

# ECONOMIC CRISIS AND ECONOMIC POLICY IN ESTONIA 2007-2010

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## Abstract

Estonia suffered the deepest economic crisis of its history in 2007-2010; also, the crisis was one of the most troublesome ones among the member states of EU and among the industrialized countries worldwide. The paper deals with main indicators describing the size and dynamics of the crisis and with the economic politics of government in the period. The latter one can be characterized by delay in giving estimation to economic processes and the lack of means against the crisis. At the same time government erected task to join euro at any price. The economic reactions were centred on it. The taxes were lifted and the costs were cut down in order to balance the budget at the highest peak of the crisis, it was done also in the middle of the budget year. All the criteria to join euro were succeeded to fulfil for a certain period (today the inflation is much higher again), but the difficulties of the crisis were magnified. The paper doesn't give prognosis for the development of Estonian economy in euro zone, neither does it give any variances of economic politics for next years.

**Keywords:** economic crises, euro, budget balance, taxation, development

**JEL Classification:** H2, H24, H3

## Problem erection

The deepest economic crisis of Estonian history began in 2007. I don't want to argue whether the crisis is over or not; the purpose is to assert the fact that its severe results in economic would be felt for years. It's didactical to analyze the course of the crisis and to observe, which economic political measures and when were taken at the time of the crisis and which were their results. An analyse of that kind gives good assumptions for coping with new crises.

The analysis didn't attempt to find any formulas from specialized literature as firstly, according to our knowledge there aren't any generally accepted ones, and secondly, the specific situation of Estonia (and Latvia and Lithuania) doesn't give the possibility to use many methods and formulas, suitable for usage in world, for the analysis of economic processes with sufficient accuracy. Also, the author didn't try to construct his own theory or formulas. The analysis has been performed on the basis of classical and widely spread methods of research.

The paper is of a mildly unusual structure due to the above mentioned reasons. Instead of usual theoretical initial part and consequent practical part it begins with the description of the situation, which is followed by the observation of concrete economic political steps. The theoretical treatment of each concrete economic

political reaction (if it has been considered to be necessary) has been given together with the analysis of its practical usage.

All the data are given in Estonian kroons (EEK) as this was the currency of Estonia in the period. Kroon was fixed with euro (1 Euro = 15.6466 kroons).

### Extent of crisis

In order to understand the extent of economic crisis of 2008-2010 in Estonia we'll bring out its main features and compare them with the other EU states.

The economic crisis is above all characterized by two main characteristics: its duration and its deepness. All the other features are considered less important; also, their use or disuse depends also on specificity of concrete crisis. The data have been demonstrated in table 1.

**Table 1.** Dynamics of tax funds, wages, unemployment and GDP in 2007-2010 (per cents in comparison with the same quarter of the last year)

Period	2007				2008			
	I	II	III	IV	I	II	III	IV
GDP	9,8	7,6	6,4	4,5	0,4	-1,4	-3,3	-9,9
Tax revenues	27,6	28,4	18,6	18,2	10,2	5,7	7,1	-2,8
Average wage	20,1	21,2	12,9	20,2	19,5	15,2	14,4	6,9
Unemployment (%)	4	3,9	4,1	4,1	16,2	16,2	16,2	16,2
Period	2009				2010			
	I	II	III	IV	I	II	III	IV
GDP	-15,1	-16,5	-15,6	-9,7	-2,4	1,7	3,1	6,2
Tax revenues	-10,1	-12,1	-13,6	-10,9	5,7	-2,2	-1,0	2,2
Average wage	-1,5	-4,4	-5,9	-4,9	-2,3	-1,7	-0,7	
Unemployment (%)	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2

Source: Homepages of Ministry of Finance. <http://www.ee/index.php?id = 233;> Eurostat.

Economic depression (and other negative phenomena) of Estonia turned out to be enormous and exceeded greatly the average ones of EU. The decrease of GNP (2008 - 5.1%; 2009 -13.9% and in the 1<sup>st</sup> quarter of 2010 it was still -2.4%) was the biggest with the exception of Latvia and it was mildly less than in Lithuania. The decrease of other states has been considerably smaller (the biggest in Ireland in 2008 - 3.5% and 2009 - 7.6%). Probably it may last for longer time in some other countries (first of all in Greece (2008 +1.3%, 2009 -2.3% and the prognosis for 2010 is -3.0%; maybe in Romania and Bulgaria), but it will hardly overcome Estonian. The average decrease of EU (-4.2%) was lesser than Estonian one in quite a big amount; the best states, for example Poland, had it positive all the time (see table 2).

**Table 2.** Main data characterizing the economic crisis in European Union in 2007-2010

State	GDP growth				Unemployment			
	2007	2008	2009	2010	2007	2008	2009	2010(Sept)
EU (27)	3	0,5	-4,2	1,8	7,2	7	8,9	10
EU (15)	2,8	0,3	-4,3	1,8	7	7,1	9,0	10
Euroarea (15)	2	0,4	-4,1	1,7	7,4	7,5	9,4	9,5
Belgium	2,9	1	-2,8	2,0	7,5	7	7,9	8,5
Bulgaria	6,4	6,2	-4,9	-0,1	6,9	5,6	6,8	10,1
Czech Republic	6,1	2,5	-4,1	2,4	5,3	4,4	6,7	7,1
Denmark	1,6	-1,1	-5,2	2,3	3,8	3,3	6	7,6
Germany	2,7	1,0	-4,7	3,6	8,4	7,3	7,5	6,7
Estonia	6,9	-5,1	-13,9	2,4	4,7	5,5	13,8	16,2
Ireland	5,6	-3,5	-3,5	-0,2	4,6	6,3	11,9	13,9
Greece	4,3	1,3	-2,3	-4,2	8,3	7,7	9,5	17,9
Spain	3,6	0,9	-3,7	-3,7	8,3	11,3	18	12,9
France	2,2	2,4	0,2	-2,6	8,4	7,8	9,5	9,7
Italy	1,5	-1,3	-5	1,1	6,1	6,7	7,8	8,4
Cyprus	5,1	3,6	-1,7	0,5	4	3,6	5,3	6,9
Latvia	10	-4,2	-18	-0,4	6	7,5	17,1	18,2
Lithuania	9,8	2,9	-14,7	0,4	4,3	5,8	13,7	18,3
Luxembourg	6,6	1,4	-3,7	3,2	4,2	4,9	5,1	4,7
Hungary	0,8	0,8	-6,7	1,1	7,4	7,8	10	11,8
Malta	3,9	2,7	-1,9	3,1	6,4	5,9	7	6,5
Netherlands	3,9	1,9	-3,9	1,7	3,6	3,1	3,7	4,4
Austria	3,7	2,2	-7,9	2	4,4	3,8	4,8	4,7
Poland	6,8	5,1	1,7	3,5	9,6	7,1	8,2	9,7
Portugal	2,4	0	-2,5	1,3	8,1	7,7	9,6	11,1
Romania	7,3	-7,1	-1,9	1,5	6,4	5,8	6,9	7,3
Slovenia	6,9	3,7	-8,1	1,1	4,9	4,4	4,9	8,6
Slovakkia	10,5	5,8	-4,8	4,1	11,1	9,5	12	14,5
Finland	5,3	0,9	-8,2	2,9	6,9	6,4	8,2	8,2
Sweden	3,3	-0,6	-5,3	4,8	6,1	6,2	8,2	8,3
United Kingdom	2,7	-0,1	-4,9	1,4	5,3	5,6	7,6	7,8

Source: compiled by the author on the basis of Eurostat data.

Another generally accepted feature of the crisis is unemployment. I'd like to mention the states of highest unemployment in October 2009 and July 2010 (the later data are incomplete). The average of EU in October 2009 was 9.4%; the worst ones were as follows: Latvia – 19.9%; Spain – 19.0%; Lithuania – 15.9%; Estonia – 15.6%; Slovenia - 13.8%; Ireland - 13.0%. It will be followed by a longer gap. The average of EU in July 2010 was 9.6%; the worst ones in July 2010 were as follows: Spain - 20.2%; Latvia – 19.4%; Estonia - 18.6%; Lithuania - 18.1%; Slovakia - 14.4% and Ireland - 13.7%. Some states as Poland didn't have any growth of unemployment during the period of crisis at all (see table 2).

The deepness of the crisis is characterized by the duration of economic depression, which appeared to be long. Today we can suggest that the growth of GDP was negative in Estonia during 9 quarters but in most of the states of EU it was 4-6 quarters. Just Latvia, wherein the second quarter of 2010 (the data of the third quarter aren't available yet) was still negative, can run over us; and probably Greece, wherein the depression began later and the growth isn't still to be seen; maybe also Ireland and Romania, wherein the depression is lasting (see table 2). As about the level before the crisis, GDP would probably reach the level in 4-5 years and employment may take more time. Anyway, according to the data we've got no one serious source has dared to prognose the latter number.

The deepness of the economic crisis could be well characterized by the comparison of the main data with the previous crises, particularly with Great Depression of 1929-1932. The statistics of Estonia was different in that period from the present one; also, the economic situation was different. Therefore I won't like to take it as absolutistic, but the differences are so great that they speak by themselves.

The data from sources, which aren't the most solid ones, confirm that gross production of Estonia decreased by about 5%. Agricultural production, which was especially important in the period, even grew (Depression..., 2007). However, the difference with the summary minus of GDP 23% is great.

At that time maximal amount of unemployed was suggested to be 16 000 (NB! Not 160 000). The difference with the amount of unemployed now is rather great; also, these tens of thousands of people, who are looking for job abroad, should be added. If even to consider the dominant farming of that period, the picture wouldn't be in favour of present crisis.

Also, the duration of crisis was shorter. Estonia could overcome it in less than 1.5 year due to vigorous means of government. Exact statistics, which could give the data with accuracy of quarters was impossible to find from the period. But the information of newspapers allows to suggest surely that it lasted no more than 5 quarters.

The conclusion could be only one – the economic crisis of the last years was the deepest of all the history.

### **Economic policy during the crisis period**

The deepness of the economic crisis in Estonia in 2007 (2008?) – 2010 is obvious from mentioned above. It's clear that state had to arrange its economic policy due to the crisis.

The states usually take reactions during the periods of crisis, which could be divided into two groups: enlivening of the economics and assurance of its own financial capacity. The efficiency of the reactions is the bigger, the timely they have been taken and the closer they have been directed to concrete state and to overcoming the

bottlenecks of the situation (reasons) of concrete economic crisis (as crises differ by themselves).

Estonia has basically been governed by the same government from March 2007 since March 2011. The economic political principles of the government are given in the clearest way in the budget strategy of State, which is published in II quarter of each year. Let's observe them more closely. (see table 3)

**Table 3.** Basic prognosis of government economic strategy and their comparison with the reality 2007-2010

	2007	2008	2009	2010	2011	2012
<b>GDP</b>						
Forecast in 2007	9,2	8,3	7,7	7,5	7,4	-
Forecast in 2008	-	3,7	6,4	6,8	6,5	6,3
Forecast in 2009	-	-	-8,1	-3,5	2,9	5,4
Forecast in 2010	-	-	-	1,0	4,0	4,2
Actual	6,9	-5,1	-13,9	2,4	-	-
<b>Unemployment</b>						
Forecast in 2007	4,8	4,3	4,4	4,4	4,4	-
Forecast in 2008	-	4,3	5,1	5,5	5,5	5,3
Forecast in 2009	-	-	12,2	15,6	15,4	13,5
Forecast in 2010	-	-	-	15,5	13,9	11,9
Actual	4,7	5,5	13,8	16,2	-	-
<b>Inflation (CPI)</b>						
Forecast in 2007	4,9	5,2	4,4	3,6	3,3	-
Forecast in 2008	-	9,0	5,3	3,6	3,5	3,4
Forecast in 2009	-	-	0,4	-0,6	1,3	2,2
Forecast in 2010	-	-	-	1,1	2,0	2,4
Actual	6,7	10,6	0,2	0,7	-	-

Source: compiled by the author on the basis of State budget strategies of 2007, 2008, 2009 and 2010. The reality data are from Eurostat.

The first of them was taken on 19. April 2007. It's directly gone from the euphoria of especially rapid economic growth of previous years (growth of GDP in 2005 10.5%; in 2006 11.4%; Riigi..., 2007) and from total ignoring the signs of danger obvious already from 2006. The government aims on a task to proceed the especially rapid growth of economics for the whole observed period (since 2011) in an average 7.5% in a year, to increase tax burden, to preserve the unemployment at the level of 4.4%. The prognosis of the income of state budget is especially optimistic – it should be 109.2 billion kroons (the real one was 84.5 billion kroons and taxes formed 63.4 billion kroons from it). GDP, which had to reach up to 216.6 billion kroons since 2010 in current prices, was really 142.5 billion kroons.

There isn't anything strange that on the basis of such a supreme optimism that spontaneous continuation of the development of economic politics is relied upon.

So, the strategical part of economic politics was too general containing just some principle economic slogans as innovation, growth for the demand for tourism products, economic environment favouring entrepreneurship, macroeconomic stability, taxation politics stability etc in addition to universal slogans as the growth of social connectedness, care for children, good education, wealth of people etc. Particular numbers are 2.087 billion kroons for innovative activities and 885 billion kroons for supporting tourism planned by the Ministry of Economic Affairs and Communications. It's relied on high employment rate to be preserved by itself. The preservation of especially simple taxation system, the decrease of labour and capital taxes and increase of consumption taxes and environmental taxes are drafted in the part of incomes of budget. (Riigi..., 2007) Actually, the increase of consumption and environmental taxes was the only one, which was realized; labour taxes in connection with unemployment insurance increase didn't decrease. Moreover, the role of social tax in tax revenues of state budget had grown from 39.4% in 2006 up to 42.0% in 2010; also, the unemployment taxes had essentially grown.

The next programme of government's economic strategy is from May 2008. First of all, the concrete numbers have been mildly decreased in connection with already deeply functioning economic crisis. (The growth of GDP was already negative in the second quarter of 2008.) The numbers (GDP +6.4%; unemployment 5.1%) prognosed for 2009 by government are supreme optimistic and probably originate from inadequate perceiving of arising crisis situation on the basis of the real situation. As the crisis situation hasn't been perceived, so the reactions absent; the economic political programme repeats mostly the previous one. But there has become a new one: transition to euro. Estonia has fulfilled 2 conditions from necessary 5 for it – stability of currency (Currency board system had ensured it since 1992) and low level of national debt (the lowest in Europe!). The decrease of inflation under the conditions of high growth of unemployment and salaries to be cut down could be prognosed at least temporarily. The interests of long-term credits are calculated on the basis of public sector bills. Their level was higher than it was stated in Maastricht agreement. As about the balance of budget, in spite of the fact that it's already a great problem (in the same summer of 2008 government had to make negative additional budget) it isn't reflected in economic strategical programmes in May yet. A surplus of budget in the amount of 1% is talked about (Riigi, 2008). Any extraordinary reactions for budget balancing aren't certainly planned if there is 1% surplus programme.

The economic strategy of government from May 2009 is certainly of other style. Year 2008 finished in spite of a negative additional budget with a consolidated deficiency of budget 7.3 billion kroons; GDP had been negative since the second quarter of 2008. The minus of GDP growth had already reached 15.1% in first quarter of 2009. Certainly, the economic strategy of last years was impossible to proceed under such conditions. As the same government proceeded, so it had only two possibilities – to recognize the mistakes of prognosis for 2 last years and its supreme optimism in economic political prognoses or to call attention aside. Government chose the second way under the conditions of forthcoming elections. Transition to euro was proclaimed to be purpose number one and all economic

politics was subjected to it (Riigi..., 2009). Estonia had difficulties in fulfilling two conditions as it was explained above – interests of long-term credits and balance of budget. Government didn't announce it anywhere (the reaction isn't mentioned in strategy or in explanatory note of budget) but used the circumstances that they weren't very great and just redeemed them. Hence the criterion succeeded to be fulfilled, at least formally. That's a matter for itself what's the macroeconomical influence of the reduction of such an enormous mass of money at the highest peak of crisis. A slogan was erected in order to fulfil the criterion of budget balance – budget gap mustn't be bigger than 2.9% of GDP. Essential retrenchment of state expenses and lifting of taxes were necessary for its realization. Retrenchment of expenses was carried through direct retrenchment of state expenses (additional payments to retirement funds were temporarily stopped, budgets of local municipalities were decreased, salaries were cut down etc). Tax increase was used in taxation politics: value-added tax (named VAT in Estonia) was increased (the reduced level of 5% was increased to 9% from 1. January 2009; the list of reduced tax goods was limited; VAT ordinary level was increased from 18% to 20% from 1. July 2009). The excises were essentially increased and income tax incentives were reduced. (Riigi..., 2009).

As a result of enormous efforts the state budget gap was held under 3% of GDP and Estonia joined euro 1. January 2011. The question is what's the macroeconomic influence of these reactions. The essential increase of taxes at the highest peak of crisis isn't within the frames of the paper; but we'll try to observe more closely the influence of negative additional budgets. As it's a difficult and miscellaneous problem, so we'll limit on their influence on the incomings of the period after the budget.

### **Estonian state budget income structure**

It's essential to observe the influence of crisis on state budget. The possibilities of a state to break in economic crisis (diminish taxes, increase state expenses etc) depend essentially on the size, structure etc characteristics of state budget. As about Estonia, the strong influence of economic crisis on budget is connected first of all with the individuality of the structure of Estonian state budget.

In the initial stage of its transition period, Estonia (like most other Eastern European countries) was in a unique position – it essentially lacked a taxation system, a vital instrument of economic policy, which now needed to be constructed. In a perfect world, that would have meant building a system based on contemporary economic theory. Unfortunately Eastern European countries lacked pertinent knowledge, both in regard to taxation theory and the economic situation (an accurate description of the development phase and the processes).

So what characterizes the Estonian tax system? Its characteristic features are a relatively low tax burden, simplicity bordering on primitiveness (which has significantly reduced the possibilities of using taxes as a control device of economy), a very high percentage of indirect and consumption taxes.

The tax burden in Estonia has been 33.7–35.1% since Estonia joined the EU (<http://www.fin.ee>; the data are slightly different in various parts of the website). The tax burden ought to increase up to 36% as a result of the taxation lifting in accordance to the economical crisis in 2010 (2010 Riigieelarve...). But as the Ministry of Finance of the Republic of Estonia has already decreased the prognosis of GDP in comparison with the time of state budget passing, so we can speak about tax burden of 37%. Also, it's lower than the EU average (41–42%). However, these numbers are not comparable. Estonian state budget includes social benefits tax, which has for many years been the greatest source of income for the state budget (table 1). In most EU member states such a tax does not exist or is slight. When that is taken into account, the tax burden in Estonia appears to be about 26–28%.

The economic crisis has brought attention to the issue of tax structure. Table 4 presents taxes in Estonian state budget from 2005, i.e. after Estonia joined the EU. It is difficult to assess what is the percentage of indirect taxes in Estonian state budget. Indirect taxes clearly include VAT, excises and the customs tax. However, also the gambling tax has some features characteristic to indirect taxes, as it is not imposed on the revenues from economic activities but rather as a preventive lump-sum tax, i.e. before launching the slot machine etc. The tax sum is transferred by the manager of the gambling business in some way (e.g. by raising drink prices) to the actual bearer – the gambler, i.e. consumer. Accordingly this tax also has the incidence characteristic of indirect taxes and therefore it is more accurate to regard it as an indirect tax (at least when it is established in such a way as in Estonia).

**Table 4.** Income from taxes in Estonian state budget 2005–2010(millions of kroons)

	2005	2006	2007	2008	2009	2010
Total taxes	53831	55208	67718	70396	63780	63299
Personal income tax	10911	3846	4786	4328	2419	3000
Corporate income tax	2365	3123	4083	4166	4010	3032
VAT	14021	18645	22304	20548	18809	19531
Excises	6424	7030	8195	8971	9818	10425
excise on tobacco	1205	1208	1529	2519	2088	1794
excise on alcohol	1838	2089	2314	2434	2590	2585
excise on fuel	3363	3728	4353	4697	4870	4870
excise on packaging	...	3	...	1	1	1
Gambling tax	292	354	467	484	278	323
Customs tax	347	401	549	508	307	373
Social benefits tax	18392	21764	27268	31299	28084	26562
Other taxes	1079	45	66	92	55	62

Source: the author's calculations based on the Ministry of Finance homepage, [http://www. fin.ee/](http://www.fin.ee/).

As far as we know, there is no other country that has social benefits tax in the form that it exists in Estonia. The tax is paid by the employer, but it is calculated based on



the amount of money paid to the employee. That tax is meant only for pensions and healthcare, i.e. it functions largely as retirement and health insurance. Clearly, the defining criterion here is whether the employee's salary would increase by the amount that makes up the social benefits tax if that tax was abolished. If yes, the social benefits tax has enough characteristic features to regard it as an indirect tax; if not, the features of direct taxes probably prevail (the social benefits tax is the employer's expenditure). As this question is impossible to answer properly, authors classify it arbitrarily, depending on their views, as either a direct or indirect tax. Eurostat has taken a „diplomatic” position and classifies that Estonian social tax as a labour tax, regarding it therefore as primarily a resource tax (Taxation. [http://epp.eurostat.ec.europa.eu/portal/page?\\_pageid/136748](http://epp.eurostat.ec.europa.eu/portal/page?_pageid/136748)), but that is not entirely accurate as the income from social benefits tax is allocated for certain social expenditures.

It is probably reasonable to bring out the percentage of indirect taxes in different versions, with social benefits tax included and not. In the first case, the percentage of indirect taxes has made up 75.3–87.8% of state budget revenues ever since Estonia joined the EU; in the latter case the percentage has been 41.1–53.6%. If we take the first approach, we arrive at what is clearly the biggest percentage of indirect taxes among EU member states; even with the second approach the result is well above EU average.

When trying to determine the percentage of consumption taxes in Estonian state budget, we likewise have to face the question of how to classify some taxes that are different from those in other countries. Again we are talking mainly about social benefits tax. In the form that it exists in Estonia, it has been regarded as a tax on using one of the goods – labour – and hence as a resource tax. That, however, raises the question of whether it is a consumption tax. It is not the purpose of this study to discuss whether the multifunctional tax established during the transition period when there was no economic-theoretical knowledge available belongs to this or that category. Therefore – although the author does not share the opinion that the social benefits tax as it exists in Estonia is a consumption tax – also the percentage of consumption taxes has been given in two versions.

The figures demonstrate a growing dominant of social taxes in Estonian state budget tax funds from 34.2% in 2004 to 44.4% in 2008.

### **Estonian state budget and economic crisis**

The economic Crisis in 2008-2010 reflected in the state budgets of EU members. But its range and course have been very different. As the crisis began in financial sector, so the states, wherein the income from the financial sector formed the greatest part of the GDP, suffered first of all. Due to urgent and powerful measures taken by these states the situation has been stabilized at this point. The economic depression turned into a severe crisis, which could be compared with Great Depression of 1929-1932, in some Eastern European states, especially in Estonia,

Latvia and Lithuania. There are several reasons for it, both objective and subjective ones.

The state budgets have found themselves in an especially severe situation. The crisis, which began in 2008, frozen the sums paid as wages in 2009 due to the unemployment and it led to the decrease of social taxes. It beat the state budget of the Republic of Estonia and essentially cut the amount of budget of 2010. Obviously, the incomes of budget, which base on consuming taxes, have got a great elasticity during the periods, wherein the incomes and consumption are rapidly growing, but a system of this kind has got a low floatage (see table 5).

**Table 5.** Indirect taxes in Estonian state budget 2005–2010

	2005	2006	2007	2008	2009	2010
Total taxes	53831	55208	67718	70396	63708	63299
Indirect taxes (social benefits tax included)	40505	48217	58816	61856	57019	56923
Percentage of indirect taxes (% social benefits tax included)	75.3	87.3	86.9	87.8	89,5	89,9
Indirect taxes (social benefits tax not included)	22113	29572	31548	30557	29213	30351
Percentage of indirect taxes (% social benefits tax not included)	41.1	53.6	46.6	43.4	45.8	47,9
Consumption taxes, social benefits tax included	40505	48217	58816	61856	57019	56891
Percentage of consumption taxes (%, social benefits tax included)	75.3	87.3	86.9	87.8	89,5	89,9
Consumption taxes, social benefits tax not included	22113	29572	31548	30557	29213	30329
Percentage of consumption taxes (%, social benefits tax not included)	41.1	53.6	46.6	43.4	45,8	47,9

Source: the author's calculations based on the Ministry of Finance homepage, [http://www. fin.ee/](http://www.fin.ee/).

The figures of table 5 demonstrate once again that the tax funds react on GDP changes with some lag time. The peculiarity of the state budget of the Republic of Estonia – a great proportion of consumption taxes – brings a peculiar fact: the tax funds are in correlation with the dynamics of wages (especially in 2008) rather than the dynamics of GDP. A smaller decrease of tax funds in comparison with the GDP ones in 2009 has diversely been occurred from the lifting of tax burden (the growth of turnover taxes rate by 2 percentage points, the increase of excises, the purring of income tax benefits). The concrete influence of taxes lifting and the influence of prices elasticity on tax funds can't be explained here.

## **Influences of negative additional budgets**

The state budgets have found themselves in an especially severe situation. The contents of state budget have to be cost cut and negative supplementary budgets have to be made i.e. the contents of state budget have to be cost cut within the year. But a cutting of that kind reduces the consumption. As the consumption taxes form the main part of Estonian state budget, so a cutback of any description of the budget means the cutback of the next period's incomes.

Let's observe the influence of three negative supplementary budgets of Estonia on the incomes of the next periods. A cutback of budget expenses unavoidably results in decrease of the budget income during the periods to come. This is a process of multiple levels. First, the taxes will not be gained from budgetary purchases, wages paid from the state budget etc.

However, people go to the market with the money originating from the budget, their purchases feed the private sector – bakers, weavers, tailors and so on. Also, the state gets taxes from their wages and VAT from their purchases, so the process is repeated.

In the case of negative supplementary budgets, the amount of money spent on consumption is reduced. The people and institutions that receive funds to finance their business from the state budget will, therefore, have less to spend and so less tax will be paid. The amount of money that reaches the second level is also reduced and the income of taxes will decrease even more.

Since it is not possible to ascertain the structure of expenditures in the case of the second and upward levels, it is not possible to clearly bring out the effect of cutting the expenses on tax profit; visible is only the first level as a result of the so-called direct calculation. The indicator of the average tax burden is used further on.

Income of taxes is depends directly on the valid taxation system, both the types of taxes and tax rates. Table 6 provides an overview of the most important taxes in Estonia during 2008-2009. Since various expenses are taxed with different taxes, it is essential for the purpose of this study to categorise the expenses by the taxes that are collected from them.

The budget expenses are divided into four major categories based on their economic content (Seadus Eesti..., 2009): 1) purchasing and renovating material and nonmaterial property (i.e. investments); 2) appropriations; 3) carrying costs; 4) other expenses. In order to obtain better overview when observing the returning funds, we have to use a more specific subdivision of the carrying costs and appropriations. The carrying costs are divided into personnel expenses, operating expenses, and funds for buying equipment for protection purpose; the appropriations are divided into five categories: subventions, social benefits, appropriations for intended and not intended use, appropriations and other appropriations.

**Table 6.** Rates of the main taxes in Estonia in 2008 and 2009 (per cent)

<b>Taxes</b>	<b>2008</b>	<b>2009</b>
Social benefits tax	33	33
Income tax	21	21
VAT	18	19*
Percentage of excise tax in retail sales	12,9	17
Unemployment insurance tax (employer)	0,30	0,88*
Unemployment insurance tax (employee)	0,60	1,75*

\* -measured average of the year's real tax rates

Source: Homepages Ministry of Finance. <http://www.ee/index.php?id=233>.

Since it is difficult to point out the proportion of money spent on different products under the excise tax among general consumption, the author has concluded that, in order to get a clearer overview, it is wise to use the proportion of excise tax in retail turnover which has been calculated by the figures that show retail turnover and income of excises in state budget. In 2008, the excises comprised 12, 9% and in 2009 17% of retail turnover (Seadus Eesti..., 2009). VAT exemptions have not been taken into account since they form a very insignificant part of Estonian turnover. Also, the proportion of goods and services that are taxed with reduced tax rate is very small.

People divide their available income into two: savings and consumption. The proportion of savings among general income can be calculated by the sum of the savings and available income. In 2008, the average saving per person was 7, 9% from available income; in 2009 it was 9, 2%. Rest of the available income was spent on consumption.

The next feature to demonstrate the expenses of state budget returning to the state is the proportion of employment expenses. In 2008 it was 13%. Since it has remained stable enough for years, the same percentage has been shown for 2009 as well (The income ... 2010).

It is possible to calculate the proportions of decreased tax income caused by the negative supplementary budgets of 2008 and 2009 by the tax rates, proportion of savings and employment expenses mentioned above. A more detailed overview of the calculating methodology of returning funds in the case of various expenses follows.

In the case of cutting the expenses on purchasing and renovating material and non material property we have to calculate the VAT applied on the cut amount and we find the amount that reduces the tax income.

The subsidies of persons involved in business are divided into two: 13% of the cut amount would have been spent on employment expenses and the rest on other expenses necessary for running the business. Social benefits tax on the employment expenses and unemployment insurance tax on the employee will not be repaid into the tax income. After counting off those two, the left amount would be taxed with income tax and unemployment insurance tax. The employee will use part of the money he finally receives for savings and it does not affect the tax income. The other part he uses for consumption. The cutting decreases consumption, therefore, VAT and excises will not be paid into the budget. The amount left for other expenses after calculating off the employment expenses will be entirely used for consumption and, in case of budget cuttings, VAT will not be paid into state budget.

In the case of social benefits, tax is applied on the whole amount. People save one part of their actual income and consume the rest of it. When consumption is decreasing, the income from consumption taxes – VAT and excise tax - into the state budget is also decreased.

In the case of appropriations with intended purpose we deduct the amount that is paid to non residents because there is no income back to the state budget. The actual amount left after that will be divided into other expenses and employment expenses. It is possible to find the sum of the cut employment expenses based on the measure of employment expenses and, therefore, calculate the social benefits tax and the employer employment insurance tax that will not be paid back into the state budget. There will also be no income tax and the employee employment insurance tax paid from the rest of the amount. From the amount that is left after deducting all the taxes we also deduct savings as a factor for reducing consumption which leads to the decreased income of VAT and excise taxes. Cutting back appropriations for other expenses also has a negative effect on VAT income into the state budget.

When speaking of appropriations with no intended purpose, a certain amount is also paid to non residents and since it does not affect the return to the state budget, it should be deducted from the sum of the total cutting. Similar to appropriations with intended purpose, we can notice the decreasing income of social benefits tax, income tax, employment insurance tax, VAT, and excise tax.

Other appropriations are entirely used for consumptions. Cutting back expenses induces the decrease in consumption and there will be less income from VAT into the state budget.

When cutting back personnel expenses, the social benefits tax and the employer unemployment security tax calculated from the whole amount will not be paid. In addition to previous, there will also be less income tax and employee unemployment insurance tax calculated from the rest of the amount paid into the state budget. If the amount that is left after deducting the savings is reduced and so is the consumption, the excise tax and VAT calculated from that amount will also not be paid.

VAT that will not be paid into the state budget is calculated from the cut amount of budget expenses. The same is done in the case of expenses on materials and equipment for protection purpose, as well as on other expenses.

The first negative supplementary state balance was accepted on the 19<sup>th</sup> of June in 2008. The amount of the first state balance, 93 579 601 thousand EEK, was decreased by 3 210 282 thousand EEK (3, 4%). Even two negative supplementary state balances were accepted in 2009. In the first one, the expenses were cut by 6 575 775 thousand EEK (6, 3%) and in the second one by 2 563 464 EEK (2, 4%).

If we divide these amounts based on previously mentioned principles we will see that the tax income was reduced as a result of the negative state balances by 768 171 thousand EEK in 2008 (see table 7) and by 2 111 586 thousand and 1 036 175 thousand EEK in 2009, a complete 3 147 761 thousand EEK in 2009. Accordingly, the decrease of returning income due to the different structure of cuttings was 23, 9% in 2008 and, due to the negative supplementary state budgets, 32, 1% and 40, 4 % in 2009 (the wages fund which has the highest percentage of returning income was especially cut in the last supplementary budget), (see table 7).

Still, we have to consider one more aspect. Every kroon that is paid into the state budget circulates about 2.8 times a year. We can calculate based on the assumption that it is 2 times since negative balances are made in the middle of the year. We discover that the negative state balances have cut the state balance income for the future periods at least by 5 billion EEK or 41.8% from their own proportion. The above only involves the so-called first level which does not involve the fact that thanks to the amounts paid from the state budget and spent on consumption, we have work for tailors, weavers, bakers, construction workers and so on (see Table 7). In order to find these amounts, we have to use indirect calculations as shown above.

Simple arithmetic shows that the turnover was decreased by 2.7 billion kroons in 2008 and by 7.3 billion kroons in 2009 as a result of the budget cutting. If we deduct the proportion of import from the total turnover, we find that the domestic turnover decreased at least by 5 billion kroons during the two years. If the tax proportion is 35%, we can conclude that the tax income has decreased by at least 1.7 billion as a result of the decreased turnover of the so-called secondary sector. Summary: three cuttings of state budget in a total amount of at least 12.4 billion caused the decrease of the state budget income by at least 7 billion. If we also consider the fact that if the cuttings had not been made, the unemployment rate would have risen more slowly and the unemployment benefits, income supports and other similar payments would have been lower, we start to question whether the cuttings were really economically justified.

**Table 7.** Negative supplementary budgets and their connection to the decrease of tax income in 2008 and 2009

	2008	2009	
		I supplement- ary budget	II supplement- ary budget
Negative supplementary budget (thousand kroons)	-3 210 282	-6 575 775	-2 563 464
THE FIRST CIRCULATION OF MONETARY UNIT			
Decrease of tax income (thousand kroons)	-768 171	-2 111 586	-1 036 175
Decrease of tax income altogether in 2009 (thousand kroons)		-3 147 761	
Proportion of the decrease of tax income in supplementary budget (%)	23,9	32,1	40,4
THE SECOND CIRCULATION OF MONETARY UNIT			
Decrease of tax income (thousand kroons)	-243 581	-669 567	-328 563
Decrease of tax income altogether in 2009 (thousand kroons)		-998 129	
Proportion of the decrease of tax income in supplementary budget (%)	7,6	10,2	12,8
THE WHOLE CIRCULATION OF MONETARY UNIT			
Decrease of tax income (thousand kroons)	-1 011 752	-2 781 153	-1 364 737
Decrease of tax income altogether in 2009 (thousand kroons)		-4 145 890	
Total decrease of tax income in 2008 and 2009 (thousand kroons)		-5 157 649	
Proportion of the decrease of tax income in supplementary budget (%)	31,5	42,3	53,2
Average proportion of the decrease of tax income in 2008 and 2009 total	41,8		

Source: Authors calculations. Homepages Ministry of Finance.

<http://www.ee/index.php?id = 233;>Eesti vabariigi 2009 aasta I...; Eesti vabariigi 2009 aasta II...

## Summary

The following can be concluded from the above:

1. Economic depression took place in EU in 2008-2010; it hasn't been finished in some states yet. The depression of Estonia was one of the deepest in EU

- amongst most of the economic characteristics; it was even deeper than during the Great Depression of 1929-1932.
2. Economic crisis demands from the states to correspond their economic politics with the changed conditions of administration. The economic politics carried on by the government of the Republic of Estonia is made public in a document named State Budget Strategy (Riigi eelarvestrateegia) annually in May. The strategies of 2007 and 2008 demonstrate that government didn't acknowledge the deepness of the crisis and relied upon spontaneous and fast recovery of the situation on the basis of the extremely fast growth of the years before the crisis.
  3. The crisis was rather deep already in 2009. State Budget Strategy recognizes the presence of crisis but it takes the direction on fulfilling the demands for transition to euro, not on reactions to crisis.
  4. Thereat the main difficulty was the assurance of the demand of budget balance under the conditions of economic depression. Taxes were increased at the highest peak of crisis (VAT and excises; cost-cutting of income tax incentives) and budget incomes were cost-cut. This gave the possibility to hold the budget deficit lower than 3% of GDP, but worsened the overcoming of economic crisis.
  5. State budget of Estonia decreased essentially under the conditions of crisis. The decrease of budget was bigger than it had to be proceeding from the extent of the crisis. It forced government to establish additional negative budgets as in the centre of 2008, so in the centre of 2009. Great decrease of budget was essentially predisposed by particular structure of tax revenues of Estonian state budget.
  6. Determining the percentage of indirect and consumption taxes in the whole tax burden is complicated as there is no generally accepted method for it. Also, several of the taxes used in Estonia possess features characteristic of both direct and indirect taxes. Furthermore, it is not clear what we should consider a consumption tax – only those taxes that affect household consumption, or also corporate ones in case the tax is imposed on final consumption.
  7. Whichever approach we take to defining indirect and direct taxing, it is clear that indirect taxes prevail in the income of the Estonian state budget. The social benefits tax makes up a particularly big – and growing – proportion. Different approaches lead to the same conclusion: the percentage of consumption and indirect taxes in the state budget is equal, i.e indirect taxes have been imposed on consumption.
  8. The structure of the revenues of the Estonian state budget differs considerably from that of other EU member states. The percentage of environment taxes is negligible, while the peculiarly structured social benefits tax, which constitutes the greatest and increasing source of revenue of the state budget, is difficult to classify as either a direct, indirect or labour tax. Due to the huge proportion of consumption taxes the buoyancy of Estonian tax system is weak. The provisional conclusions of 2008 demonstrate clearly that during periods of economic recession the state budget is very vulnerable.
  9. The shortfall of income to the state budget in 2008 and especially in 2009 has forced the government to make cutbacks up to 10% and has acutely raised the issue of increasing the tax burden. As the tax burden in Estonia is substantially



lower than the EU average, it is possible. However, that raises the question of the optimal tax burden. Based on Slutsky's principle of compensated demand curve and Ramsey's optimal tax theory we can take the optimal level of indirect taxes (which are dominant in Estonia) to be the point where the household welfare reduction curve and the social welfare increase curve intersect.

10. The way Estonian Government has chosen to balance the budget – a continuous cut of the expenses- forms a dead circle as the cut of the expenses, particularly the wages, is going to decrease the incomes of the next period. According to the most modest calculations, which haven't taken into consideration the decrease of the demand due to macroeconomic influence, the state budget of Estonia lost 2.2 billion kroons in 2008 and 10.5 billion kroons in 2009 due to the cuts of the budget.
11. The purpose of transition to euro was fulfilled on 1. January 2011. But it isn't still obvious how to ensure the criteria of the balance of inflation level and budget.

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