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THE EFFECTS OF PROPOSED TAX CHANGES ON POVERTY AND VULNERABLE GROUPS IN SERBIA

ABSTRACT: *This paper provides an empirical analysis of the potential effects of a proposed tax reform in Serbia on poverty and vulnerable groups. The essence of the proposal is transferring the tax burden from wages to personal consumption, thus alleviating one production factor and therefore stimulating economic growth. The analysis utilizes the tax-benefit micro-stimulation model, based on the Household Budget Survey for 2009. Since the model does not include the production sector, the estimated effects are direct, income-based, without the potential economic growth. As expected, the total personal consumption*

in Serbia would decrease (-3.4%), while poverty would increase (from 6.9 to 7.4%). All of the potentially vulnerable groups would be relatively equally affected. The conclusion is that it is questionable whether it is prudent to implement a tax reform during times of crisis and increased poverty that would probably result in negative short term social outcomes and whose long term effects are still unclear.

KEY WORDS: *Tax reform, simulation, effects, welfare, consumption, poverty, vulnerable groups*

JEL CLASSIFICATION: C81, D31, H21, H23, H31

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1. INTRODUCTION

During 2010 there was much talk about changes in Serbia's tax system. The Serbian Ministry of Finance, together with its expert team, announced a fundamental reform of the tax system, planned for the autumn 2010 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 wage taxation, in addition to offsetting revenue losses through the adjustment of indirect taxation".[2]

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

Since the aim of tax reform would not be to change fiscal balance (revenues, i.e., deficits), there are plans to increase the value-added tax to compensate for the reduction in the tax burden of wages and resulting revenue losses, thus ensuring that total revenue remains unchanged. 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, was underscored as an additional reason for these tax changes.

A complex reform proposal is presented in Arsić (2010). The Minister of Finance supported this proposal. The proposed changes are substantial, as they envisage the abolishment of social contributions used to finance state health care and unemployment benefits, as well as essential changes in wage taxation and a significant increase in VAT rates. As was stated: "This study describes a revenue-

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2   Letter of Intent, Belgrade, June 10, 2010.

neutral tax reform that would shift a significant part of the fiscal burden borne by wages to the taxation of consumption – by abolishing contributions to health and unemployment insurance, increasing the VAT rate by 4% and introducing more progressive taxation of wages". It is also estimated that the abolition of these two contributions would imply a revenue loss of 3.6% of GDP and an increase in VAT revenues by the same amount.

The current taxes on wages are as follows:

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

One half of the cumulative rate of each contribution is paid out of (gross) wages to the debit of the employed and the other half to the debit of the employer.

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).

The proposal 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 wage tax rate to 20%;
- to increase the non-taxable portion of wages subject to the wage tax to 16,500 dinars, and
- to increase VAT rates to 22% and 12% respectively.

The revenue neutrality of reform is not only a useful analytical tool for separating the structural and macroeconomic effects of tax changes, but is also a substantive feature of any proper tax reform. However, the 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 and as a rule, some will fare better, some worse; but this is what the reform aims at. Should all fare equally well, the tax reform would not make sense.

The change of taxation rules under the proposal 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 in the short term, the population would fare worse than the economy, since the compensation burden (through the VAT increase) would be borne by the public, while the benefit from reducing wage taxation would accrue to business and partly to the population (i.e., to those who are employed and receive salaries/wages). There is a chance that the economy would also suffer a loss from tax reform, albeit a non-tax one, due to a decline in consumer spending and a fall in sales.

The prospects of the proposal are not clear – it is not known whether or not it will be adopted by the government and parliament and then implemented. 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, while Vice Premier Dinkić stated there would be no major tax changes (especially not in value-added tax) over the next two years. Prime Minister Cvetković calmed the tensions for some time, saying in a conciliatory manner that the direction of tax reform was still not decided. Regardless of further developments, it is necessary to examine how the poor and members of other vulnerable groups would fare should these tax changes be effectuated. The social aspect should not be neglected while making preparations for such extensive changes. Would the status of more vulnerable people improve or deteriorate, and what are the groups concerned? Would deterioration be acceptable? Could anything be done to alleviate or eliminate such deterioration? This paper aims to assess the effect of the proposed tax changes on the poor and members of other vulnerable groups, and to discuss the compensation measures that would alleviate any adverse effect of the proposed tax changes on these population groups, should that prove necessary and feasible.

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

2. DIRECT VS. INDIRECT TAXES

In this section we shall briefly examine the conceptual questions of the proposed tax reform in order to create a picture of the theoretical framework for the conduct of our analysis of the possible effects of such a reform.

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 concluded. The discipline that deals with it – the optimal taxation theory – is very complex, but has not produced any practically useful results, at least not in the field that we are examining. Its most important results suggest that the return on capital should not be taxed, and that tax rates should be equalised in the case of both indirect and direct taxation (See Mankiw et al, 2009). The once powerful argument that consumption taxation is not necessary when income taxation is well designed (Atkinson and Stiglitz, 1976) is not valid any more, because, in the meantime, a number of arguments have been found in favour of retaining indirect taxes.

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 (equals should pay equal taxes) and vertical (unequals should pay unequal taxes). Despite problems in the operationalisation 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 richer people should pay more tax, either according to the ability-to-pay or the benefit approach principle.

Efficiency is certainly one of the central economic concepts, and the problem concerning taxes is that they usually bring inefficiency – regardless of whether they are direct or indirect taxes. Taxes cause market distortions; in other words, they change the behaviour of taxpayers who, in order to reduce their tax burden, change their activity and thus cause market distortion and inefficiency, relative to the purely market outcome.[3] Therefore, when choosing the tax type, the aim is to minimise inefficiency.

Two good examples of such distortion are the consumption tax and labour supply. The introduction of differentiated consumption taxes prompts individuals to buy the product that is less taxed instead of the desired one, which reduces their well-being. Likewise, a progressive income tax, at least in some circumstances, brings about a decrease in labour supply because an individual finds that the increment of labour pays less than leisure, which diminishes his/her well-being.

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3   We have disregarded the taxation of externalities, or Pigouvian taxes.

As in many other choices in economics, the greatest problem posed when choosing the tax structure is the conflict between equality and efficiency. What enhances efficiency usually undermines equity, and vice versa.

It is sometimes held (OECD, 2007) that a reduction in income taxation and an increase in consumption taxation are conducive to economic growth. These measures should bring about the following improvements: (1) a decrease in the taxation of savings (taxed under the income tax and not under the consumption tax), which fosters growth, and (2) the aforementioned 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 boost economic activity, it is necessary to reduce wages commensurately with the level of reduced taxes. However, if consumption taxes are raised, the employed will probably not agree to work for a lower real salary than before the tax change, since they are interested in real wages. And if salaries are increased by the amount of the price increase, positive effects on growth will be offset by the VAT increase.

Second, sales taxes also bring inefficiency, and the efficiency problem thus centres on the comparison of two inefficiencies – which one is greater: the inefficiency of sales tax or that of income tax?

The main advantage of consumption taxation seems to be the lower taxation of savings, which bolsters investment and risk-taking behaviour. However, the favourable tax treatment of savings does not have to be achieved by shifting to indirect taxes. It 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.

As usual, empirical studies dealing with the effect of different tax structures on economic growth give different assessments. 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 (Martinez-Vazaquez, 2009). However, it is not a dramatic change: the QUEST model for 15 EU member states has shown that the mentioned shift would accelerate economic growth by only 0.2%. But someone has to pay the bill, either the employed or recipients of fixed transfers (pensioners, recipients of social assistance, etc.), when prices go up due to VAT increase (European Commission, 2006).

All things considered, there is no consensus among economists about the positive effects of the proposed tax change on economic growth and well-being, either on

the theoretical or empirical level. However, even in the case of a consensus in favour of taxing consumption, negative redistributive effects would remain. On the one hand, the decrease in income tax benefits affluent population groups who were much more affected by the previous income tax progression. On the other hand, the consumption tax is usually regressive, i.e., lower-income groups have a 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 considered inequitable.

Negative distributive effects pose two kinds of problem: first, they can be undesirable from the aspect of reasonable distributive justice theory, and second, they may cause serious political problems for the government as the affected groups resist the measures. When considered from this perspective it becomes clear why income tax was introduced and expanded during the 20th century – it was more equitable than the indirect taxes prevailing in the 19th century.

In addition, a shift to indirect taxes weakens the stabilisation potential of tax policy. In the opinion of most economists, direct taxes represent built-in economic stabilisers that vary considerably depending on the phase of the business cycle, and thus stabilise aggregate demand. Indirect taxes do not have such a stabilisation role (Baunsgaard and Symansky, 2009).

3. THE CLDS MODEL

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

Our basic tool is the tax-benefit micro-simulation model[4], based on the Household Budget Survey in Serbia – hereinafter called the CLDS model. Recent implementation of this model related to the analysis of social policy, presented in Matković and Mijatović (2009). By using the model it is possible to analyse the effects of relevant policies on the income and consumption of the population, these being the basic indicators of standard of living and well-being.

Consumption Survey

The statistical basis of the CLDS model is the Household Budget Survey, conducted by the Republican Statistical Office each year. We used the latest complete survey

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4   It belongs to the class of the OECD tax-benefit model and EUROMOD.

for 2009 as it most accurately represents the economic and social status of the population,, and some earlier surveys are becoming outdated with the passage of time. For this reason we disregarded the Living Standard Survey of 2007, which, despite its statistical and conceptual qualities, gives a less realistic picture of Serbia and the socio-economic status of its population, due to changes that occurred during the economic crisis. Another advantage of the HBS is its highly detailed classification of goods and services, well suited to VAT assessment.

The Household Budget Survey of 2009 encompassed 4,592 households. It has been conducted since 2003 in line with international standards (Eurostat, ILO, UN), which ensures its international 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.

This survey includes three sets of data: on the household and its members, on the household income and disposable household income, and on household expenditure. More detail about this survey can be found in publications of the Republican Statistical Office: see Household Budget Survey 2009 (2010).

Measuring Consumption and Poverty

By employing appropriate methods it is possible to derive highly useful data on the socio-economic status of the population: on income and expenditure, poverty and status of different population groups, regional differences, housing conditions, demographic characteristics, government policies and their effects, etc.

In order to analyse poverty and related phenomena based on data from the Household Budget Survey, the survey should be supplemented with the methodology for the analysis of poverty and status of the population in general. The three major steps are: selection of the aggregate for measuring well-being (standard of living or poverty), the poverty line, and, finally, units of equivalent consumption. Let us take a closer look.

The Basic Indicator for the Standard of Living

The two most important candidates for the measure of the population's standard of living are consumption and income. It is usually held that in transition countries consumption is a more reliable measure of the standard of living than

income, for several reasons (Deaton, 1997). The first and most important reason is the incomplete reporting of income, as some interviewees are doubtful about who will obtain the survey data (tax authorities, criminals, etc.) and often report lower than actual income.

The next reason for giving preference to consumption is its greater consistency, relative to income, which produces more reliable results. The incomes of households can vary from month to month, or from season to season (farmers, private entrepreneurs, liberal professions, etc.), which is why the measure of a population's standard of living based on income is less credible in comparison with consumption.

The third reason is the consumption of own-produced goods (usually food). This certainly influences the level of consumption, but is not included in the standard income of the population. Because of this, the assessment of a population's living standard based on (classical) income would be lower than the actual standard.

For these reasons consumption is usually used as a standard-of-living measure in poverty analyses in less developed countries. It is regularly used by the World Bank in its poverty analysis, including its poverty analysis of Serbia (World Bank, 2003), and has also been used in poverty analyses conducted by domestic researchers. Therefore, we shall continue to use consumption as the measure of the standard of living, i.e., well-being, of the population.

Units of Equivalent Consumption

The poverty line cannot be the same for single-member and multi-member households, since the necessary costs of a larger household are higher than the costs of a single-member one. Therefore the poverty line must be adjusted to the household size and characteristics, in such a way that it can be increased for each additional household member. The question posed is, to what extent? 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 basic reason for the existence of economies of scale is the different character of goods used in the household: while some goods can be consumed by one member only, other goods are available not only to one but to all household members, regardless of their number.

The fact that not all individuals are equal in one household, but differ by sex, age, or other characteristics, may incur different additional costs. When assessing the needs of individuals living in one household, two components should be taken into account: 1) economies of scale, according to which the costs per additional member are increasingly lower, and 2) demographic composition of the household, as the costs of different individuals are different.

In this paper we shall use the so-called OECD scale, which includes both the household size and household structure. The first adult is assigned the coefficient 1.0, other adults – 0.7, and children up to 14 years of age – 0.5. Consequently, the number of equivalent adults in the household (NEA) is:

$$NEA = 1 + 0.7\times (adults - 1) + 0.5\times children\ 0\text{-}13 \tag{1}$$

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:

$$NEA = 1 + 0.7 \times 2 + 0.5 = 2.9. \tag{2}$$

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 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 of special interest. The second group consists only of the poor, i.e., one part of the population, broken down by the above groups that are exposed to high poverty risk, or are of special interest.

We shall use the absolute poverty concept, which derives from the sensible idea that poverty implies such a low level of possession of goods and services that an individual cannot satisfy his/her basic needs expressed by the poverty line. In other words, everyone who fails to reach the poverty line is poor.

In the analysis that follows the poverty line will be the one used by the Republican Statistical Office. 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 basic food needs, which is the product of the population's average calorie needs, defined by 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 includes expenses other than food (clothing and footwear, hygiene supplies and household furniture, transport, health care, education, etc.). It is determined as the overall consumption of households whose food consumption is equal to the minimum consumer basket. In this way the poverty line for 2006 was determined; for the following years it was adjusted for inflation, and in 2009 it amounted to 8,022 dinars per equivalent adult.

The Model of Assessing the Effects of National Policies

To enable the assessment and analysis of the effects of potential tax and social policies, two elements should be added to the quantitative survey data: (1) the instruments of national policy (taxes, social benefits) and (2) a model of the population's reaction (or its absence) to the change in the above instruments.

This superstructure was introduced into the CLDS model, and the taxes and contributions relevant to this research added. They include the wage tax, social contributions to old-age pensions[5], health and unemployment insurance, and value-added tax. The wage tax and contributions have been calculated on wages paid in accordance with the current and anticipated tax rules. The value-added tax, with the prescribed rates payable on relevant goods, has also been included.

The model does not include the production sector, as all changes take place through the interaction of the population's disposable income and consumption, including the effect of VAT on that consumption. Therefore this model is short-term and deals with the first, direct, income effects of tax changes on the population.

In principle, it can be said that the tax reform would benefit most people, provided that tax restructuring brings about a considerably higher rate of economic growth in the future. Should the tax reform fail to generate positive effects in growth, the result would be – at least at the beginning – income redistribution in favour of

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5   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 wages, i.e., the old-age pension insurance base, will be changed, meaning that revenue from this contribution will change as well.

businesses and owners of capital, at the expense of the whole or majority of the population.

The mechanism of change in disposable income, depending on taxes and contributions, has also been incorporated. This means that when taxes and contributions change, the income and thus total disposable 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. Whether a decrease in the wage tax will lead to an increase in net wages (whether the employed will benefit), or a decrease in the cost of labour (whether employers will benefit) is not certain in advance. Instead, this depends on labour market characteristics, openness to foreign trade, and many other factors. In other words, tax changes, especially large ones, cannot be analysed using elementary schemes and a partial analysis. Instead, it is necessary to use the concept of general equilibrium. Unfortunately, this is the most difficult kind of modelling, giving rise to serious difficulties.

In order to solve (or avoid) the problem of not knowing the reaction to tax changes, we have made three simulations in the analyses that follow. (1) We assumed that the tax change will not change gross wages and that net wages will adjust to the new taxes; (2) we assumed that the tax change will not change the net wages of the employed and that gross wages will adjust to the new taxes; and (3) the middle (average) variant anticipates that the adjustment will be made partly through gross wages and partly through net wages.[6]

Two different mechanisms have been incorporated into the relationship between the disposable income and consumption of each household. For most households (those where 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 is a reminder 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 expenditure will remain the same, while the budgetary elasticity of demand will equal 1.0, and

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[6]   See the next section for more detail.

- 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 frequently used in similar research.

A somewhat different mechanism has been assumed for a smaller number of households whose consumption exceeds disposable income in the initial state:[7] consumption changes in the same amount as disposable income, as it would be unreasonable to increase consumption more than disposable income, which would be the result of applying the first mechanism to this household group. This means that the above 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. Changes in VAT rates influence the prices of goods (in our simulations they increase them) and thus the "real" consumption of each household.

4. AN ANALYSIS OF THE PROPOSED TAX CHANGES

In this section, which is central to this paper, we shall examine the effects of the tax reform proposal mentioned in the introduction to the paper.

We shall use the CLDS model based on the Household Budget Survey of 2009, in addition to all relevant taxes and contributions levied on wages and the value-added tax in accordance with the 2009 rules, as well as the mechanisms of tax changes on the household disposable income and the population as a whole. We shall analyse all effects of the proposed tax changes in terms of consumption changes as a result of change in disposable income.

As mentioned, an important element of the mechanisms of transmission between tax reform and its effects is the reaction of (net and gross) wages on tax changes. In other words, the question is who will benefit from tax changes and who will pay the bill. As mentioned, we ran three simulations in order to solve the question.

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7   It is mostly a question of reporting lower than actual incomes.

Simulation 1: The tax change will not bring about a change in gross wages of the employed and the adjustment to new taxes will be made through net wages. We have assumed that current gross wages represent the "real" cost of labour, which is derived from labour market circumstances, legislation, and collective bargaining, and which is paid by employers (both private and government) with no regard to tax changes. In firms with strong unions, where collective contracts are respected and foreign-owned firms strictly comply with the legal system, it is likely that gross wages will remain unchanged, while net wages will increase after reducing the tax burden of wages. This group also includes (or should include) the government sector, which is, from a legal viewpoint, subject to the regime of determining gross wages, so that the employed should benefit from a reduction in the tax burden on wages, just as they should bear the losses from additional taxes. Naturally, it is possible that the government would change the system after implementing one of the proposed tax changes, and would freeze net wages and adjust gross wages.

If (and when) gross wages remain unchanged after the introduction of tax changes, the employed will appropriate the maximum gain in the short term from a reduction in the tax burden on wages, and net wages will increase. That is, the abolition of contributions to health and unemployment insurance, which are paid on the gross wage of the employed, coupled with a change in the taxation of wages (higher rate, higher exemption), would also be reflected in net wages, bringing about their increase.

Wage behaviour according to this pattern would not bring about the desired acceleration of economic growth, since the reduction in the tax burden on labour would only be partial, that is, halved. Labour would be disburdened of only two contributions, which are paid by employers above gross wages.[8]

Simulation 2: The tax change will not change net wages of the employed, and the adjustment to new taxes will be made through gross wages. This assumption is the opposite of the previous one, as it is believed that the net cost of labour is the "real" one, considering market circumstances and the agreement reached between the employed and employer, while tax changes will have an impact on gross wages and will change them. Thus, in many smaller firms in which the

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[8] Employers pay all three contributions on the base consisting of gross wages of the employed, at the rates at which these contributions are paid out of gross wages to the debit of the employed, while contribution payments by the employer are not included in gross wages of the employed. The total cost of labour is sometimes referred to as gross-gross wages in order to add contributions paid by the employer above gross wages.

union is not strong, the employer and employee agree on net wages, and it is probable that net wages will remain unchanged after a change in their taxation, while the benefit from reducing the burden will accrue to the employer.

This is a much more favourable scenario for encouraging economic growth, because it anticipates that net wages of the employed will not change after the introduction of tax changes. In this case the overall nominal reduction in the tax burden would be transferred to real life: the take-home wages of the employed would remain the same and the overall reduction in the tax burden of wages would bring about a decline in labour costs and provide impetus for higher employment and accelerated growth (whether this would lead to the real acceleration of growth is another question).

Simulation 3: The third, middle variant anticipates that the adjustment will be made partly through gross wages and partly through net wages. We hold that this is the most realistic opinion, as labour market segments are differently structured and the uniform reaction of all actors is unlikely. 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, while some will partly raise net wages by themselves and partly save on the cost of labour. The question posed 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 wages will increase and gross wages will decrease to a certain extent. The cost of labour will be reduced, due both to a decrease in gross wages of the employed and, even more so, to a decrease in employer payments for social contributions over gross wages.

Given the above, we shall make three simulations for the proposal: the first with fixed gross wages, the second with fixed net wages, while the third (middle way) is the average of the first two. In this way we shall obtain the zone of possible changes in net wages (the first two simulations) and the median one, which is the most probable.

The use of three simulations can also be regarded as a sensitivity analysis of the average variant or, in other words, an assessment of the effects of the maximum divergence from the basic, realistic variant.

The reduction in the tax burden of wages is certainly a good thing, both for the employed and employers, and the economy as a whole. However, the problem

arises when the bill has to be paid for reducing the tax burden and when new revenue sources have to be found to offset the budget losses. The authors of the mentioned proposals offered the value-added tax as a source of additional revenue. We shall also adopt the same strategy and, in the continuation of this analysis, increase VAT rates to the extent necessary to ensure the equality of revenues before and after the tax reform.

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

The authors of the Arsić study (2010, pp 23, 28) are also aware of an inevitable decrease in the population's consumption due to the VAT increase, and underscore its positive aspects from the economic viewpoint. They hold that the current consumption of the population is excessive, which is why it should be "discouraged" and "reduced to a lower level" by increasing the VAT burden. Naturally, this is not the place to discuss whether it is truly necessary to decrease consumption and whether the taxation of sales is the right way to achieve this.[9] For the moment, it is enough to understand the basic logic behind the proposal to be considered.

- The first step is to reduce the burden on wages, which would be shifted to an increase in net wages to the least possible extent and to a decrease in the cost of labour in the overall economy to the highest possible extent.
- The second step is to increase the taxation of consumption so as to offset the lost revenue due to the reduced taxation of wages, accompanied by a decrease in consumption as the desired aim in itself.
- The unmentioned but evident and inevitable consequence would be the overall deterioration in the position of the population, through a small or moderate

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[9] 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.

increase in net wages and a considerable loss due to more expensive goods consumed.

This means that the basic idea of the tax reform proposals is to reduce the burden on the corporate sector at the expense of the population in order to accelerate growth. Let us see whether and to what extent the empirical findings confirm these general considerations.

To recap, our reform proposal is as follows:

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

Effects on the Standard of Living

We shall carry out the three simulations (gross, net, and average) with wage tax changes based on the proposal of the group of authors, but with slightly different rates in the case of VAT: for each simulation we have determined special VAT rates (initial ones that are proportionally increased) in order to ensure revenue neutrality.[10]

After conducting three simulations of the CLDS model, i.e., after incorporating changes in the taxation of wages and consumption under this proposal, we obtained the following results for the median variant:

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10   We initially tested the proposal with VAT rates of 12% and 22%, but failed to obtain the revenue equal to the initial state.

Table 1. Basic aggregates, monthly, billions of dinars

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

As shown in Table 1, the total amount of net wages has increased relative to the initial amount by 2.1 billion per month, or 3.5%. In the simulation with fixed gross wages this increase is 7.0%, while in the simulation with fixed net wages there is no change by definition.

The total revenue from wage taxes decreased by 7.8 billion, whereby the structure was essentially changed: there is no revenue from contributions to health and unemployment insurance as they were abolished (a loss of 11.7 billion); revenue from contributions to old-age pension insurance decreased by 1 billion (due to the lowering of the base, i.e., gross revenues), while the revenue from wage taxes increased by 4.6 billion dinars. The total decrease in the revenue from wage taxes amounts to 8.2 billion dinars per month.

The total decrease in the cost of labour amounts to 6.1 billion dinars monthly, or 6.2% of gross-gross wages (or the total cost of labour for the employer) in the initial state. It is the result of tax reduction, on the one hand, and an increase in net wages, 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 17.3% in the second version.

After these global indicators of the average variant results, let us analyse movements in consumption – the main indicator of effects of tax reform on the standard of living.

Table 2. Effects of tax changes on real consumption

	Change, in %
Fixed gross wages	-1.2
Fixed net wages	-5.6
Average	-3.4

As can be seen in Table 2, the assessment made by the CLDS model shows that the overall effect of the proposal on consumption would be negative: it would be reduced in all three variants. 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 in the short to medium term, before possible effectuation of any gains of long-term economic growth.

In the average, basic variants, the decrease in the population's consumption as the result of tax reform is 3.4%. The major cause of such findings is the combination of the moderately positive effect of tax reform on wages, that is, income of the population, and the negative effect of an increase in the value-added tax. The unfavourable consequences of VAT increase clearly prevail over the favourable effects of reduction in the tax burden on the wages of the population.

In the variant that is the most favourable from the aspect of the population's consumption, whereby it is assumed that gross wages are fixed and that net wages increase by the amount of tax changes, the total consumption of the population decreased by 1.2%. This means that even if the employed part of the population derives the maximum gain from tax changes, the final balance for the population is negative, since the full gain, or even more, is taken away through additional sales taxation.

The loss incurred by the population even in the most favourable variant can be explained as follows: the beneficiaries of a reduction in the tax burden on wages are the employed (reduction in the tax burden on gross wages) and employers (abolition of contributions paid by them through gross wages), 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.[11]

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11 We say "in essence" because the equality of revenues from tax forms that change through the reform is insufficient. Both gains and losses can be recorded on the expenditure side: the gain from a decrease in the taxation of wages of the employed in the government sector, which brings about the disburdening of the budget; the loss arises from an increase in the

In the second variant (fixed net wages), the result is highly unfavourable for the employed and the population as a whole: total consumption would decrease by 5.6% relative to that before the reform, which is a major loss equal to the country plunging into an economic crisis. Employers would derive a transitory gain, which would melt away under market pressure. In a functioning market there is no room for extra profits of tax origin, due to competition that leads to (1) a decrease in the prices of goods and factors of production, as well as other costs, and (2) profit reduction to its normal level.[12]

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 confront the population with losses, at least in the short run. The limits of the minimum and maximum losses are presented in variants in Table 2, i.e., minimum and maximum consumption losses are 1.2% and 5.6% respectively.

We shall now consider the effects of this tax reform proposal on the status of specified demographic and socio-economic groups, that is, on their members' average standard of living. Let us start with urban and other (including rural) areas.

Table 3. Change in consumption by area, in %

	Average variant
Republic of Serbia – total	-3.4
Urban area	-3.6
Other area	-3.1

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

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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 wages, which occurs in the variants "fixed net wages" and "average".

12 Some economists and non-economists specialising in balance-sheet accounting hold the wrong view 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 permanent extra profit.

The reason can be sought in increased wage tax progression, which puts all individuals with lower wages in a better position, including in other areas compared to the urban areas, since wages in the latter are higher.

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 wages, while at the same time aggravating the status of those with high wages. Let us observe the comparison of wage tax progressiveness before and after the proposed reform.

Figure 1.
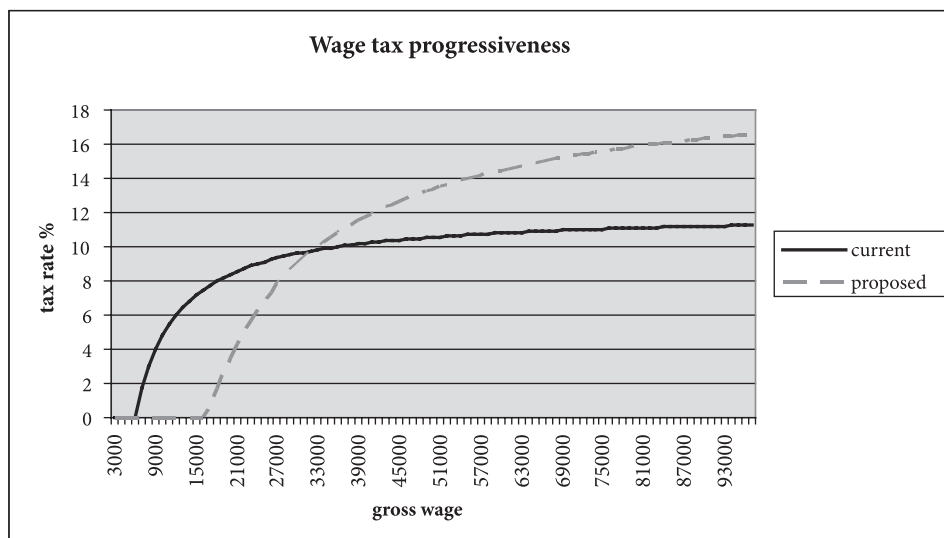
The graph shows the movements in the effective tax rate, depending on the amount of gross wages. The tax rate, which is proportional in nominal terms, is substantively progressive, since the non-taxable portion of wages does not exist. Thus, the rates gradually increase and converge to their nominal values only in the case of high wages, 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 representing the newly proposed wage tax system (broken line) has a steeper slope, implying 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 wages pay the wage tax at a lower rate (the left part of the graph), while persons with higher wages pay this tax at a higher rate than at present: the point of equalisation of tax rates of both models is between 32,000 and 33,000 dinars.

In other words, greater progressivenes of the wage tax leads, ceteris paribus, to the improvement of the status of those with low and lower wages, as well as to the deterioration in the status of those with medium and, in particular, higher wages, as the tax burden is partly shifted from worse-off to better-off individuals.

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

Table 4. Change in consumption by education level, 15+, in %

	Average variant
Incomplete elementary education	-3.3
Elementary school	-3.0
Secondary school	-3.4
Two-year post-secondary school	-3.7
University	-4.6

As can be seen, all population groups classified according to education level incur a loss in consumption relative to the initial state. However, their loss varies: less educated individuals (except for 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 wage tax progression: an increase in tax progression has improved the status of those with lower wages to a degree, while at the same time deteriorating the status of those with high wages.[13] The standard of living of both groups has declined, but of those with lower wages 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 wages in their disposable income and the resulting smaller effect of reducing the tax burden on wages.

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[13] Due to a very high correlation between education level and wages, the classification based on education level also adequately represents the relationships between wages and these groups.

The second factor of different effects of tax measures on specified population groups is the different share of wages in total income, that is, total disposable income. Although wages 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, followed by pensions (32.8%), etc. Thus it follows that tax reduction accounts for only one half of population resources, while the other half remains unchanged and its owners are affected by the VAT increase as a whole. In other words, those who receive wages reduce their losses from the increase in VAT through reducing the tax burden of wages, while those with fixed income incur losses from the VAT increase as a whole.

The third factor, which essentially contributes to the explanation of the results that follow, is that 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 members of a specified group does not depend only on them, but also on other household members – those who contribute with their wages and those who have no wages and are dependent. For example, the consumption of one unemployed member depends on the income (and tax) of another household member and not on him/her.

Differences between genders would be minimal. A change in consumption of men would be -3.4% and women -3.5%. Regardless of any differences in income, the joint life and joint consumption of most men and women make them share the same destiny and have equal living standards, in addition to being exposed to the same influences of tax policy.

Table 5. Change in consumption by socio-economic status, 15+, in %

	Average variant
Self-employed	-4.0
Employed	-3.0
Unemployed	-3.5
Pensioners	-3.4
Other economically inactive	-4.3

Differences in the socio-economic status are not great either, and the proposed tax changes would have a similar effect on most citizens. The employed would fare a little better because their wages will be disburdened, but they usually

have dependent household members, while those being economically inactive (excluding pensioners) would fare a little worse, as someone from the mentioned groups supports a significant percentage of them.

Table 6. Change in consumption by age (1), in %

	Average variant
0 – 6	-3.4
7 – 14	-2.8
15 – 19	-3.3
20 – 64	-3.5
65 and over	-3.5

Losses in the standard of living of the basic population cohorts by age are also equalised. 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.

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 among "adults" of the oldest people who are economically inactive, without pension, and who "spoil" the average of adults to a degree. Thus, it turns out that children, a vulnerable group of special interest for this research, would not fall into the groups being especially affected by the proposed tax reform.

Table 7. 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 average, a decrease in the standard of living occurs regardless of the household size. While medium-sized households (from two- 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 higher-than-average result can be sought in the size of single-member pensioner households that have fixed incomes (pensions) 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 wage taxes, which improves the relative status of those with low wages.

Individuals living in households with children would be faced with a smaller decrease in the standard of living than those living in childless households (-3.1% vs. -3.7%). The reason is that children usually live in households with their parents who are employed and earn wages that 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.

Effects on Poverty

Absolute poverty in Serbia is still pronounced. During the crisis it started to increase again for the first time after the October 2000 change, implying that additional effects of any government intervention on its increase can be considered highly unfavourable.

As 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 deal with the average variant.

The proposed tax reforms would bring about an increase in poverty in Serbia. The poverty rate would increase from 6.9% (2009) to 7.3%, while the number of poor people would rise by about 30,000. Poverty would only not increase if all tax change effects on income spill over fully into an increase in net wages (lowering the rate to 6.7%). On the other hand, unchanged net wages, as another extreme of the possible effects, would trigger an increase in the rate to about 8.0%, while the number of poor people would exceed 600,000. Even under this scenario, the poverty rate would still be below its record level of 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 of urban centres. In poor households in rural and suburban areas, income from wages is lower and positive effects of increased net wages on consumption would therefore be smaller. Whereas the urban population's wages from regular employment accounted for 48.6% of total cash income in 2008, in the first consumption decile, i.e., among the 10% of poorest Serbian citizens, they accounted for only 32.5%. Also, the first decile is dominated by the population

living outside of 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" a geater proportion of this population group into poverty.

Table 8. Poverty rate, total, urban, and other areas, in %

	Initial state	Average version
Total	6.9	7.3
Urban area	4.9	5.1
Other area	9.6	10.2

The proposed tax changes would trigger an increase in poverty in 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 than other age groups in households where someone is employed, meaning that they would not benefit from an increase in net wages: instead, they would only incur loss from VAT increase.

Table 9. Poverty rates by age group, in %

	Initial state	Average version version 2
0 – 6	9.8	10.2
7 – 14	9.6	10.2
15 – 19	7.9	8.3
20 – 64	6.0	6.2
65 and over	7.5	8.6

In terms of age, poverty among men and women will increase to almost the same extent. As usually shown by the gender analyses of poverty in Serbia, the poverty profile cannot be explained by gender differences.[14]

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 the poor population older than 15, and their poverty rates are increasing more than proportionally, reaching nearly 18%.

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14   Matković *et al* (2010).

A 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.

A 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 10. Poverty rates by education level, older than 15, in %

	Initial state	Average version
Incomplete elementary school	16.7	17.9
Elementary school	9.5	10.0
Secondary school	3.8	4.0
Two-year post-secondary school	1.4	2.0
University	0.4	0.4

In terms of socio-economic status, poverty increases in all segments, with the exception of the employed, which is also consistent with changes in consumption of the total population. Among other population groups, poverty rates especially increase among pensioners, which can be primarily explained by the fact that their incomes do not increase due to wage 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 wages.

Table 11. Poverty rates by socio-economic status, persons older than 15, in %

	Initial state	Average version
Self-employed	5.1	5.4
Employed	3.7	3.7
Unemployed	14.3	14.7
Pensioners	5.3	6.1
Other economically inactive	9.2	9.7

An increase in poverty due to the proposed tax changes can be expected regardless of household type. However, as 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, are distinguished by deterioration in their status. High poverty rates are especially recorded among 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 deterioration in the status of pensioners and elderly persons, for the above reasons.

Table 12. Poverty rates by household structure, in %

	Initial state	Average version
With children	8.2	8.5
Married couple with children	6.2	6.4
One child	3.3	3.3
Two children	4.8	5.2
Three or more children	13.3	13.3
Other households with children	9.2	9.4
Childless	5.7	6.2
All members older than 65	8.5	10.1
Without employed and self-employed	9.0	10.5

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

- An increase in poverty would be recorded in all population groups, and, although not dramatic, would occur in the middle of the economic crisis, which is unfavourable.
- How these changes affect specified groups among the poor depends largely on the households in which the individuals live.
- The greatest deterioration in status would be for persons living in fixed-income households; in other words, in households where pension income dominates (pensioners, persons above 65, persons living in single-member, two-member, and childless households).
- Greater deterioration would occur among persons living in households with a lower share of wages from employment (other areas, households without employed, and self-employed persons).
- Greater deterioration can also be observed in population segments that are densely concentrated above the poverty line (persons with incomplete elementary school).

- Altogether, the greatest deterioration, in terms of the highest increase in poverty rates, would be among persons aged 65 and over, pensioners, persons living in two-member households, households whose members are aged 65 and over, and households without employed and self-employed members.
- Finally, at least 30,000 persons can no longer satisfy their basic needs in the very midst of the crisis. Is this the right time for the tax reform?

5. CONCLUDING REMARKS

1. The above analysis has shown that, among other things, the proposed reform of the tax system would result in:

- Losses in the consumption of the Serbian population, i.e., a decrease in the average standard of living.
- An increase in poverty in Serbia, as a general decrease in the standard of living would also affect the poorest people.
- Different effects on specified demographic and socio-economic population groups, although these differences are not distinct.

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

We have called these effects short-term or income effects, as the tax reform may 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 definitive and even more pronounced due to a decrease in economic activity (caused by falling consumption and income), inflation, and the like. If the reform props up long-term growth, the effects would only be transitional.

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

- The negative effect of the VAT increase on the population's consumption prevails over the positive effect of lowering wage taxation, and consumption therefore decreases.
- The standard of living declines, particularly among fixed-income households that will not benefit from wage tax reduction.

- The relative status of individuals with lower wages is slightly improved by an increase in tax progression, but is, however, aggravated by the modest average share of wages in households' disposable income.
- Negative effects among different individuals are alleviated if they live in one household where they have an equal share in a joint income.

2. The inevitable question is whether something should be done in order to eliminate or alleviate the negative effects of tax changes, particularly on vulnerable groups, and what should be done. We consider such focus unnecessary for several reasons:

- Deterioration in the standard of living did not particularly adversely affect any population group, and government intervention therefore would not be necessary to maintain living standards of any particular group above the poverty line.
- A new law on social protection is being drafted, which anticipates a considerable increase in social assistance (MOP), the basic instrument of supporting the poor.
- New financial support would disrupt the concept of revenue neutrality, i.e., it would require additional funds from the budget. It would therefore be necessary either to reduce the funds earmarked for other purposes, or to additionally increase VAT, which would produce additional negative effects on the population's consumption. In the case of non-targeted support, mitigating the decrease in the standard of living in general would entail extremely large funds, surpassing the current budget financing possibilities.
- Finally, the tax reform may spark acceleration of economic growth in the longer term, implying that gains could be used to offset the initial losses of the population. On the other hand, the introduction of provisional programmes for the protection of specified population groups is not advisable as it is very difficult (in political terms) to revoke them once they are no longer needed.

3. More broadly considered, several other important reform-related issues must be underlined as well.

First, pension insurance contributions should not be reduced during the potential tax reform, as their sharper reduction would significantly push up the budget deficit, or would trigger a considerable increase in VAT rates. Furthermore, the financing of pensions that only one part of the population is entitled to, with one half already financed from the budget, is not equitable (pensions are also financed by persons who will never be entitled to them), while any further increase in the

share would further aggravate the situation. Such an error has not been made in the study which is the subject of this analysis, but the threat is underlined in other papers (e.g., Arsić and Altiparmakov (2010)).

Second, the abolition of health insurance contributions is one of the key proposals of the government's study. A change in the concept of health care financing (including the related question of who is entitled to state health services and to what extent, what changes in the demand for health services will take place, what financial effects are expected, etc.) is a very serious issue and its effects should be considered in detail before making a reform decision. It would certainly be unadvisable to proceed only from the taxation point of view and make a decision of far-reaching importance for an activity that accounts for almost one-tenth of GDP. Instead, it is necessary to conduct broad research and debate.

Third, another question raised relates to the time at which the taxation policy was proposed and its clear outcome – an increase in poverty, at least in the short term. The crisis prompted an increase in poverty in 2009. However, according to the preliminary results of the Republican Statistical Office, its negative effects were even stronger in 2010, when the poverty rate rose to 9.2%. It can be estimated that during 2010 the combined effects of the crisis and tax reform would have resulted in an increase in the proportion of poor people to over 10%. Such a high increase in the number of poor people, unable to satisfy even their basic needs, calls for caution. Deterioration in the social situation for the sake of uncertain gains in the future is hardly acceptable at this moment.

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