

THE EFFECT OF INCOME TAX CHANGES ON INCOME OF HOUSEHOLDS

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ABSTRACT. *The effect of income tax changes on income of households. This research aims to analyse the effect of income tax reform in progress on income of households. For the purpose of analyses, households have been distributed between income groups, based on their income. Effect on income of households was analysed by household groups. Different development alternatives were applied to assess the estimated effect of minimum basic exemption and income tax rate. The first development scenario or the changes arising of amendments to the Income Tax Act would help the households with the largest income to save most compared to the reference alternative. Implementation of the other alternative or linking basic exemption to gross minimum wages while not changing the income tax rate (26%) would have more positive effect on households with lower income, meaning approximately 50% of the households in Estonia's case. The second development scenario allows to decrease progressive wealth-based stratification, while improving the financial coping of population with lower wages and expectedly diminishing the demand for social benefits.*

Keywords: *income tax, income of households, saving.*

Introduction

Over the last couple of years, political circles of Estonia have discussed the changing of the principles of established income tax policies. Two alternative approaches can be distinguished clearly: from one side, the idea for progressive taxing, outspoken by centrist forces, and continued proportional taxation, accompanied by reduction of income tax rates applicable and increased basic exemption rates, supported by the right-wing forces. Linking of basic exemption with gross minimum wages while not changing the income tax rate (26%) is the third option that, so far, has not been given much attention.

The first two recommendations are of somewhat conjuncturist nature and clearly aimed at achieving popularity among the electorate. The impact that the measures devised may have on state budget have been studied, but no analysis has been conducted to learn about the impact such measures may have on the income earned by different groups of population. A. Kaasa has studied factors influencing inequality in income in her doctoral thesis. She also states that the relations between financial sector and unequal income have been studied too little (Kaasa, 2004). Income of individuals and formation of wealth among different age groups has been studied more in depth by S. Lollivier (Lollivier, 2004). Relations between wealth and power in society have been studied, based on example of Russia (Lokshin, Ravallion, 2005). As far as known, results of studies, concerning combined influence of taxing policies and income have not been published. The purpose of this article is to analyse the effect of ongoing income tax reform on income of households. The paper attempts to find answers to questions whether and to what extent changes in income tax rate or basic exemption can be expected to influence income of households.

Material and Methods

This research paper analyses the effect of proportional taxing of income, established with the Income Tax Act (Income Tax Act 1999), reduced income tax rates and increase in basic exemption to the income of households. The possible outcome has been compared to two comparative options:

- so-called reference alternative or a situation that would have prevailed if legislation had not been changed;
- alternative option with basic exemption linked to minimum gross wages whereas the income tax rates remain the same (26%).

Information of Statistical Office of Estonia, concerning the income of households in 2000–2003 and data on the collection of taxes paid to Estonian state budget in years 2002–2003, real income tax rates and basic exemption applicable over that period and changes concerning the latter, expected to take place until year 2007, serve as the basis for this study. The effect of revenue transfers has been eliminated for the purpose of observing the income of households.

For the purpose of analyses, households have been distributed between income groups, based on their income; net income per household, compared to gross minimum monthly wages, serves as the basis for the distribution. Income groups are distributed as follows:

- I group** – households with the household net income per capita up to one gross minimum wage per month;
- II group** – households with the household net income per capita between one to two gross minimum wages per month;
- III group** – households with the household net income per capita between two to three gross minimum wages per month;
- IV group** – households with the household net income per capita between three to four gross minimum wages per month;
- V group** – households with the household net income per capita exceeding four gross minimum wages per month.

The estimated effects of changes in income tax situation are applied to the income of households by the same groups and compared to the reference situation, where no changes were applied.

Income of households

According to the estimates, there were 616 thousand households in Estonia in 2000; the respective number dropped to 566 thousand by year 2003 (Statistical Office, 2002, 2003). Over that period the average number of members in household was 2.4; respectively, 2.3 in town and 2.5 in the countryside. Average household size indicator is used for the purposes of this study.

Figure 1 shows that in 2000, the relative share of households belonging to the first group was 28.5% of households; their number had grown to 46% by 2003, the growth being 61.4%. Increasing number of households receiving lower income is attributable to dropping number of households receiving larger income. In 2000, the share of households belonging to the second group totaled to 47.7%, having dropped to 38.1% by year 2003, the decrease being 25.2%. Tendency to decline is also notable in other income groups.

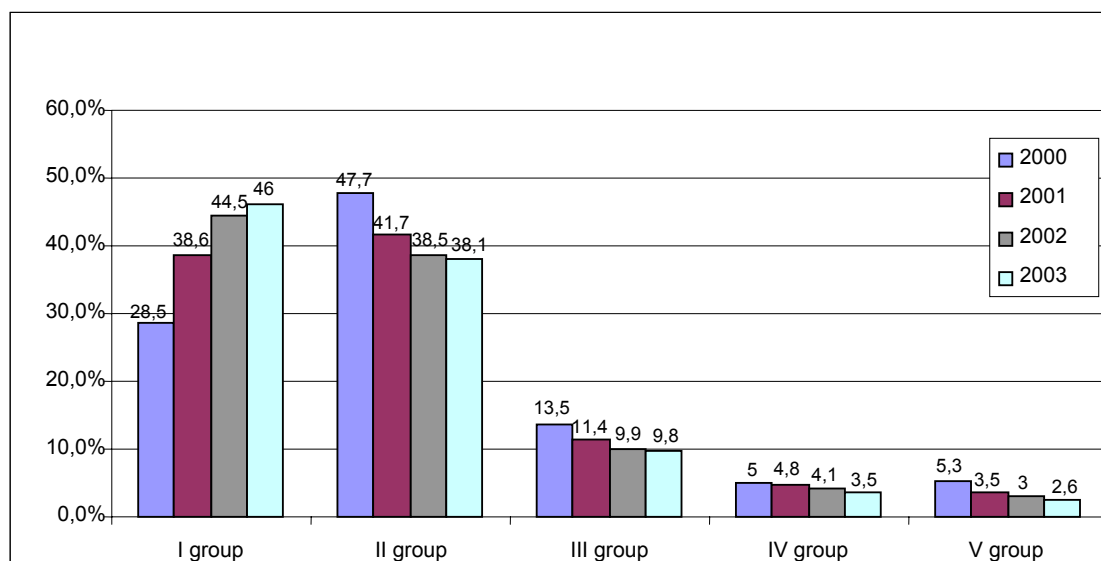


Figure 1. Distribution of households based on net household income per capita according to gross minimum wages in 2000–2003, given as percentage

Source: Statistical Office of Estonia

If similar tendency continues, the relative importance of the first income group may increase to 52% by 2007 while the relative share of the second income group can be expected to drop to 36.5% of total number of households (Figure 2). Statistically, increase in relative number of households in the first income group on account of the other income groups is brought on by growth of minimum gross wages. As the result, a certain number of households are transferred to a lower income group while the number of households belonging to income group with larger income is dropping. Therefore, relative impoverishment can be noticed among Estonia's population. This problem is most notable in rural areas. For example, in 2001, the income gained from paid employment was the highest in Harju county, amounting to 68.4% of household's net income per capita. The lowest income was in Põlva county, amounting to, respectively, 50.2% per capita. The importance of income transfers was the highest in Harju county, totaling to 19.7% of household's net income per capita. The importance of the respective indicator was the highest in Valga county, amounting to 37.9%.

Minimum gross wages amounted to 1,400 kroons in 2000, going up to 2,160 kroons in 2003 (Figure 3).

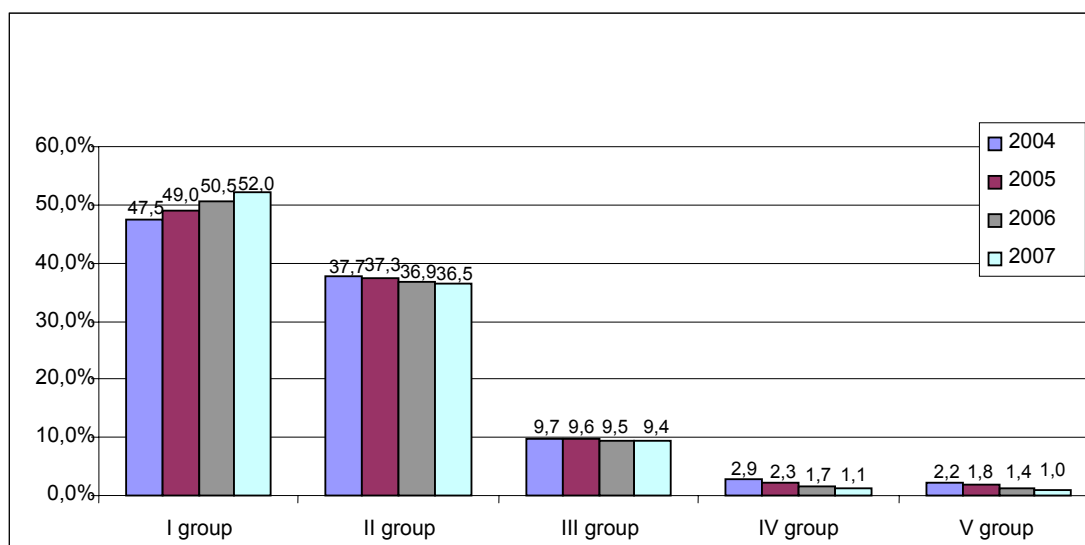


Figure 2. Distribution of households based on net household income per capita according to gross minimum wages in 2004–2007, given as percentage

Source: Prepared by the authors

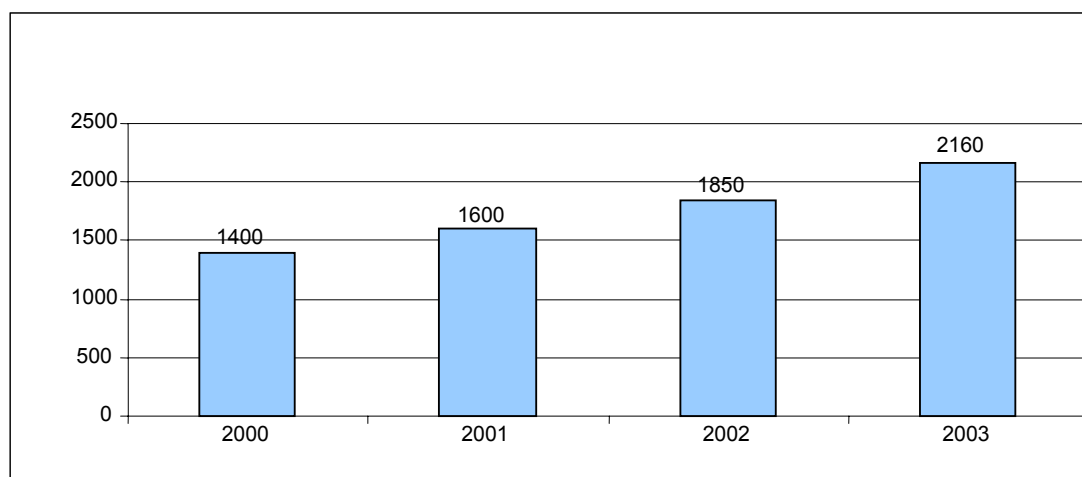


Figure 3. Minimum monthly gross wages in 2000–2003, in kroons

Source: Statistical Office of Estonia

In 2000–2003, the average minimum gross wages increase was 16% per annum; the growth rate was largely the same also in year 2004 (Figure 3 and 4). The growth of average gross minimum wages slowed down in 2005 and 2,690 kroons per month was established as the gross minimum wages. According to the authors, the growth in average minimum gross wages is expected to remain around 10% per annum in next years.

According to the information of the Statistical Office, net income of households consists of revenues gained from paid employment, income from individual labor, transfers (including pensions, child benefits, etc.), other income and non-monetary revenues. Transfers not being subject to income tax are dominating in income of households belonging to the first and the fifth groups. According to the opinion of the authors, relatively larger importance of dividend revenues can be assumed in the case of households belonging to the 5th income group; individual income tax is not imposed on dividends.

Figure 5 shows the relative importance of monetary income gained from paid labor in the income of households. The indicators shown also serve as the basis for calculating the expected effect of changes in income tax system.

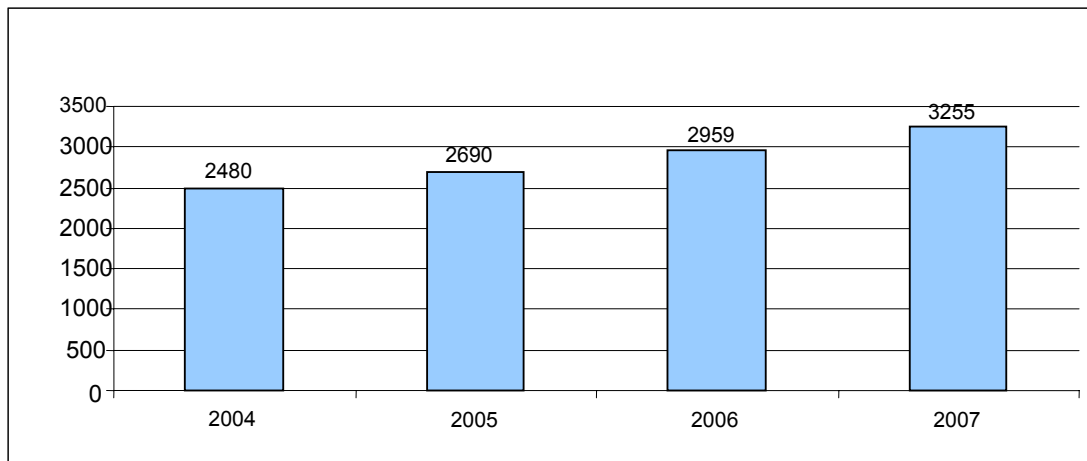


Figure 4. Minimum monthly gross wages in 2004–2007, in kroons

Source: Prepared by the authors

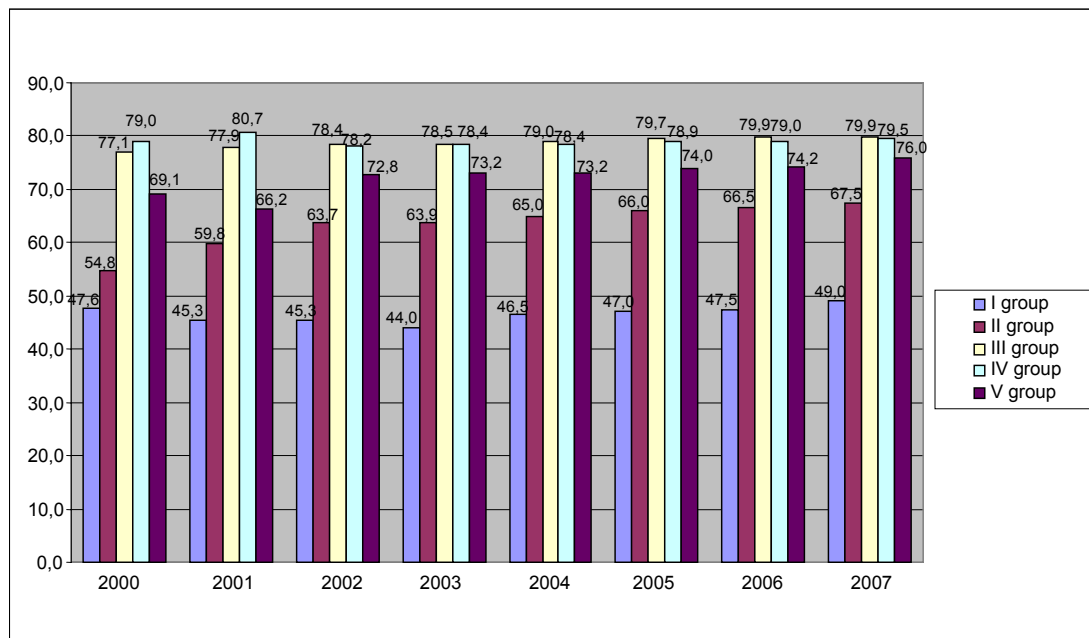


Figure 5. Relative importance of monetary income gained from paid labor in the income of households in years 2000–2007, given as percentage

Source: Prepared by the authors

Income tax changes and their effect on income of households

The following section of the paper studies the effect of changed income tax rate or basic exemption on the income of households. Basic individual exemption rate in 2000–2003 was 12,000 kroons per annum. Individual income tax rate, imposed on wages and equivalent income, has been 26% over the same period.

As of year 2004, annual individual basic exemption, established with the Income Tax Act, amounts to 16,800 kroons. As of year 2006, the basic exemption goes up to 24,000 kroons (Figure 6). The Income Tax Act sets out decrease in income tax rate (Figure 7).

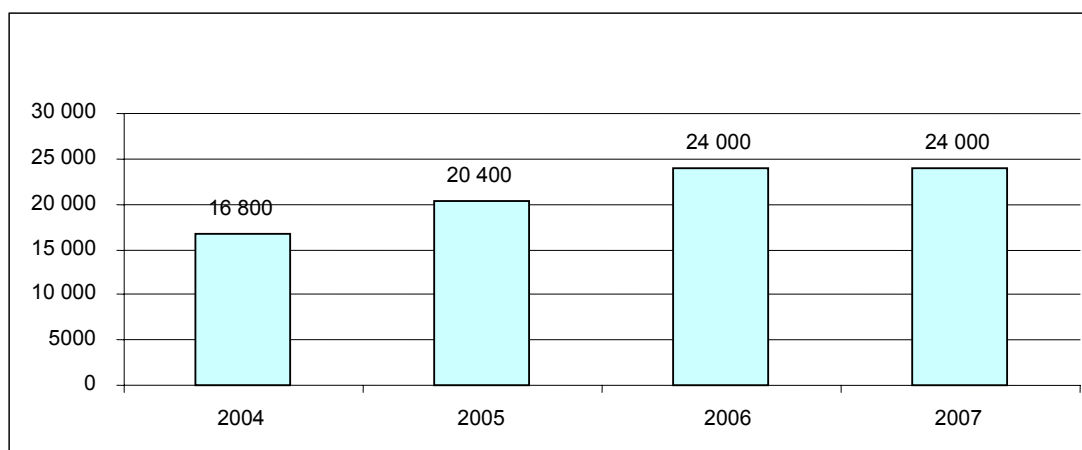


Figure 6. Annual individual basic exemption in 2004–2007, in kroons

Source: *Income Tax Act*

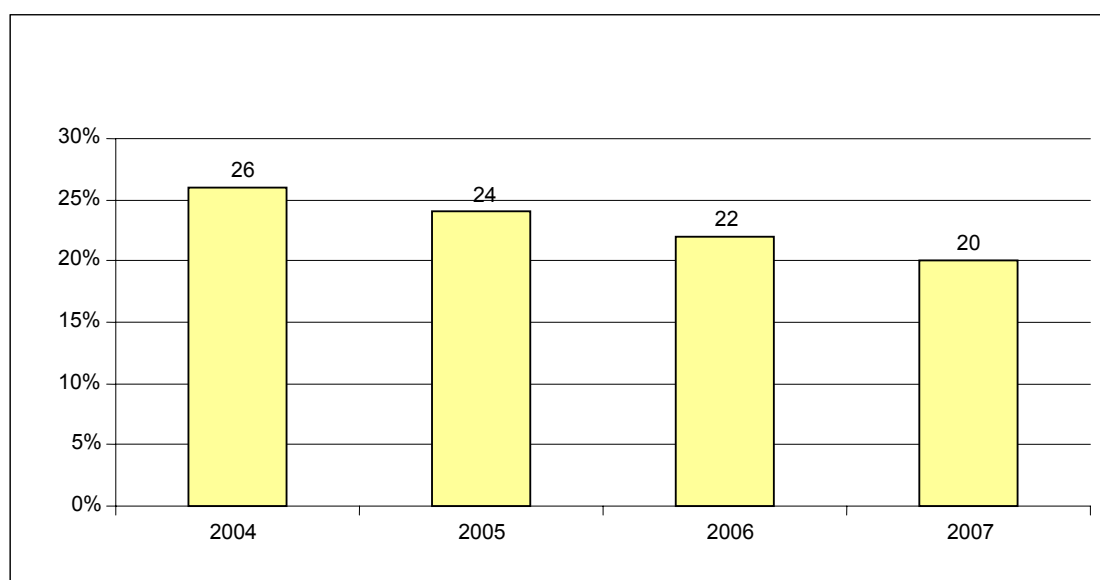


Figure 7. Income tax rate, imposed on individual's wages and equivalent income in 2004–2007, given as percentage

Source: *Income Tax Act*

Three different development alternatives have been studied to analyse the effect that changed basic exemption rate and income tax rate may have on income of households.

In case of the reference alternative the calculations are based on unchanged basic exemption and income tax rate for the whole period under study (Table 1). Principles shown in Figures 1 and 2 were observed for grouping households. Relative importance of monetary income obtained from paid employment, used for calculation purposes, is based on indicators, shown in Figure 5.

Table 1. Basic data for reference alternative and development scenarios

	2002	2003	2004	2005	2006	2007
Reference alternative						
Annual basic exemption, kroons	12000	12000	16800	16800	16800	16800
Income tax rate, %	26	26	26	26	26	26
First alternative development scenario						
Annual basic exemption, kroons	12000	12000	16800	20400	24000	24000
Income tax rate, %	26	26	26	24	22	20
Second alternative development scenario						
Annual basic exemption, kroons	22200	25920	29760	32280	35508	39060
Income tax rate, %	26	26	26	26	26	26

The first development alternative is based on income tax reform currently in process. When compared to the reference alternative, changes in basic exemption and income tax rate until year 2007, arising of the Income Tax Act amendments, serve as changes.

As for the second alternative development scenario, established and estimated gross minimum wages serve as basic exemption rate (Table 1). 26% serves as the income rate over the whole period observed.

Indicators characterizing reference alternative and the second development scenario have been compared to study the possible effect of alternative development scenarios on the income of households. The analysis revealed that if the basic exemption would have been increased to minimum gross wages – at the income tax rate applicable – the households in I group would have save 460 kroons per annum in 2002 while households of income groups II–V would have equally saved 3,978 kroons. As for the state and local government budget, this would result in undercollection of approximately 1.46 billion kroons of individual income tax.

In 2003, group I would have saved 1,369 kroons in case of the aforementioned scenario while the savings of groups II–V would have equally totaled to 5,429 kroons per annum. Undercollection of individual income tax to the state and local government budget would have been 1.74 billion kroons.

In 2004, group I would have saved 481 kroons and groups II–V equally 5,055 kroons per annum. Undercollection of individual income tax to the state and local government budget would have been 1.64 billion kroons. The dynamics of relative saving in 2003–2004 is comparable to year 2002.

When analysing the relative importance regarding the collection of income tax to state and local government budget, one can observe considerably larger importance of groups II and III (Figure 8).

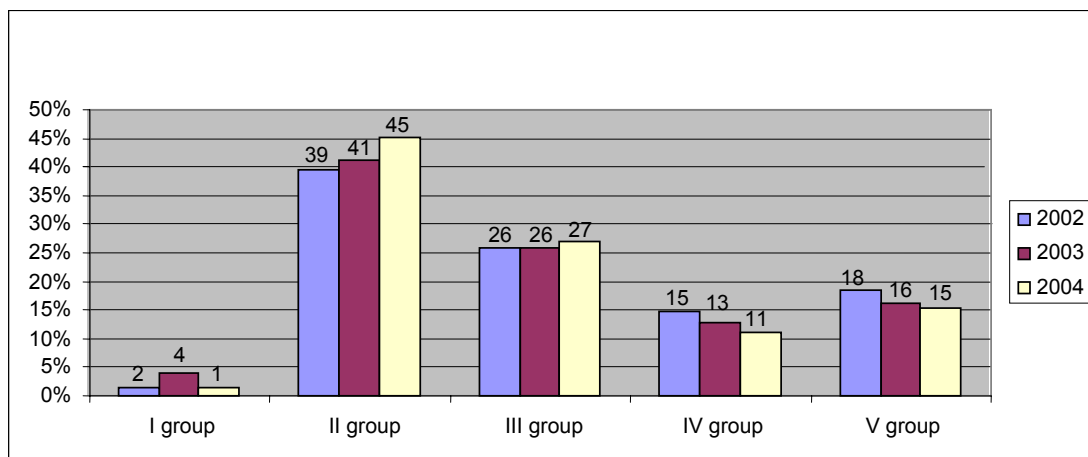


Figure 8. Relative share of collection of income tax from income groups to state and local government budget in 2002–2004, expressed as percentage

Source: Prepared by the authors

In the following the results expected of the first and second development scenarios over years 2005–2007 have been compared. In 2005 one can clearly observe a difference between the first and the second development scenario (Figure 9).

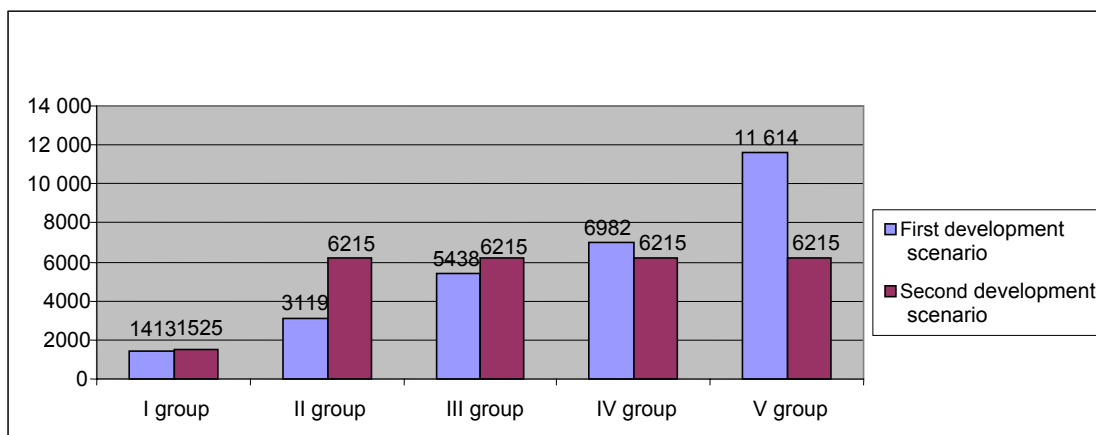


Figure 9. Differences in saved income tax in households groups in 2005 in case of the first and the second development scenario, compared to the reference alternative, in kroons

Source: Prepared by the authors

In case of the first development scenario or according to the amendments enacted with the Income Tax Act, the savings on account of income tax would be the largest in groups with the largest income or groups IV and V, only amounting to 4.1% of the total number of households. In case of groups II and III, the effect gained with the first scenario would be less effective than that introduced by the second scenario. Such households amount to 46.9% of total number of Estonian households. Implementation of one of the scenarios would have a limited and more or less similar effect on group I households. Such households amount to 49% of total number of households. Relatively limited effect on group I households is contributable to their small taxable income and related low income tax burden.

If compared with the reference alternative, implementation of terms and conditions characterizing the first development alternative would result in undercollection of approximately 1.55 billion kroons to state and local governments' budget while the implementation of the second development alternative would decrease the collection of income tax by approximately 2.21 billion kroons.

In 2006, the household groups with the largest income or groups III, IV and V, would gain the most if the first development scenario was implemented (Figure 10). According to the estimates, such households contribute 12.6% of the total number of households in 2006. Implementation of the second development scenario would have to most considerable effect on group II households, estimated to contribute 36.9% of total number of households. As for group I households, the effect is expected to be largely the same regardless of the scenario chosen. According to the estimates, 50.5% of households belong to this group in 2006. Therefore, respectively, 36.9 % of households would gain and 12.6% lose if the second development scenario was to be implemented.

When compared to the reference alternative, implementation of the first development alternative would reduce the collection of income tax to state and local government budget by approximately 3.14 billion kroons while the reduction would amount to approximately 2.89 billion kroons in case of the second development alternative. Therefore, the second development scenario would allow to cut the state budget deficit by 250 million kroons already in 2006.

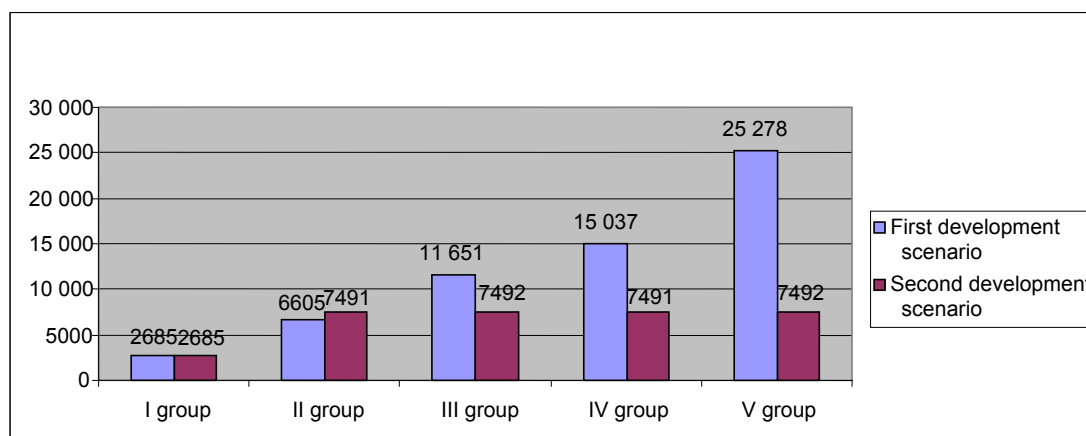


Figure 10. Differences in saved income tax in households groups in 2006 in case of the first and the second development scenario, compared to the reference alternative, in kroons

Source: Prepared by the authors

According to the first development scenario, the same trend is supposed to continue in 2007; the savings would, once again, be the largest in household groups III, IV and V (Figure 11). According to the estimates, such households amount to 11.5% of the total number of households in 2007. Group II households have no remarkable advantages regardless of whether the first or the second development scenario is implemented while the implementation of the second development scenario would start to have some positive effect on group I households. Therefore, in 2007 the implementation of the second development scenario would have considerable positive effect on major share of households.

When compared to the reference alternative, implementation of the first development alternative would reduce the collection of income tax to state and local government budget by approximately 4.21 billion kroons while the reduction would amount to approximately 3.67 billion kroons in case of the second development alternative that is supposed to have positive effect on approximately 88.5% of households. Therefore, the second development scenario would allow to cut the state budget deficit by 250 million kroons already in 2006.

The income tax reform in progress is expected to reduce considerably the income tax burden on households with bigger income while contributing to wealth-based stratification of the society. The second development scenario allows to decrease progressive wealth-based stratification. According to the second scenario the households earning less would have to pay considerably less income tax. Tax burden on households earning bigger income would somewhat increase (Figure 12).

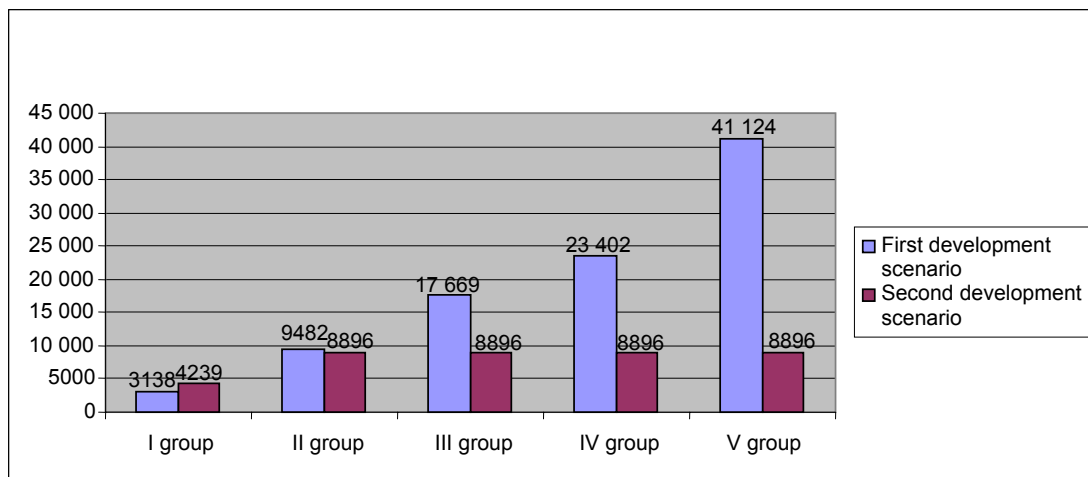


Figure 11. Differences in saved income tax in households groups in 2007 in case of the first and the second development scenario, compared to the reference alternative, in kroons

Source: Prepared by the authors

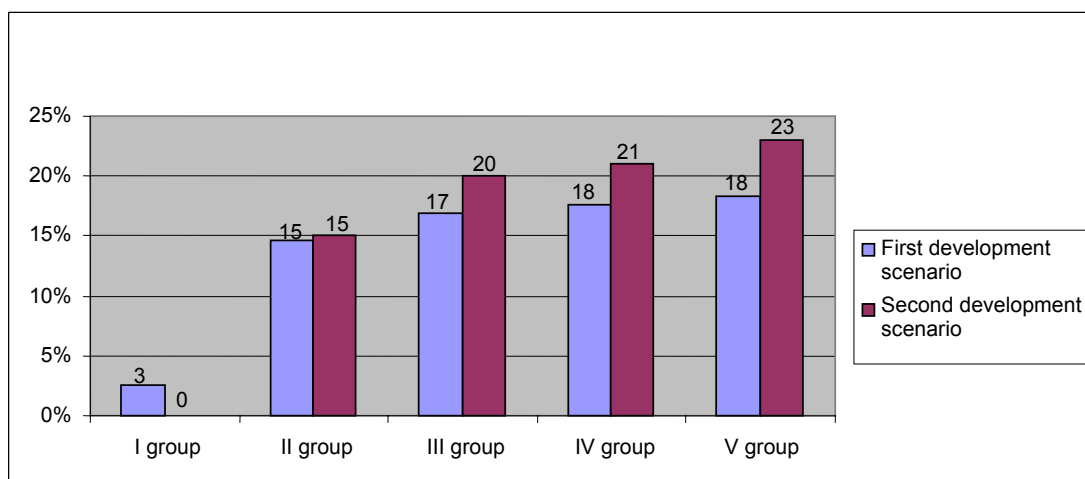


Figure 12. Estimated effective income tax rates in different household income groups in 2007, expressed as percentage

Source: Prepared by the authors

Effects accompanying the implementation of the second development scenario would be improved financial coping of population with lower wages, expected to diminish the demand for social benefits. Also, unemployment and pressure on wage increase, applied by household members earning lower wages, are expected to decrease. Implementation of such a scenario is expected to have beneficial effect on economic situation of rural population, above all.

Conclusions

Over the last couple of years, political discussions have focused on changing the current principles for imposing income tax. There are two clearly distinguished different approaches: the first would bring along progressive taxing while the other one would mean continued imposing of proportional taxing, accompanied with reduced income tax rates and increased basic exemption.

The impact that the measures devised may have on state budget have been studied, but no analysis has been conducted to learn about the impact such measures may have on the income earned by different groups of population. This paper aims to analyse the effect of income tax reform in progress on income of households. For the purpose of analyses, households have been distributed between income groups, based on their income. Effect on income of households was analysed by household groups. Three different development alternatives were applied to assess the estimated effect of minimum basic exemption and income tax rate.

One can clearly see that the first development scenario or the changes arising of amendments to the Income Tax Act would help the households with the largest income to save most when compared to the

reference alternative. Implementation of the second alternative or linking basic exemption to gross minimum wages while not changing the income tax rate (26%) would have more positive effect on households with lower income, meaning approximately 50% of the households in Estonia's case.

The second development scenario allows to decrease progressive wealth-based stratification, while improving the financial coping of population with lower wages and expectedly diminishing the demand for social benefits.

References

Income Tax Act. RT I 1999, 101, 903.

Funded Pensions Act. RT I 2004, 37, 252.

Kaasa, A. 2004. Sissetulekute ebavõrdsuse mõjurite analüüs struktuurse modelleerimise meetodil. (Analysis of the Factors of Income Inequality: The Structural Equation Modelling Approach). Doctoral thesis, University of Tartu. Tartu, p. 37–38.

Leibkonna elujärg 2000. (Household Living Niveau 2000). Statistical Office of Estonia, 2001, p. 14–16.

Leibkonna elujärg 2001. (Household Living Niveau 2001). Statistical Office of Estonia, 2002, p. 25–34.

Leibkonna elujärg 2002. (Household Living Niveau 2002). Statistical Office of Estonia, 2003, p. 28–32.

Leibkonna elujärg 2003. (Household Living Niveau 2003). Statistical Office of Estonia, 2004, p. 29–36.

Lokshin, M., Ravallion, M. Rich and powerful? Subjective power and welfare in Russia. – Journal of Economic Behavior and Organization. Volume 56, 2005, p. 141–172.

Lollivier, S. 2004. Dynamics of Individual Wealth Accumulation. *Economica*, Vol. 71, p. 589–618.

Unemployment Insurance Act. RT I 2001, 59, 359.