Two-year post-secondary school	1.4	4774	-1200
University	0.4	1795	-1592

The degree of poverty is inversely proportionate to educational background: whereas among poor people there is 16.7% of those with incomplete elementary education, among those with the university degree there is only 0.4%. In absolute terms, less educated people are dominant, while the share of poor people with two-year post-secondary and higher education in the total number of poor people is insignificant.

Table 13  
Poverty by socio-economic status

	Share of poor people (%)	Number of poor people	Depth of poverty
Self-employed	5.1	27719	-1340
Employed	3.7	81643	-1556
Unemployed	14.3	103509	-2084
Pensioners	5.3	100085	-1156
Other economically inactive	9.2	115295	-1848

When poverty is considered by socio-economic status, it is shown that individuals without own income or, more exactly, dependent household members – regardless of whether they belong to working-age population or not – are in the least favourable position. Thus, the highest poverty rate is recorded among the unemployed – 14.3%; they are followed by other economically inactive people (without pensioners) – 9.2%. The below-average poverty rate is recorded among pensioners – 5.3%, self-employed – 5.1% and employed – 3.7%.

Table 14 Poverty of the elderly

	Share of elderly people (%)	Number of poor people	Average consumption deficit
Elderly over 65	7.5	117411	-1302
With pension	6.0	80097	-1135
Without pension	16.0	37313	-1660

The poverty rate among the elderly is above the average for Serbia: 7.5% vs. 6.9%. In this case, pensions also greatly improve the status of the elderly: among those with pension the poverty rate is only 6.0%, which shows that pension does not ensure safety either. Namely, some pensions are small (this refers especially to farmers's and survivors' pensions), while in other cases pension is shared with the marital partner or other household member without own income. Among those without pension the poverty rate is high – 16.0%.

Poverty rates for men and women are similar. The poverty rate is slightly higher for men (7.1% on the average) than for women (6.8%).



# AN ANALYSIS OF THE PROPOSED TAX CHANGES

## Introduction

In this section, which is central to this paper, we shall examine the effects of the tax reform proposals, which we called Proposal 1 and Proposal 2 in the introduction to the paper. In view of the fact that Proposal 1 has been more clearly and thoroughly elaborated in the mentioned book, we shall give preference to it and analyze it as the basic concept.

Let us recall the strategy of numerical analysis, which has been dealt with in greater detail in the section entitled “Methodological Remarks“. We shall use the CLDS model based on the Household Budget Survey of 2009, in addition to all relevant taxes and contributions levied on earnings and the value-added tax in accordance with the 2009 rules, as well as the mechanisms of tax changes on household disposable income and the population as a whole. In view of the fact that the measure of standard of living is consumption, we shall analyze all effects of the proposed tax changes in terms of consumption changes as the result of a change in disposable income.

The model does not include the production sector; all changes take place through the interactions of the disposable income of the population and its consumption, as well as the VAT effect on that consumption. Therefore, this model is a short-term one or, other words, it deals with the first, direct, income effects of tax changes on the population. The analysis does not include the effects of tax changes on long-term economic growth, since it would be too complex and almost unfeasible (it has not even been conducted by the proposers of this tax reform). As already mentioned, economic theoretical and empirical research conducted in the world also failed to provide an answer to the question: what is the best tax policy in terms of economic growth and equity?

Therefore, it can be said in principle that the tax reform would bring gain to Serbia and certainly to the majority of its inhabitants should tax restructuring bring about an evidently higher rate of economic growth in the future. On the other hand, should the tax reform fail to generate positive effects on growth, the result would be – at least at the beginning – income redistribution in favour of the economy and owners of capital, at the expense of the population or, better said, its majority.

An important element of the mechanisms of transmission between tax reform and its effects is the reaction of (net and gross) earnings on tax changes: whether they will remain unchanged, or increase, or possibly decrease? In other words, the question that imposes itself here is who will profit from tax changes – which actor will earn higher income and who will pay the bill. This has already been dealt with in greater detail in the section devoted to methodological remarks.

If (and when) gross earnings remain unchanged after tax changes, the employed will appropriate the maximum gain from earnings disburdening and net earnings will increase. Namely, in Proposal 1, the abolition of contributions to health and unemployment insurance, which are assessed on the gross earnings of the employed, coupled with a change in the taxation of earnings (higher rate, higher exemption), would also be reflected in net earnings, bringing about their increase. The same refers to Proposal 2, where a decrease in contributions assessed on earnings is accompanied by the lowering of the earnings tax rate which, in this case, would bring about an increase in net earnings.

The earnings behaviour according to this pattern would not bring about the desired acceleration of economic growth, since the disburdening of labour would only be partial, that

is, halved. Namely, labour would be disburdened of only two contributions, which are paid by employers through gross earnings.<sup>19</sup> A much more favourable scenario for encouraging economic growth is the one that anticipates that the net earnings of the employed will not be changed after tax changes. In that case, the overall nominal disburdening would be transferred into real life: the take-home earnings of the employed would remain equal and the overall disburdening of earnings under the tax reform would bring about a decrease in the cost of labour and provide impetus to higher employment and accelerated growth (whether this would lead to the real acceleration of growth is another question).

The mentioned two variants, when the employed derive the maximum profit from the taxation of earnings or do not profit represent two extremes. The result of the reaction of economic actors will certainly be somewhere between these two extremes: some firms will behave according to one principle, some according to another principle, while some will partly increase net earnings by themselves and partly save on the cost of labour. The question that also imposes itself is how the government, with its institutions, public enterprises and other beneficiaries of budgetary funds, would behave. All things considered, the average behaviour will probably be somewhere in the middle: net earnings will increase to some extent, while gross earnings will decrease to some extent. The cost of labour will be reduced due to both a decrease in the gross earnings of the employed and, even more so, decrease in the employer payments for social contributions over gross earnings.

The authors of the book,<sup>20</sup> which is the basis of Proposal 1, have mentioned their assumption in a footnote that, after the tax reform, net earnings in the government sector and gross earnings in the other sector will remain unchanged. It is most likely that the assumption of the uniform unchangeability of gross earnings in the private sector is unrealistic for the already mentioned reasons and due to a large number of unemployed, so that labour supply exerts a downward pressure on earnings. For us, however, it is more important to note that this scenario is also inclined towards the median variant, between the two extremes, similar to ours.

In this connection, we shall make three simulations for each proposal: the first will be with fixed (unchanged) gross earnings, the second with fixed net earnings, while the third (median one) is the average for the first two. In this way, we shall obtain the zone of possible changes in net earnings (the first two simulations) and the median one, which is the most probable. Considered another way, the use of three simulations can be regarded as an analysis of the sensitivity of the median variant or, in other words, the assessment of the effects of the maximum deviation from the basic, realistic variant.

The fiscal disburdening of earnings is certainly a good thing, both for the employed and employers, and for the economy as a whole. However, the problem arises when it is necessary to pay the bill for disburdening or, better said, to find new sources of revenue in order to offset the budget losses from disburdening earnings. For it is natural to analyze the effects of tax reform based on the revenue neutrality concept, that is, the assumption that total fiscal revenues will remain unchanged. The authors of the mentioned proposals have adhered to this approach and offered the value-added tax as the new source of revenue. In other words, they anticipated an increase in VAT rates to the extent necessary to maintain the current level of government revenues. We shall also adopt the same strategy and, in continuation of this analysis, increase VAT rates to the extent necessary to ensure the equality of revenues before and after the tax reform.

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<sup>19</sup> Employers pay all three contributions on the base consisting of the gross earnings of the employed, at the same rates as those at which these contributions are paid out of gross earnings to the debit of the employed, while the payments of contributions by the employer are not included in the gross earnings of the employed. The total cost of labour is sometimes referred to as gross-gross earnings in order to add the contributions paid by the employer to standard gross earnings.

<sup>20</sup> Tax Policy in Serbia – A Look Forward, USAID and FREN, March 2010.

The inclusion of the increased VAT supplements the picture of the (potential) effects and changes it substantively. Whereas the disburdening of earnings from contributions and taxes has generated positive effects on the income and consumption of the population in two variants, while in one they have remained unchanged, the VAT increase certainly makes goods more expensive on the market and, for a given income, reduces the consumption of the population. In other words, the part of the proposal aimed at lowering the cost of labour can bring gain to the employed and population as a whole; the other part, which is linked to the VAT, leads inevitably to a decrease in the consumption of the population.

The authors of the mentioned tax reform proposals are also aware of an inevitable decrease in the consumption of the population due to the VAT increase and argue that this is good from an economic viewpoint. Namely, they hold that the current consumption of the population is excessive due to which it should be “discouraged“ and “reduced to a lower level“ by increasing the VAT burden.<sup>21</sup> Naturally, this is not the place to discuss whether it is really necessary to decrease consumption and whether the taxation of sales is the right way to achieve that.<sup>22</sup> At the moment, suffice it to understand the basic logic behind both proposals which will be considered:

- The first step is to reduce the burden on earnings, which would be shifted into an increase in net earnings as little as possible and into a decrease in the cost of labour in the overall economy as much as possible;
- The second step is to increase the taxation of consumption so as to offset the lost revenue due to the reduced taxation of earnings, accompanied by a decrease in consumption as the desired aim in itself, and
- The unmentioned yet evident and inevitable consequence would be the overall deterioration of the status of the population, through a small or moderate increase in net earnings and considerable loss due to more expensive goods consumed by the population.

This means that the basic idea of the tax reform proposals is to disburden the economy at the expense of the population with a view to accelerating growth. Let us take a look whether and to what extent the empirical findings confirm these principled considerations.

### Effects on the Standard of Living

#### *Proposal 1*

Let us recall the reform proposal that was advanced in the mentioned study by the group of authors of the mentioned book – Proposal 1:

1. to abolish contributions to health and unemployment insurance, with the total rate of 13.8% for the employed and employers, and to transfer the financing of these functions to the republican budget;
2. to retain the old-age insurance contribution, whose cumulative rate is 22%;
3. to increase the rate of earnings tax from 12% to 20%;
4. to increase the non-taxable portion of the earnings subject to earnings tax from 6,000 to 16,500 dinars;
5. to increase VAT rates from 8% and 18% to 12% and 22%.

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<sup>21</sup> Ibid., pp. 23, 28.

<sup>22</sup> It is probably more important to induce an increase in the production capacity of the economy through the improvement of the business environment, for example. Even if it is necessary to reduce consumption, it is probably better to induce an increase in savings and investment, etc.

We shall carry out two sets of simulations, that is, two versions for Proposal 1:

1. *Version 1.* The mentioned three simulations (gross, net and median) with tax changes based completely on the proposal of the group of authors – changes in taxes on earnings and the inclusion of VAT rates based (12% and 22%); the problem with the full implementation of this proposal lies in the fact that we are not sure that the VAT rates of 12% and 22% ensure revenue neutrality;<sup>23</sup> in addition, the inclusion of another two variants makes it inevitable that at least two variants, out of three, cannot be revenue-neutral with the same, unchanged VAT rates (12% and 22%), since the loss on taxes on earnings is different in each of them;
2. *Version 2.* Another three simulations (gross, net and median) with the tax changes being equal to the previous ones (version 1) in the case of taxes on earnings on the reform side, but they differ in the case of VAT to a degree: for each simulation, out of three, we have determined special VAT rates (the initial ones that are proportionally increased) in order to ensure revenue neutrality.

After six simulations of the CLDS model, that is, the incorporation of changes in the taxation of earnings and consumption under this proposal in both versions, we obtained the following results for the median variant:

Table 1  
Basic aggregates, median variant, monthly, billions of dinars

	Initial state	Version 1	Version 2
Net earnings	59.4	61.5	61.5
Collected earnings tax	8.6	13.2	13.2
Collected contributions to old-age pension and disability insurance	18.6	17.6	17.6
Collected contributions to health and unemployment insurance	11.7	-	-
Total payment collected on earnings	38.9	30.7	30.7
Total disposable income resourcessredstva	118.2	120.3	120.3
Consumption, nominal	107.8	109.5	109.5
Consumption, real	107.8	104.3	104.1

As can be seen, all global results are the same for both versions of Proposal 1, except in the last line (real consumption). The total amount of net earnings in the basic variant of both versions has increased relative to the initial state by 2.1 billion per month, or 3.5%. In the variants with fixed gross earnings this increase is 7.0%, while in the variants with fixed net earnings there is no change by definition.

The total revenue from taxes on earnings in the basic variants decreased by 7.8 billion, whereby the structure was essentially changed: there is no revenue from the contribution to health and unemployment insurance, since it was abolished (the loss of 11.7 billion); revenue from the contribution to old-age pension insurance decreased by one billion (due to the lowering of the base, that is, gross revenues, to some degree), while the revenue from earnings tax increased by 4.6 billion dinars. The total decrease in the revenue from taxes on earnings amounts to 8.2 billion dinars per month.

<sup>23</sup> This is due to the fact that, in the mentioned book, the calculation related to revenue neutrality is based on doubtful data – that the share of taxes on earnings in BDP was 11.2% in 2008, although it was actually 11.5%. The difference seems small, only 0.3%, but that is the order of magnitude of 10 billion dinars, which inevitably has considerable repercussions for the final results of the analysis.

The total decrease in the cost of labour amounted to 6.1 billion dinars monthly, or 6.2% of gross-gross earnings (or the total cost of labour for the employer) in the initial state. It is the resultant of tax disburdening, on one side, and an increase in net earnings, on the other.

On the other hand, VAT rates were noticeably increased so as to ensure equal revenue: the average rate was increased from 13.0% in the initial state to 16.3% in the first version and to 17.3% in the second version. This difference shows something that we have already suggested – the VAT rates of 12% and 22% do not ensure revenue neutrality, not even in the median variant, so that a somewhat higher rate is necessary.

After these global indicators of the results of the first variant, let us take a look at the movements in consumption, the main indicator of the effects of tax reform on the standard of living:

Table 2

Effects of tax changes on consumption, median variants, in %

	Version 1	Version 2
Fixed gross	-1.7	-1.2
Fixed net	-4.7	-5.6
Median	-3.2	-3.4

As can be seen, the assessment made by the CLDS model is that the overall effect of Proposal 1 on consumption would be negative: it would be reduced in all three variants of both versions. In other words, the direct effects of this proposal would bring about a noticeable decrease in the standard of living of Serbian citizens, at least over a short to medium term, before the effectuation of any gains on the plane of long-term economic growth.

In the median, basic variants, the decrease in the consumption of the population as the result of tax reform is 3.2% and 3.4% respectively. In other words, if the reaction of employers and employees is mixed while determining earnings in the post-reform period (some firms retain net earnings at the achieved level; in some firms the employees derive the maximum gain from disburdening earnings, while in some firms the gain is shared, so that the net earnings of their employees increase to some extent and the remainder goes to the employers), the whole population will incur a loss in both versions.

As can be seen, the difference between the two versions is very modest, only 0.2%. It is also evident that the slightly different specification of the model does not generate significant differences in the results.

The major cause of such findings is the combination of the moderately positive effect of tax reform on the earnings, that is, income of the population, and the very negative effect of an increase in the value-added tax. In other words, the unfavourable consequences of VAT increase clearly prevail over the favourable effects of disburdening earnings on the population.

In the variant that is the most favourable from the aspect of the consumption of the population (fixed gross), whereby it is assumed that gross earnings are fixed and that net earnings increase by the amount of tax changes, the total consumption of the population decreased by 1.7% and 1.2% respectively. This means that even if the employed part of the population derives the maximum gain from the abolition of contributions to health and unemployment insurance assessed on gross earnings and change in the taxation of earnings, since its appropriates it full amount, the final balance for the population is negative, since the full gain, or even more, is taken away through sales taxation, that is, the value-added tax.

The loss incurred by the population even in the most favourable variant can be explained in the following way: the beneficiaries of earnings disburdening are the employed (for the disburdening of gross earnings) and employers (for the abolition of the contributions paid by them through gross earnings), while the cost is wholly paid by the population through an increased VAT. In essence, the government retains its status, which should ensure the revenue neutrality concept.<sup>24</sup>

In the second variant (fixed net) we have anticipated the unchanged net earnings of the employed or, more exactly, such a mechanism that shifts the entire tax burdening to employers over a short term. This means that the employed do not benefit from the disburdening of their earnings; instead, their net earnings are the same as before the tax reform. The result of such an assumption is very unfavourable for the employed and population as a whole: total consumption would decrease by even 4.7%, or 5.6% relative to that before the reform, which represents a big loss, as if the country plunged into an economic crisis.

Employers would derive a transitory gain, which would melt away relatively fast under market pressure because on the market that is functioning there is no room for the extra profits of tax or similar origin due to competition on the goods market, which leads to (1) a certain decrease in the prices of goods and factors of production, as well as other costs, and (2) profit reduction to its normal level.

Consequently, the basic finding of this analysis is that the proposed tax reform, presented in the book *Tax Policy in Serbia – A Look Forward*, would face the population with losses, albeit in the short run. The limits of the minimum and maximum losses are given in the mentioned variants in Table 2, i.e. minimum and maximum consumption losses are 1.2% and 5.6% respectively.

In continuation we shall consider the effects of this tax reform proposal on the status of specified demographic and socio-economic groups, that is, on the average standard of living of their members.

Let us start with urban and other (and rural) areas:

Table 3  
A change in consumption by area, median variants, in %

	Version 1	Versiona 2
Republic of Serbia – total	-3.2	-3.4
Urban area	-3.4	-3.6
Other area	-2.9	-3.1

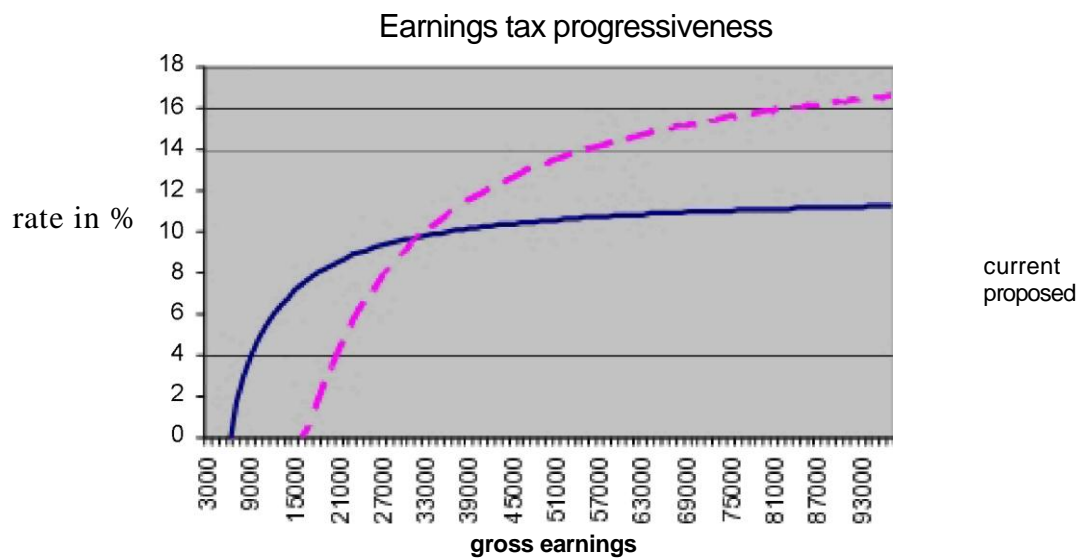
The standard of living would decline in both areas. However, there is a certain difference between them, so that the tax reform would affect more the urban area than other areas (rural and mixed).

<sup>24</sup> We say "in essence" because the equality of revenues from the tax forms changing through the reform is not sufficient. Namely, both gains and losses can be recorded on the expenditure side: the gain from a decrease in the taxation of earnings of the employed in the government sector, which brings about the disburdening of the budget; the loss arises from an increase in the value-added tax on goods and services procured by the government. There is also a somewhat hidden loss associated with the contribution to old-age pension insurance: despite the unchanged rate, the revenue from this contribution can be reduced due to a decrease in gross earnings, which occurs in the variants "fixed net" and "median".

<sup>25</sup> Some economists and non-economists specializing in balance-sheet accounting hold that the gain of employers/firms would be permanent, since these and similar mechanisms slip away. The permanent appropriation of tax disburdening by the employer would be equivalent to the determination of a high selling price of goods, but without a decrease in sales or, more precisely, with a high profit.

The reason can be sought in an increased earnings tax progression, which puts all individuals with lower earnings in better position, including the other area compared to the urban one, since earnings in the latter are certainly higher.

Namely, the mentioned changes (increases in the non-taxable portion and tax rate) resulted in the increased progression of this tax, which improves the status of those with low earnings, while at the same time aggravating the status of those with high earnings. Let us observe the comparison of earnings tax progressiveness before and after the proposed reform:



The graph shows the movements in the effective tax rate, depending on the amount of gross earnings. Namely, the tax rate, which is proportional in nominal terms, is substantively progressive, since the non-taxable portion of earnings does not exist. Thus, the rates gradually increase and converge to their nominal values only when high earnings are in question, i.e. to 12% under the current regime and to 20% under the proposed one.

Two important elements of this graph are as follows:

1. The line that represents the newly proposed earnings tax system (broken line) has a steeper slope, so that the tax is more progressive than the current one; this is the result of both a higher rate and higher exemption;
2. Under the proposal, persons with lower earnings pay the earnings tax at a lower rate (the left part of the graph), while persons with higher earnings pay this tax at a higher rate than at present; the point of equalization of the tax rates of both models is between 32,000 and 33,000 dinars.

In other words, the greater progressiveness of the earnings tax leads, *ceteris paribus*, to the improvement of the status of those with low and lower earnings, as well as to the deterioration of the status of those with medium and, in particular, higher earnings due to the fact that the tax burden was partly shifted from worse-off to better-off individuals.

The situation is similar with respect to the citizens' education level as the important factor of change in several other groups:

Table 4

A change in consumption by education level, 15+, median variants, in %

	Version 1	Version 2
Incomplete elementary school	-3.3	-3.3
Elementary school	-2.9	-3.0
Secondary school	-3.2	-3.4
Two-year post-secondary school	-3.4	-3.7
University	-4.3	-4.6

As can be seen, all population groups classified according to the education level incur a loss in consumption relative to the initial state. However, their loss varies: less educated individuals (except those with incomplete elementary education) face a smaller decrease in their standard of living than more educated ones (those with secondary and, in particular, two-year post-secondary and higher education). The cause of such different movements in consumption can be sought in the character of tax changes or, more precisely, in the mentioned changes in earnings tax progression. The mentioned shift of the tax burden also occurred in our case: as shown in the previous table, a change in the tax model, that is, an increase in tax progression has improved the status of those with lower earnings to a degree, while at the same time deteriorating the status of those with high earnings.<sup>26</sup> The standard of living of both groups has declined, but to those with lower earnings to a lesser degree. As for the exclusion of those with incomplete elementary education, the reason can be sought in the relatively low share of earnings in their disposable income and the resultant smaller effect of earnings disburdening.

The second factor of different effects of tax measures on specified population groups lies in the different share of earnings in total income, that is, total disposable income. Although earnings are the single most important source of disposable income, they are not the only or dominant source: they account for only 48.4% of disposable income, which is followed by pensions (32.8%) and so on. Thus, it follows that tax disburdening accounts for only one half of population resources, while the other half remains unchanged and its owners are affected by the increase in VAT as a whole. In other words, those who receive earnings reduce their losses from the increase in VAT through the disburdening of earnings, while those with fixed income incur the losses from the increase in VAT as a whole.

The third factor, which essentially contributes to the explanation of the results that follow, is that the members of the observed population groups (employees, pensioners, children...) do not live alone, in single-member households. They usually live with other household members with whom they share their or someone else's income and have equal consumption (taking into account the equivalence scale). This means that the standard of living of the members of a specified group does not depend only on them, but also on other household members – those who contribute with their earnings and those who have no earnings and are dependent. So, for example, the consumption of one unemployed member depends on the income (and tax) of some other household member and not on him.

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<sup>26</sup> Due to a very high correlation between the education level and earnings, the classification based on the education level also adequately represents the relationships between earnings and these groups; see the section "The Initial State".



Differences between the genders would be minimal:

Table 5

A change in consumption by gender, median variants, in %

	Version 1	Version 2
Men	-3.14	-3.38
Women	-3.26	-3.46

Regardless of any differences in income (and earnings and the like), the joint life and joint consumption of most men and women make them share the same destiny, have equal consumption and living standards, in addition to being exposed to the same influence of tax and other policies.

Table 6

A change in consumption by socio-economic status, 15+, median variants, in %

	Version 1	Version 2
Self-employed	-3.7	-4.0
Employed	-2.7	-3.0
Unemployed	-3.3	-3.5
Pensioners	-3.4	-3.4
Other economically inactive	-4.0	-4.3

Differences in socio-economic status are also not great, so that the proposed tax changes would have a similar effect on most citizens. The employed would fare a little better because their earnings will be disburdened, but they usually have dependent household members, while those being economically inactive (excluding pensioners) would fare a little worse – a significant percentage of them is supported by someone from the mentioned groups.

Table 7

A change in consumption by age (1), in %

	Version 1	Version 2
0 – 6	-3.1	-3.4
7 – 14	-2.5	-2.8
15 – 19	-2.9	-3.3
20 – 64	-3.2	-3.5
65 and over	-3.5	-3.5

Losses in the standard of living of the basic population cohorts by age are also equalized. A decrease in consumption is slightly below the average for the group aged 7-14, probably due to the higher employment level of their parents, and is slightly higher for the oldest generations, mostly due to economically inactive members.

Table 8

A change in consumption by age (2), median variants, in %

	Version 1	Version 2
0 – 17	-2.7	-3.0
18+	-3.3	-3.5

Considered as a whole, children aged 0-17 (according to the UNICEF definition) recorded a slightly smaller fall in consumption than adults. The reason mostly lies in the inclusion of the oldest people, economically inactive and without pension, who “spoil“ the average of adults to a degree, among “adults“. Thus, it turns out that children, a vulnerable group of special interest for our research, would not fall into the groups being especially affected by the proposed tax reform. This means that children would also suffer the loss of the standard of living, but it would be smaller than that of adults.

Table 9

A change in consumption by household type (1), median variants, in %

	Version 1	Version 2
Single-member	-4.5	-4.5
Two-member	-3.4	-3.5
Three-member	-3.0	-3.3
Four-member	-3.4	-3.7
Five-member and multi-member	-2.6	-2.9

On the average, a decrease in the standard of living occurs regardless of the size of one’s household. While medium-sized households (from two-member to four-member) move around the average after a decrease in consumption, single-member and multi-member households deviate from the average. Insofar as single-member households are concerned, the reason for their below-average result can be sought in the size of single-member pensioner households that have fixed income (pension) and thus incur the full loss from the VAT increase. A relatively favourable outcome for multi-member households can be attributed to the increased progression of earnings taxes, which improves the relative status of those with low earnings.

Table 10

A change in consumption by household type (2), in %

	Version 1	Version 2
With children	-2.8	-3.1
Single parents with children	-3.1	-3.4
Married couple with children	-3.1	-3.5
One child	-3.7	-4.0
Two children	-3.0	-3.4
Three or more children	-2.3	-2.6
Other households with children	-2.6	-2.9
Childless	-3.5	-3.7

Considered as a whole, individuals living in households with children would be faced in both variants with a smaller decrease in the standard of living than those living in childless households. The reason lies in the fact that children usually live in households with their

parents who are employed and make earnings, which are partly disburdened under the tax reform, while among childless households there is a considerable number of those with fixed incomes who suffer the greatest loss from the VAT increase.

### *Proposal 2*

Let us recall Proposal 2:

- to reduce social contributions by one-third;
- to reduce earnings tax rates to 10%;
- to increase the non-taxable portion of the earnings subject to earnings tax to 16,500 dinars, and
- to increase VAT rates to 21% and 11%.

As we have already mentioned, it is not quite clear what decrease in contributions by one-third is considered. We shall interpret it as a decrease in contributions to health and unemployment insurance by one-third, which is consistent with the logic of Proposal 1, since its focus is on the low earnings tax rate.

Consequently, we have modelled:

- A decrease in contributions to health and unemployment insurance by one-third;
- A decrease in the earnings tax rate to 10%;
- A decrease in the non-taxable portion of the earnings subject to earnings tax to 16,500 dinars and
- A necessary increase in VAT rates in order to achieve revenue neutrality.

Due to the mentioned uncertainty over the character of Proposal 2, we shall present only the basic results of our simulations and relevant findings. This is partly due to the fact that they are similar to those already mentioned with respect to Proposal 1.

Considered as a whole, the results are as follows:

Table 11

Basic aggregates, median variant, monthly, billions of dinars

	Initial state	Proposal 1	Proposal 2
Net earnings	59.4	61.5	62.1
Collected earnings tax	8.6	13.2	7.6
Collected contributions to old-age pensions and disability insurance	18.6	176	174
Collected contributions to health and unemployment insurance	117	-	7.3
Total amount of earnings tax collected	38.9	30.7	32.3
Total disposable income	118.2	120.3	120.9
Consumption, nominal	107.8	109.5	110.0
Consumption, real	107.8	104.1	105.3

As can be seen, the amount of net earnings and thus the amount of collected taxes on earnings are larger in Proposal 2 than in Proposal 1, so that the collected VAT has increased as much. The average VAT rate is 16.3%, as opposed to 17.3% in Proposal 1 (second version).

According to the median variants, the total consumption of the population, that is, its standard of living would decrease by 2.3%, which means that it is a little lower than in Proposal 1.

Losses are equal in urban and other areas, as well as between the genders.

As for the education level, all groups have similar losses except those with incomplete elementary education. The least educated suffer the greatest losses, which is the result of considerably lower progression than in Proposal 1.

Like before, the employed have the least losses, while other economically inactive persons (excluding pensioners) the highest.

Considered by age group, children aged 7-14 also have the least losses, while those aged over 65 the greatest. The movements in the age groups 0-17 and 18+ are the same: -1.8% and -2.4%, respectively, which means that, as a whole, children still fare better than adults as a whole.

Considered by household size, movements are very similar to those in Proposal 1: single-member households fare worst, while multi-member households fare best. Also, households with children have smaller losses in consumption than childless households.

Losses in consumption in Proposal 2 are somewhat smaller than in Proposal 1, but their structure is very similar, i.e. the decrease in the standard living by population group is very similar in intensity.

### Effects on Poverty

In this section we shall analyze the effects of the proposed tax reform on poverty. As we could see in the introductory chapters, absolute poverty in Serbia is still pronounced. During the crisis, it started to increase again for the first time after the October 2000 change, so that additional effects of any government intervention on its increase can be considered very unfavourable.

It should be stated at the beginning that the tax reform proposals are almost the same when the effects on poverty are in question. Therefore, attention will not be specifically devoted to differences between two versions of Proposal 1 and Proposal 2, although the results in the tables will also show these statistically negligible differences. First of all, in the text itself the effects arising from Proposal 1 will be considered. Like in the case of an analysis of the effects of tax reform on the status of specified population groups, this segment of our analysis will also deal with the median variant, which assumes that one part of the tax burden decrease will spill over into an increase in the net earnings of the employed. As shown on the sample of the total population, this increase will have a positive effect on an increase in consumption but, on the other hand, an increase in VAT will act in the opposite direction. In an analysis of the effects of changes on the total poverty rates and number of poor people, it will be pointed to the upper and lower levels of changes that would occur in the variants should net earnings be increased to a maximum due to tax changes and when these changes would not occur (detailed results of these variants are given in the Annex).

The proposed tax reforms would bring about an increase in poverty in Serbia. The poverty rate would increase from 6.9% in the initial state (2009) to 7.3%, while the number of poor people would increase by about 30,000. Poverty would not increase only if all tax change effects on income completely spill over into an increase in net earnings (the lowering of the rate to 6.7%). On the other hand, unchanged net earnings, as another extreme of the possible effects, would bring about an increase in the rate to about 8.0%, while the number of poor people would exceed 600,000 (Annex). In the extreme variant, the poverty rate would still be below its record level in 2007.

Although unfavourable tax changes would also aggravate the status of the most vulnerable in urban areas, poverty would increase to a greater extent outside urban centres. In poor households in rural and suburban areas, income from earnings is lower, so that the positive effects of increased net earnings on consumption would also be smaller. Whereas the urban population's earnings from regular employment accounted for 48.6% of total cash income in 2008, in the first consumption decile, that is, among 10% of the poorest Serbian citizens, they accounted for only 32.5%. Also, the first decile is dominated by the population living outside urban centres (over the past years, its share has been over 60%). Thus, it is evident that the simulated consumption decrease caused by the proposed tax changes "pushed" just this population group into poverty to a more than proportional extent.

Table 12

Poverty rate, total, urban and other areas, median variants, in %

	Initial state	Proposal 1 version 1	Proposal 1 version 2	Proposal 2
Total	6.9	7.3	7.3	7.2
Urban area	4.9	5.1	5.1	4.9
Other area	9.6	10.3	10.2	10.1

The proposed tax changes would influence an increase in the poverty of all age groups. The poverty of children aged 15 and under in Serbia, whose poverty rates by age are the highest, would exceed 10%. However, children would not pay the highest price in relative terms. In all scenarios changes affect especially the oldest generations. The status of the elderly is especially aggravated by the fact that they live less often in households in which someone is employed than other age groups, so that they would not benefit from an increase in net earnings; instead, they would only incur the loss from a VAT increase.

Table 13

Poverty rates by age group, median variants, in %

	Initial state	Proposal 1 version 1	Proposal 1 version 2	Proposal 2
0 – 6	9.8	10.2	10.2	10.2
7 – 14	9.6	10.2	10.2	10.2
15 – 19	7.98	8.4	8.3	8.0
20 – 64	6.0	6.2	6.2	6.0
65 and over	7.5	8.5	8.6	8.3

Considered by age, poverty among men and women will increase to almost the same extent. As usually shown by gender analyses of poverty in Serbia, the poverty profile cannot be explained by gender differences<sup>27</sup>.

<sup>27</sup> G. Matković, B. Mijatović and M. Petrović, *Uticaj krize na tržište radne snage i životni standard u Srbiji* (The Impact of the Crisis on the Labour Market and Standard of Living in Serbia), Center for Liberal-Democratic Studies, January 2010.

Table 14

Poverty rates by gender, median variants, in %

	Initial state	Proposal 1 version 1	Proposal 1 version 2	Proposal 2
Men	7.1	7.5	7.4	7.2
Women	6.8	7.2	7.2	7.1

Tax changes have the most adverse effect on the least educated people and those with two-year post-graduate education. The least educated people (incomplete elementary school) constitute the bulk of poor population older than 15 and their poverty rates are increasing more than proportionally, reaching nearly 18%. The more pronounced increase in the poverty of this segment of the population cannot be explained by a greater consumption decrease in relative terms (see the preceding chapter), but most likely by the density immediately above the poverty line, whereby relatively smaller losses in consumption make a greater number of such persons poor.

The more than proportional increase in poverty among persons with two-year post-secondary education can be due to the combination of the previous effects and effects of progressive taxation. However, when interpreting the poverty of persons with the highest education one must be cautious due to their low presence in the sample.

Table 15

Poverty rates by education level, older than 15, in %

	Initial state	Proposal 1 version 1	Proposal 1 version 2	Proposal 2
Incomplete elementary school	16.7	17.8	17.9	17.6
Elementary school	9.5	10.0	10.0	9.9
Secondary school	3.8	4.0	4.0	3.8
Two-year post-secondary	1.4	2.0	2.0	1.6
University	0.4	0.4	0.4	0.4

Considered by socio-economic status, poverty is increasing in all segments, with the exception of the employed, which is also consistent with the changes in the consumption of the total population. Among other population groups, poverty rates are especially increasing among pensioners, which can be primarily explained by the fact that their incomes are fixed (and will not be changed due to tax changes) and the assumption that – as opposed to the unemployed or other economically inactive persons who cannot live alone and thus share the destiny of the employed – a significant number of pensioners live in households without income from earnings.

Table 16

Poverty rates by socio-economic status, persons older than 15, median variants, in %

	Initial state	Proposal 1 version 1	Proposal 1 version 2	Proposal 2
Self-employed	5.1	5.5	5.4	5.3
Employed	3.7	3.7	3.7	3.6
Unemployed	14.3	14.81	14.7	14.2
Pensioners	5.3	6.1	6.1	5.9
Other economically inactive	9.2	9.71	9.7	9.5

An increase in poverty due to the proposed tax changes can be expected regardless of household type. However, like in the case of a decrease in total consumption, poor people who live in single-member and two-member households, as well as in childless households distinguish themselves by the deterioration of their status. High poverty rates are especially recorded among the persons living in households whose members are older than 65 (9,6%) and households without employed and self-employed persons (10%). This has a decisive effect on the deterioration of the status of pensioners and elderly persons for the above mentioned reasons.

Table 17

Poverty rates by household structure (1) , median variants, in %

	Initial state	Proposal 1 version 1	Proposal 1 version 2	Proposal 2
Single-member	5.7	6.2	6.3	6.1
Two-member	5.6	6.6	6.6	6.3
Three-member	5.0	5.2	5.2	5.2
Four-member	4.7	4.8	4.7	4.5
Five-member and multi-member	10.3	10.8	10.8	10.6

Table 18

Poverty rates by household structure (2), in %

With children	8.2	8.5	8.5	8.4
Married couple with children	6.2	6.4	6.4	6.4
One child	3.3	3.3	3.3	3.3
Two children	4.8	5.2	5.2	5.2
Three or more children	13.3	13.3	13.3	13.3
Other households with children	9.2	9.4	9.4	9.3
Childless	5.7	6.2	6.2	5.9
All members older than 65	8.5	10.0	10.1	9.6
Without employed and self-employed	9.0	10.4	10.5	10.0

The basic results of an analysis of the effects of the proposed changes on poverty are as follows:

1. An increase in poverty would be recorded in all population groups: although it would not be dramatic, the unfavourable fact is that it would occur amidst the crisis;
2. How these changes affect specified groups among the poor depends to a

- considerable extent on households in which individuals live;
3. The greatest deterioration of their status was recorded among persons living in fixed-income households or, in other words, in households in which pension income is dominant (pensioners, persons older than 65, persons living in single-member, two-member and childless households);
  4. Greater deterioration would occur among persons living in households with the lower share of earnings from employment (other areas, households without employed and self-employed persons);
  5. Greater deterioration can also be observed in the segments of the population that are densely concentrated above the poverty line (persons with incomplete elementary school);
  6. Altogether, the greatest deterioration, in terms of the highest increase in poverty rates, was recorded among persons aged 65 and over, pensioners, persons living in two-member households, households whose members are aged 65 and over and in households without employed and self-employed members;
  7. Finally, at least 30,000 persons cannot satisfy their basic needs any more and this is recorded just amidst the crisis. Thus, is the time right for this tax reform?

#### INSTEAD OF A CONCLUSION

1. The hitherto analysis has shown that, among other things, the proposed reform of the tax system would generate as follows:
  1. Losses in the consumption of the Serbian population, that is, a decrease in the average standard of living;
  2. An increase in poverty in Serbia, since a general decrease in the standard of living would also affect the poorest people and
  3. Different effects on specified demographic and socio-economic population groups, although these differences are not distinct.

In addition, a decrease in the consumption of the population would probably bring about a decrease in economic activity due to the decreased demand of the population and aggregate demand.

We have called these effects short-term or income effects due to the possibility that the tax reform is effectuate over a long term, through an increase in the rate of economic growth – although this is not certain. In other words, if the reform does not bear fruit in terms of long-term growth, these negative effects on the standard of living could be final and even more pronounced due to a decrease in economic activity (caused by a decrease in the consumption of the population and decreased income), inflation and the like. If the reform encourages long-term growth, the mentioned effects would remain only over a short term or, in other words, losses would be transitional.

We have also identified the basic mechanisms leading to the mentioned results:

- The negative effect of the VAT increase on the consumption of the population prevails over the positive effect of earnings disburdening, so that consumption decreases;
- The standard of living especially declines among persons with fixed incomes, since they will not benefit from earnings disburdening;
- The increase in tax progression improves the relative status of individuals with lower earnings to a degree, but it is aggravated by the modest share of earnings in disposable income;
- Different effects among different individuals are alleviated by their life in one household where they have an equal share in joint income.



2. The question that inevitably imposes itself is whether something should be done in order to eliminate or alleviate the negative effects of tax changes on vulnerable groups, in particular, and what should be done. We hold that such an orientation is not necessary for several reasons:

1. Deterioration in the standard of living did not particularly adversely affect any population group, that is, some groups more than others, so that government intervention would be necessary for maintaining it above the poverty line;
2. The new law on social protection is under preparation; it anticipates a considerable increase in social assistance (MOP), the basic instrument of support for the poor;
3. New financial support would disrupt the concept of revenue neutrality, that is it would require additional funds from the budget; therefore, it would be necessary either to reduce the funds earmarked for other purposes, or to additionally increase the VAT, including additional negative effects on the consumption of the population; in the case of non-targetted support, mitigating the decrease in the standard of living of the population in general would require extremely large funds, which surpass the current possibilities for its financing from the budget;
4. Finally, it is possible that this tax reform brings about the acceleration of economic growth over a somewhat longer term, so that the gains could be used to offset the initial losses of the population; on the other hand, the introduction of the provisional programmes of protection of specified population groups is not advisable, because it is very difficult (politically) to revoke them when they are not needed any more.

3. More broadly considered, it must be pointed to several other important issues related to the idea of the mentioned reform.

First, pension insurance contributions should not be reduced during the potential tax reform, since their more significant reduction would greatly increase the budget deficit, or bring about a considerable increase in VAT rates. In addition, the financing of pensions to which only one part of the population is entitled, whereby one half is already financed from the budget, is not equitable (since pensions are also financed by persons who will never be entitled to them), while the further increase in that share would further aggravate the situation. Such an error has not been made in the study that is the subject of this analysis, but such danger appears in some other papers. So, in the mentioned Proposal 2 it is not clear which contributions should be reduced; this also applies to the more recent text by the editor of this study and the authors of the reform proposal, M. Arsić and N. Altiparmakov: they now propose a cut in social contributions by only one-fifth.<sup>28</sup>

Second, the abolition of health insurance contributions is one of the key proposals in this study. There is no doubt that a change in the concept of health care financing (including the related question who is entitled to state health services and to what extent, what changes in the demand for health services will occur, what financial effects are expected and the like) is very serious and that its effects should be considered in detail before making a decision about this reform. It is certainly not good to proceed only from tax reasons and make a decision of far-reaching importance for the activity that accounts for almost one-tenth of BDP. Instead, it would be necessary to conduct broad research and debate.

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<sup>28</sup> *Komparativna analiza alternativnih predloga poreskih reformi* (A Comparative Analysis of Alternative Tax Reform Proposals), *Kvartalni monitor*, No. 20/2010. It is very unusual that they argue in the text that this proposal concerning a reduction in contributions by only 20% was advanced in the study *Tax Policy in Serbia – A Look Forward*, which is not correct.

Third, from among the many proposals favouring the disburdening of earnings, at least one conclusion can be derived: even those who favour such a concept have not yet reconciled their views; instead, they are still wandering in search of the best proposal. As already mentioned, the basic problem has not yet been solved – whether one should embark on tax reform or not and how it should look like. This is not only a professional and economic problem, but also a social and political one. Moreover, should the basic weaknesses of Serbia’s economic system and policy be sought in the area of taxation?

Fourth, the question that also imposes itself is associated with the time at which tax policy was proposed and its clear outcome – an increase in poverty, at least over a short term. The crisis also exerted influence on an increase in poverty in 2009. However, according to the preliminary results of the Republican Statistical Office, its negative effects were even stronger in the first half of 2010. It can be estimated that during 2010 the combined effects of the crisis and tax reform would bring about an increase in the share of poor people to over 9%. Such a high increase in the number of poor people, who cannot satisfy even their basic needs, warns us to exercise caution. The deterioration of the social situation for the sake of uncertain gains in the future is hardly acceptable at this moment.

## ANNEX

Table 1  
Poverty rate, in %

Table 2  
Changes in the consumption of the population

	Proposal 1 version 1				Proposal 1 version 2				Proposal 2			
	Initial state	Variant 1	Variant 2	Variant 3	Initial state	Variant 1	Variant 2	Variant 3	Initial state	Variant 1	Variant 2	Variant 3
Republic of Serbia - total	6.9	6.7	8.1	7.3	6.9	6.8	7.9	7.3	6.9	6.6	7.5	7.2
Republic of Serbia - urban area	4.9	4.8	5.6	5.1	4.9	4.8	5.6	5.1	4.9	4.7	5.2	4.9
Republic of Serbia - other area	9.6	9.3	11.2	10.3	9.6	9.6	10.8	10.2	9.6	9.1	10.5	10.1
<b>Education level</b>												
Incomplete elementary school	16.7	16.8	19.1	17.8	16.7	17.3	18.6	17.9	16.7	16.6	17.9	17.6
Elementary school	9.5	9.4	10.9	10.0	9.5	9.6	10.6	10.0	9.5	9.1	10.3	9.9
Secondary school	3.8	3.5	4.6	4.0	3.8	3.5	4.6	4.0	3.8	3.4	4.2	3.8
Two-year post-secondary school	1.4	1.6	2.4	2.0	1.4	1.7	2.4	2.0	1.4	1.6	1.9	1.6
University	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
<b>Socio-economic status</b>												
Self-employed	5.1	4.8	5.7	5.5	5.1	5.0	5.5	5.4	5.1	4.5	5.5	5.3
Employed	3.7	3.2	4.4	3.7	3.7	3.3	4.2	3.7	3.7	3.0	4.0	3.6
Unemployed	14.3	13.7	15.6	14.8	14.3	13.7	15.4	14.7	14.3	13.5	15.0	14.2
Pensioners	5.3	5.7	6.6	6.1	5.3	5.9	6.6	6.1	5.3	5.6	6.1	5.9
Other economically inactive persons	9.2	9.2	10.9	9.7	9.2	9.2	10.7	9.7	9.2	9.0	10.2	9.5
<b>Sex</b>												
Men	7.1	6.8	8.2	7.5	7.1	6.9	8.0	7.4	7.1	6.7	7.7	7.2
Women	6.8	6.7	8.0	7.2	6.8	6.8	7.8	7.2	6.8	6.5	7.4	7.1
<b>Age</b>												
0 - 6	9.8	9.3	11.0	10.2	9.8	9.3	10.7	10.2	9.8	9.3	10.4	10.2
7 - 14	9.6	9.5	11.1	10.2	9.6	9.5	10.6	10.2	9.6	9.4	10.3	10.2
15 - 19	7.9	7.7	9.8	8.4	7.9	7.7	9.6	8.3	7.9	7.2	9.1	8.0
20 - 64	6.0	5.6	6.8	6.2	6.0	5.7	6.6	6.2	6.0	5.5	6.4	6.0
65 and over	7.5	8.0	9.3	8.5	7.5	8.3	9.2	8.6	7.5	7.8	8.5	8.3
<b>Age 2</b>												
0 - 17	9.5	9.2	10.8	9.9	9.5	9.2	10.5	9.9	9.5	9.0	10.2	9.8
18+	6.4	6.3	7.5	6.8	6.4	6.4	7.3	6.8	6.4	6.1	7.0	6.6
<b>Household type</b>												
Single-member	5.7	5.7	6.2	6.2	5.7	6.1	6.2	6.3	5.7	5.7	6.1	6.1
Two-member	5.6	6.1	6.9	6.6	5.6	6.3	6.8	6.6	5.6	6.0	6.4	6.3
Three-member	5.0	5.0	5.5	5.2	5.0	5.0	5.5	5.2	5.0	4.9	5.1	5.2
Four-member	4.7	4.1	5.2	4.8	4.7	4.2	5.2	4.7	4.7	4.0	5.2	4.5
Five-member and multi-member	10.3	10.1	12.3	10.8	10.3	10.1	11.8	10.8	10.3	9.8	11.2	10.6
<b>Household type</b>												
With children	8.2	7.9	9.5	8.5	8.2	7.9	9.2	8.5	8.2	7.7	8.9	8.4
Married couple with children	6.2	5.8	6.5	6.4	6.2	5.8	6.4	6.4	6.2	5.8	6.4	6.4
One child	3.3	2.8	3.3	3.3	3.3	2.8	3.3	3.3	3.3	2.8	3.3	3.3
Two children	4.8	4.4	5.2	5.2	4.8	4.4	5.2	5.2	4.8	4.4	5.2	5.2
Three or more children	13.3	13.3	14.0	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3
Other households with children	9.2	9.0	10.8	9.4	9.2	9.0	10.4	9.4	9.2	8.7	10.0	9.3
Childless	5.7	5.6	6.7	6.2	5.7	5.8	6.6	6.2	5.7	5.5	6.2	5.9
Elderly over 65	8.5	9.1	10.4	10.0	8.5	9.6	10.4	10.1	8.5	9.1	9.7	9.6
Without employed and self-employed	9.0	9.9	10.8	10.4	9.0	10.1	10.8	10.5	9.0	9.8	10.0	10.0

	Proposal 1 version 1				Proposal 1 version 2				Proposal 2			
	Initial state	Variant 1	Variant 2	Variant 3	Initial state	Variant 1	Variant 2	Variant 3	Initial state	Variant 1	Variant 2	Variant 3
Republic of Serbia - total	6.9	6.7	8.1	7.3	6.9	6.8	7.9	7.3	6.9	6.6	7.5	7.2
Republic of Serbia - urban area	4.9	4.8	5.6	5.1	4.9	4.8	5.6	5.1	4.9	4.7	5.2	4.9
Republic of Serbia - other area	9.6	9.3	11.2	10.3	9.6	9.6	10.8	10.2	9.6	9.1	10.5	10.1
<b>Education level</b>												
Incomplete elementary school	16.7	16.8	19.1	17.8	16.7	17.3	18.6	17.9	16.7	16.6	17.9	17.6
Elementary school	9.5	9.4	10.9	10.0	9.5	9.6	10.6	10.0	9.5	9.1	10.3	9.9
Secondary school	3.8	3.5	4.6	4.0	3.8	3.5	4.6	4.0	3.8	3.4	4.2	3.8
Two-year post-secondary school	1.4	1.6	2.4	2.0	1.4	1.7	2.4	2.0	1.4	1.6	1.9	1.6
University	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
<b>Socio-economic status</b>												
Self-employed	5.1	4.8	5.7	5.5	5.1	5.0	5.5	5.4	5.1	4.5	5.5	5.3
Employed	3.7	3.2	4.4	3.7	3.7	3.3	4.2	3.7	3.7	3.0	4.0	3.6
Unemployed	14.3	13.7	15.6	14.8	14.3	13.7	15.4	14.7	14.3	13.5	15.0	14.2
Pensioners	5.3	5.7	6.6	6.1	5.3	5.9	6.6	6.1	5.3	5.6	6.1	5.9
Other economically inactive persons	9.2	9.2	10.9	9.7	9.2	9.2	10.7	9.7	9.2	9.0	10.2	9.5
<b>Sex</b>												
Men	7.1	6.8	8.2	7.5	7.1	6.9	8.0	7.4	7.1	6.7	7.7	7.2
Women	6.8	6.7	8.0	7.2	6.8	6.8	7.8	7.2	6.8	6.5	7.4	7.1
<b>Age</b>												
0 - 6	9.8	9.3	11.0	10.2	9.8	9.3	10.7	10.2	9.8	9.3	10.4	10.2
7 - 14	9.6	9.5	11.1	10.2	9.6	9.5	10.6	10.2	9.6	9.4	10.3	10.2
15 - 19	7.9	7.7	9.8	8.4	7.9	7.7	9.6	8.3	7.9	7.2	9.1	8.0
20 - 64	6.0	5.6	6.8	6.2	6.0	5.7	6.6	6.2	6.0	5.5	6.4	6.0
65 and over	7.5	8.0	9.3	8.5	7.5	8.3	9.2	8.6	7.5	7.8	8.5	8.3
<b>Age 2</b>												
0 - 17	9.5	9.2	10.8	9.9	9.5	9.2	10.5	9.9	9.5	9.0	10.2	9.8
18+	6.4	6.3	7.5	6.8	6.4	6.4	7.3	6.8	6.4	6.1	7.0	6.6
<b>Household type</b>												
Single-member	5.7	5.7	6.2	6.2	5.7	6.1	6.2	6.3	5.7	5.7	6.1	6.1
Two-member	5.6	6.1	6.9	6.6	5.6	6.3	6.8	6.6	5.6	6.0	6.4	6.3
Three-member	5.0	5.0	5.5	5.2	5.0	5.0	5.5	5.2	5.0	4.9	5.1	5.2
Four-member	4.7	4.1	5.2	4.8	4.7	4.2	5.2	4.7	4.7	4.0	5.2	4.5
Five-member and multi-member	10.3	10.1	12.3	10.8	10.3	10.1	11.8	10.8	10.3	9.8	11.2	10.6
<b>Household type</b>												
With children	8.2	7.9	9.5	8.5	8.2	7.9	9.2	8.5	8.2	7.7	8.9	8.4
Single parent with children	6.9	5.3	12.5	12.5	6.9	5.3	12.5	12.5	6.9	5.3	12.5	12.5
Married couple with children	6.2	5.8	6.5	6.4	6.2	5.8	6.4	6.4	6.2	5.8	6.4	6.4
One child	3.3	2.8	3.3	3.3	3.3	2.8	3.3	3.3	3.3	2.8	3.3	3.3
Two children	4.8	4.4	5.2	5.2	4.8	4.4	5.2	5.2	4.8	4.4	5.2	5.2
Three or more children	13.3	13.3	14.0	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3
Other households with children	9.2	9.0	10.8	9.4	9.2	9.0	10.4	9.4	9.2	8.7	10.0	9.3
Childless	5.7	5.6	6.7	6.2	5.7	5.8	6.6	6.2	5.7	5.5	6.2	5.9
Elderly over 65	8.5	9.1	10.4	10.0	8.5	9.6	10.4	10.1	8.5	9.1	9.7	9.6
Without employed and self-employed	9.0	9.9	10.8	10.4	9.0	10.1	10.8	10.5	9.0	9.8	10.0	10.0