

PUBLIC ENVIRONMENTAL EXPENDITURES IN ESTONIA DURING 1995-2011

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Abstract

The purpose of this paper is to assess the impact of earmarking on central government environment protection expenditure. Since central government spending for the environment relies on earmarked revenues, which is not the case of the local government, it is expected that central government expenditure is to a lesser degree affected by macroeconomic developments. The analysis indicates that this is the case because correlation between GDP change and the change in central government expenditure for environment protection is smaller than that of the local government. It is also found that increasing revenues from earmarked environmental charges have contributed to growing expenditure. However, the analysis also suggests that the main driver of this growth is the expansion in EU funds. Reliance on EU expenditure was further reinforced by changes in earmarking rules in 2008-2009.

Keywords: public environmental expenditure, earmarking, tax shifting

JEL Classification: H59, H23, H72, Q5, Q28, Q58

1. Introduction

In Estonia, there is a direct link between central government funding of environment protection and tax revenues from environmental charges which are earmarked for financing environmental expenditure. Kralik et al. (2012) argue that earmarking environmental tax revenue is more common in Eastern European countries than in Western countries. One reason they bring out is that in a low income setting, earmarking acts as a commitment mechanism to environmental protection expenditure. This is in line with the reasoning of e.g. Brett and Keen (2000) who suggest that earmarking environmental taxes for environment protection purposes prevents politicians from deviating from the original policy proposals.

In a recent article about Estonia Ehrlich and Pädam (2010) found that during the economic crisis, local government spending on environment protection fell, while central government environment protection expenditure increased. This unexpected finding was based on expenditure statistics for the time period 1995–2008 and

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preliminary budget data concerning 2009. In light of the major budget cuts made by the Estonian Government in 2008 and in 2009, the growth in environmental expenditure was even more surprising. The finding indicates that earmarking has allowed a relative independence of environment protection expenditures from macroeconomic developments. The authors discuss two possible reasons to the increase in central government expenditure to the environment. The first explanation suggests that the ecological tax reform, which increased public revenues from environmental charges earmarked for environmental purposes, expanded environmental expenditure. The second reason is that by accession to the EU, additional funding became available for environment protection in the budget period 2007-2013. However, the authors point out that data were not available for quantifying the impact from these two sources. More recent reviews have shown that public expenditures on environment protection increased until 2008 and decreased after that (Kralik et al. 2012 and Environmental Indicators 2013).

The main aim of this paper is to assess the impact of earmarking on central government environment protection expenditure. Since central government expenditure for environment protection relies on earmarked tax revenues while local expenditure does not, it is expected that local government expenditure is more sensitive to macroeconomic developments than central government expenditure. It is also important to make a distinction between the impact on central government expenditure from earmarking, on the one hand, and from the impact of increasing EU funding, on the other hand.

In the next section, we present the developments of central government environmental expenditure during the time period 1995–2011. Special attention is devoted to two periods of economic crisis: 1998–1999 and 2008–2009, as well as to the correlation between the development of GDP and that of central and local government expenditure on environment protection. In order to examine the flow of income from earmarking, the third section describes the framework of national funding of environmental policy in Estonia and presents data on earmarked revenue. Depending on data gaps, the time series is only available for the time period 2005-2011. In section four, we turn to international funding and EU-funding in particular. After that, the fifth section assesses the impact from the two main sources of funding on central government expenditure on environment protection. We carry out the assessment by comparing central government expenditure to the payments of the Environmental Investment Centre (EIC). In the last section we discuss the results and present conclusions. In the appendix of the paper we describe environmental expenditure data.

The paper contributes by adding to the limited academic research devoted to public environmental expenditure. Since environment protection funding to a large degree is a public sector responsibility this field deserves more research. The gap in academic literature was pointed out by Vincent and his co-authors in 2002 (Vincent et al. 2002). Apart from a small number of recently conducted academic research (Wang 2011, Lopez et al. 2011, Ehrlich and Pädam 2010), Vincent's observation still seems to hold ten years later. Rather than academic research, public expenditure

for environment protection has found more attention in reviews carried out by the World Bank or by national authorities. The Public Environmental Expenditure Reviews or PEERs of the World Bank have had a wide variety of purposes including measuring the impacts of a financial crisis, preparing a ministry for budget cuts, tracking funds, and determining future resource requirements (Swanson and Lundethors, 2003). The thorough study produced by Kralik et al. (2012) on Estonia's environmental charges, commissioned by the Ministry of Environment Protection, is an important source in light of the purpose of this paper.

2. Central Government expenditure on environment protection

In the early time period 1995–2000, environmental expenditure was about euro 20 million per year, in constant prices. Between 2001 and 2005 expenditure increased each year. Expenditures increased until 2008. After that expenditure has decreased significantly. In 2011 the volume was back on the 2006 level. In current prices central government budget expenditure on environment protection was euro 68.3 million in 2011. This was almost 1.5 per cent of central government in that year. In comparison to 2010, spending fell significantly in 2011. In 2007–2009 environmental spending exceeded 2 per cent of central government expenditure. The data covering 2010 and 2011 are net of Estonia's sales of environmental pollution permits (Kyoto Assigned Amount Units, AAUs)³. Although the proceeds of the sales of AAUs are allocated to environmental projects including renewable energy and energy efficiency, these expenditures do not show up in data, since investments in energy are not defined as environment protection, unless the purpose is pollution abatement, see Appendix 1. In contrast to the expected increase in public environmental expenditure predicted by preliminary state budget data for 2009 reported by Ehrlich and Pädam (2010), central government expenditure on environment protection has decreased between 2008 and 2009. Figure 1 below shows the old time series and the updated time series.

In order to get a better understanding of how economic shocks, including recent economic crisis have affected Estonia's expenditure on environment protection Table 1 above shows annual percentage change of GDP, central government and local government expenditure on environment protection.

The year-to-year changes in expenditures on environment protection have fluctuated significantly during the time period under study. Significant increases in central and local government expenditure seem to occur in same years, see e.g. 1997, 2001 and 2005. Since major investments in waste handling and waste water management are covered by environment protection expenditures, cyclical development of expenditure is expected. However, correlation between expenditures and GDP could give some indication of sensitivity to macroeconomic development.

³ The original time series shows negative total expenditure on environment protection in 2010 and 2011 since non-financial non-produced assets, i.e. sales of AAUs are recorded as negative values. Sales were euro 180 million in 2010 and euro 185 million in 2011 according to EIC yearbook 2011 (EIC 2012).



Figure 1. Central government expenditure on environment protection, and old time series (constant prices) (authors' calculations, Statistics Estonia, Ministry of Finance).

Table 1. Annual percentage change of GDP, annual percentage change of expenditure on environment protection at central and local government in constant prices

	GDP	Expenditure on environment protection	
		Central Government	Local Government
1996	5.9%	28.1%	-14.1%
1997	11.7%	42.6%	14.0%
1998	6.8%	1.6%	4.6%
1999	-0.3%	-1.6%	-4.4%
2000	9.7%	-13.5%	-6.2%
2001	6.3%	62.5%	58.8%
2002	6.6%	11.7%	5.6%
2003	7.8%	12.1%	-6.4%
2004	6.3%	10.0%	1.2%
2005	8.9%	26.1%	39.6%
2006	10.1%	-12.1%	6.0%
2007	7.5%	45.1%	-7.5%
2008	-4.2%	33.9%	-1.3%
2009	-14.1%	-16.7%	-13.9%
2010	3.3%	-27.2%	-15.0%
2011	8.3%	-17.4%	44.1%

Source: authors' calculations, Statistics Estonia.

There is smaller correlation between GDP and central government expenditure on environment ($r=0.22$) than that of local governments ($r=0.36$). When excluding the last two years, correlation increases. The correlation of central government is 0.27 and that of local government 0.55. This suggests central government expenditure is to lesser degree affected by macroeconomic developments than local government expenditure on environment protection, and that the sensitivity of central government to GDP has decreased over time. According to Cohen's effect size, correlation of central government is small, and that of local government is moderate for the time period in whole and high for the period 1995-2009 (Cohen 1988). When comparing expenditure on environment protection during times of crisis it is possible to detect differences between the developments in 1998–1999 and those in 2008–2009. Central government expenditures on environment protection were affected earlier by declining GDP in 1998-1999 than during the recent financial crisis. When GDP growth has turned positive after crisis, growth of public environment protection expenditures have lagged behind. In 2011 central government expenditures still contracted, while local governments increased their spending on environment protection from euro 34 million in 2010 to euro 49 million, in current prices.

3. National Framework of Financing Environment Protection

Estonia introduced environmental charges in early 1990s. The environmental charges were earmarked from the beginning, and apart from the polluter pays principle, their purpose was to finance environmental policy rather than to earn budget income. As Zyllicz (1999) points out this practice of earmarking taxes for environment protection was adopted by most former centrally planned economies. In Estonia, there are two different types of environmental charges: the natural resource charge and the pollution charge. The pollution charge is levied on emissions of pollutants into the ambient air, water bodies, groundwater or soil, and on waste disposal. The natural resource charge in turn is divided into: mineral resources extraction charge, water abstraction charge, fishing charge and hunting charge and until 2008 the forest stand cutting charge. The forest stand cutting charge was replaced in 2009 by forest revenue consisting of a profit share of the State forest management centre (Kralik et al. 2012).

Environmental charge rates were initially set very low, considering the ability to pay of the population and for promotion of economic development (Keskkonnaülevaade 2009). With growing income levels more attention has been paid to environmental protection. Already in 1996, the pollution charges rates were annually increased by 20 per cent and the natural resource charges by 5–10 per cent. In 2005, the Government decided to introduce an ecological tax reform. The key principle of an ecological tax reform concept is to increase the use of environmental taxes and reduce the burden on employment related taxes (income or social taxes). One of the aims of the Estonian ecological tax reform is also that the overall tax burden (ratio to GDP) would not increase. As a first step personal income tax was lowered from 26 to 24 per cent in 2005. Personal income tax has been lowered further and has stayed on 21 per cent of personal income since 2009. All main environmental charges were

raised substantially in 2006. Water pollution charges, several natural resource charges and most air emission charges were doubled in 2006 and their rates continued to increase by 20 per cent per year. Carbon dioxide (CO₂) pollution charge was raised by about 40 per cent in 2006 and 50 per cent in 2007. In 2008, an excise duty on CO₂ emissions from electricity production was imposed on power plants and replaced the CO₂ pollution charge on power plants. The excise duty was set on the same level as the CO₂ charge. Waste charges were increased by 2 to 4 times in 2006, except semi-coke waste from oil shale that was raised by 20 per cent because of opposition (Kralik et al. 2012).

Between 2005 and 2006 income from environmental charges increased from about euro 51.5 million to about 70.6 million (Kralik et al. 2012). The environmental charges paid into the state budget contributed approximately 1.5 per cent of total tax revenue in 2008. The pollution charge was the most important revenue source, contributing about 1.3 per cent in 2008. In the years prior to the ecological tax reform pollution charges contributed about 1 per cent of total tax revenue. (Keskkonnaülevaade, 2009).

Environmental charges are paid into the state budget. The earmarked environmental are channelled through the Environmental Investment Centre (EIC) for further allocation to environment protection, restoration of natural resources and remedying of environmental damage. A part of the environmental charges are paid into the local government budgets where they are used according to local needs (not necessarily for environmental purposes).

Starting from April 2009 income from electricity excise duty is not earmarked any more. Another change took place in the end of 2009. Until 2009 earmarking had been 100 per cent of charge rates of those designated to the state budget. From 2010 earmarking was applied according to the level of charges in 2009 (Kralik et al. 2012). The changes in 2009 and onwards have reduced the revenues available for environmental protection expenditures. According to the estimates of Kralik et al. (2012) earmarked revenues to the state budget were about euro 55 million in 2009. One year later about 43 euro million was allocated for environment protection to the Environmental Investment Centre (EIC), see Table 2.

Without changes, earmarked revenue would have been about euro 18 million higher in 2009 due to tax income from electricity excise duty received April–December 2009, which is about 4 per cent more earmarked income than in 2008. Earmarked income according to previous rules would have continued to increase also in 2010 and in 2011. Table 3 below shows total income to the state budget from environmental charges and the excise duty on electricity and their earmarking share in 2008–2011.

Table 2. Earmarked state budget income from environmental charges, euro thousand current prices

	2005	2006	2007	2008	2009	2010	2011
Pollution charges	23 559	32 115	41 437	20 080	34 799	26 718	22 904
Electricity excise				20 400	4 290		
Resource charges	6 662	10 865	13 880	15 036	15 287	16 169	16 793
Forest revenue ¹	11 225	13 688	13 705	14 519	578	0	0
Total	41 446	56 668	69 022	70 036	54 953	42 887	39 697

¹ Forest stand cutting 2005-2008, Forest revenue 2009-2011

Sources: Kralik Table 2.1.4, annual reports of the EIC 2010–2011.

Table 3. State budget income from environmental charges and electricity excise duty, euro thousand current prices, 2008–2011

	2008	2009	2010	2011
Environmental charges	70 036	54 953	48 367	56 294
Share of earmarking, %	100%	100%	87%	71%
Electricity excise duty	20 400	21 968	29 311	32 251
Share of earmarking, %	100%	20%	0%	0%

Sources: Authors calculations based on Kralik Table 2.1.4, Ministry of Environment and Statistics Estonia.

Earmarked environmental charges paid into the state budget are used according to the “Environmental Charges Act” (RT I 2005, 67, 512) through the Environmental Investment Centre (EIC). The environmental programme of the EIC is the main national measure for financing environment protection. The fields supported by the grants of the EIC programme include water management, waste management, nature conservation, forestry, fishery and environmental awareness.⁴ Environmental charges have been an important source for financing the renovation of sewage disposal plants, investments into pollution abatement equipment and environmentally adapted waste disposal sites.

As the European Union has established strict fixed-term requirements for the quality of drinking water, purification equipment and sewage systems, most of the proceeds from environmental charges have been used for bringing the water supply into conformity with the requirements. Significant contributions have been made also into fulfilling the requirements established for waste treatment and disposal (Keskkonnaülevaade 2009). In total, about euro 350 million has been paid out under

⁴ <http://www.kik.ee/?op=body&id=105>

the national environmental programme during 2000–2012, which is on average about 27 million per year.

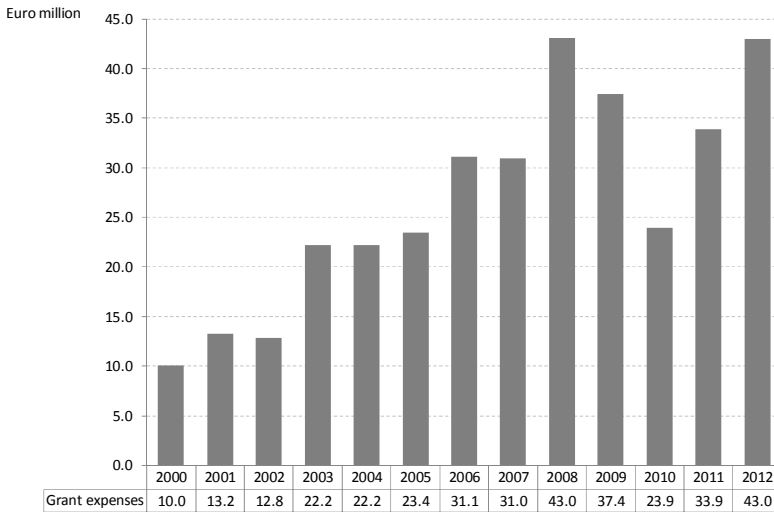


Figure 2. Expenses of grant financed projects, euro million in current prices (EIC yearbooks and annual reports).

Figure 2 shows the annual expenses of grants, i.e. the payments of the EIC of earmarked revenues, during the time period 2000–2012. The development of expenses to the environmental programme is similar to that of central government expenditures for environment protection shown in Figure 1. While central government expenditure totalled euro 68.3 million in 2011 grant payments were euro 33.9 million, which is about half of central government expenditure.⁵ The remaining part of expenditures is mainly financed by European Funds.

4. International funding

There is no comprehensive data set covering foreign aid payments to environment protection in Estonia. For the time period 2001–2003 Statistics Estonia estimated foreign funding to be about 10–30 million annually (Statistikaamet, different years). The EIC functions since 2004 as the implementing agency for the environmental projects funded by the European Regional Development Fund (ERDF), the European Social Fund (ESF) and the Cohesion Fund (CF). Water protection and management is the main field into which EU money has been channelled. During the

⁵ The share of grants in central government spending on environment protection is smaller still, since grant payments also cover expenses into drinking water infrastructure, which are not included in environment protection expenditure, see Appendix.

time period 2005–2008, three quarters were used for water management, including investments in the improvement of the quality of drinking water and organisation of sewage disposal and purification (Keskkonnaülevaade 2009). In 2009–2011 water protection and management received more than half of EU fund support paid by the EIC. Data on total EU funding for environment protection is available from 2004, which is the year Estonia joined the EU, see Figure 3.

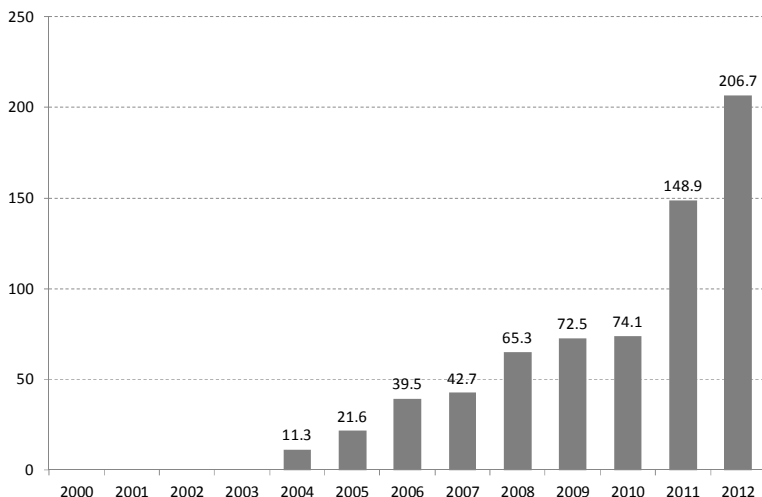


Figure 3. Intermediation of EU funds, euro million in current prices (EIC yearbooks and annual reports).

Intermediation of EU funds has increased substantially during Estonia’s membership in the European Union. On average the EIC has paid out approximately euro 75 million annually from EU funds during the time period 2004–2012. Intermediation has increased each year. The most remarkable increase of euro 75 million took place between 2009 and 2010.

5. Impact from different sources on environmental expenditure

Based on the data presented in the previous sections, it is possible to make an attempt to quantify the impact on public expenditure on environment protection from earmarking on the one hand and from EU funds on the other hand. The prerequisite is that there is a link between the funds paid out by the EIC and central government expenditure on environment protection. Such link exists between EIC grants and central government expenditure. However, there is one difference in definitions. While EIC expenditures include drinking water management, this field is not covered by government expenditure on environment protection.

In order to get an overview of expenditure data, Table 4 shows central government expenditure on environment protection plus central government expenditure on drinking water and EIC data on total grant expenditure and total expenditure of intermediation of EU funds. Unfortunately, the time series is too short to allow for meaningful regression analyses.

Table 4. Central government expenditure on environment protection and drinking water supply, expenses on EIC programmes and EU expenditure, euro million current prices.

	2005	2006	2007	2008	2009	2010	2011	Total
Central government expenditure on env. prot. & drink water	61.3	58.5	94.8	133.6	111.2	81.3	69.1	609.8
EIC expenditure	45.0	70.6	73.7	108.3	110.0	98.0	182.7	688.3
of which								
EIC programme grants	23.4	31.1	31.0	43.0	37.4	23.9	33.9	223.7
EIC intermediation of EU funds	21.6	39.5	42.7	65.3	72.5	74.1	148.9	464.6

Sources: authors calculations, Statistics Estonia (net of AAU sales), year books and annual reports of the EIC 2005–2011.

The table indicates that there is a connection between expenditures of the central government and of those of the EIC, except for the fact that intermediation of EU funds widely exceeds central government expenditure in 2011. Turning to the purpose of the paper, data can still be helpful. In the first year of the ecological tax reform, in 2006, national expenses (EIC grants) increased by about euro 8 million while intermediation of EU funds grew by about euro 18 million. However, growth in central government expenditure did not occur until the year after, in 2007. In that year, only intermediation of EU funds grew. The development between 2007 and 2008 shows an increase both in central government expenditure on environment protection and in both kinds of EIC expenditure. Expenditure from national funds grew by euro 13 million and from EU funds by euro 22 million. This indicates that the increase in EU funding was more important during the first year of the economic crisis than the impact from the ecological tax reform. Overall, the impact from EU funding seems to be a more important driver of central government expenditure on environment protection and drinking water than national funds. In total, during the time period 2005-2011, EIC programme grants, which originate from earmarked revenue, have contributed by about 37 per cent of central government expenditure on environment protection and drinking water supply, while EU fund contribution has made up a significantly larger share.

In 2009 the contribution from national funds decreased. As shown previously, this year earmarked charge revenue was not necessarily due to lower levels of resource extraction or pollution levels. Instead earmarked revenue from environmental charges decreased because earmarking rules were changed. It is possible that this

change was an indirect impact of the crisis. Since proceeds from income taxes decreased when unemployment started to grow in 2008, there was a loss in general purpose revenue in the state budget, which necessitated a search for alternative sources of revenue.

The spending of EIC grants decreased further in 2010. This happened in spite of the growth in EU fund payments. In 2011 both national and EU fund expenditure increased. Again the increase of EU fund payments was significantly larger than that of national funds. While EIC expenditure increased, central government expenditure on environment protection fell. There is no readily available explanation for this deviation. One possibility though, is that periodicity in accounts differs between these two expenditures.

6. Conclusions

In the time period 1995–2000, central government environmental expenditure was relatively stable. In constant prices, spending was about euro 20 million per year. Starting in 2001 and until 2005 expenditure increased each year. With the exception of 2006, growth continued until 2008. After 2008 central government expenditure on environment protection has decreased significantly. In 2011 the volume was back on the 2006 level. The period of fast growth of environmental expenditure coincides with the ecological tax reform, which substantially increased revenues from environmental charges earmarked for environment protection. The growth also coincides with availability of increasing EU funding.

The main aim of this paper has been to assess the impact of earmarking on expenditure for environment protection purposes. The analysis of data for the time period 2005–2011 shows that earmarked charges have covered about 37 per cent of central government expenditure on environment protection and drinking water supply. At the same time, the analysis of data suggests that increased access to EU funds has been the main driver of the growth in environment protection expenditure of the central government.

One hypothesis was that earmarking reduces the sensitivity of environmental expenditure to macroeconomic developments. Since central government expenditure on environment protection is partly based on earmarking while local government expenditure is not, correlations between the development of GDP and environmental expenditures were calculated in order to test this hypothesis. The results suggest that for the time period 1996–2011 central government expenditure has been less sensitive to macroeconomic developments than that of local government expenditure on environment protection. The lower sensitivity to macroeconomic developments could imply that earmarking has potential to provide a stable base for financing environment protection expenditure. However, the case of Estonia further suggests that earmarking is not a sufficient condition. There are two reasons for this conclusion. One is that the increase in environmental expenditure during the time period 2006–2008 was to a greater degree influenced by increasing EU funding than

due to higher environmental charges. The second reason is that earmarking rules were changed in 2008-2009, most probably as a result of the economic crisis.

Although increasing revenues from earmarked environmental charges have contributed to growing expenditure, it is the greater availability of EU funds that has been the main driver of the expansion of central government expenditure on environment protection. In some sense earmarking has been substituted by EU funding as a source of spending for environment protection.

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Appendix. Data on Public Environmental Expenditure

Statistics Estonia produces data on general government revenues and expenditures. The data set is available for the time period 1995–2011 (www.stat.ee) and is classified according to the United Nations Classification of the Functions of Government (COFOG)⁶. One of these government functions is environmental protection and covers activities that reduce negative externalities. The definition of environmental protection set by OECD and Eurostat includes “activities aimed directly at the prevention, reduction and elimination of pollution or any other degradation of the environment resulting from the production processes or from the use of goods and services expenditure on waste management, waste water treatment, pollution control, protection of biodiversity and landscapes, and other environmental protection activities” (Swanson and Lundethors, 2003). Environmental protection is broken down into six sub-categories:

- Waste management
- Wastewater management
- Pollution abatement
- Protection of biodiversity and landscape
- Research and Development (R&D)
- Other environmental protection expenditures

These data make it possible to follow the Central Government and Local Government expenditure on environmental protection and distribution by domain during 17 years.

⁶ <http://unstats.un.org/unsd/ct/registry/regcst.asp?Cl=4>

AVALIKU SEKTORI KESKKONNAKULUTUSED EESTIS AASTATEL 1995-2011

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1. Sissejuhatus

Eesti avaliku sektori keskkonnakulutuste maht on otseselt seotud sihtotstarbeliste, keskkonnakaitseliste tegevuste finantseerimiseks mõeldud keskkonnatasude laekumisega. Keskkonnakasutusest laekuvate tulude (edaspidi keskkonnatulude, näit. ressursimaks, saastetasud) sihtotstarbeline kasutamine keskkonnakaitses on üldiselt iseloomulik pigem Ida-Euroopa kui Lääne-Euroopa riikidele, kus keskkonnakaitselisi kulutusi finantseeritakse riigieelarvest üldistel alustel. Keskkonnatulude eelnevalt kokkulepitud sihtotstarbeline kasutamine aitab kaasa stabiilsele keskkonnapoliitikale ja keskkonnakaitseliste eesmärkide saavutamisele. Nii näiteks tagab keskkonnatulude sihtotstarbeline kasutamine, et keskkonnakulude finantseerimine ei pea riigieelarve koostamisel iga-aastaselt konkureerima teiste valdkondadega, tagades nii keskkonna vajadusteks tehtavate kulutuste suurema stabiilsuse. Eelnevat illustreerib asjaolu, et vaatamata ulatuslikele eelarvekärbetele 2008. ja 2009. aastal riigi keskkonnakulutused kasvasid. Sellest võib järeldada, et laekunud keskkonnatulude eelnevalt kokkulepitud kasutamine muudab keskkonnakulude finantseerimise suhteliselt sõltumatuks makromajanduslike arengutest. Keskkonnakulude kasv kriisiaastatel sai lisaks kokkulepitud finantseerimismehhanismile võimalikuks tänu ökoloogilisele maksureformile, mis suurendas riigieelarvesse laekuvaid keskkonnatulusid, mille sihtotstarbeline kasutus oli kokku lepitud. Olulisel kohal keskkonnakulutuste suurenemises on lisaks maksureformile ka Euroopa Liidu 2007-2013 eelarveperioodi keskkonna vajadusteks ette nähtud vahendite järk-järguline kasutuselevõtt, mida tuleks riigisiseste tulude kulutamise sihtotstarbelisuse mõju analüüsil arvestada, käsitledes EL-ist lähtuvat finantseerimist siseriiklikust eraldi.

Käesoleva artikli eesmärgiks on välja selgitada, millist mõju avaldab riigi keskkonnakuludele nende finantseerimise eelnev kokkuleppimine keskkonnatuludest. Arvestades, et riigi keskkonnakulutuste finantseerimine toetub erinevalt kohalike omavalitsuste kulutusest tulude (keskkonnamaksude) sihtotstarbelisele kasutamisele, püstitasid autorid hüpoteesi, et kohalike omavalitsuste keskkonnakulutused on riigi kulutustega võrreldes makromajanduslikest arengutest enam sõltuvad.

Avaliku sektori keskkonnakulutusi on seni nii Eestis kui ka Euroopas suhteliselt vähe uuritud. (Näiteks autoritel õnnestus välja selgitada vaid kuus viimasel

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kümnendil avaldatud selleteemalist teadustööd.) Võttes arvesse, et keskkonna kvaliteet on elukvaliteedi ja indiviidide heaolu üheks oluliseks determinandiks, mille tagamine ühes selleks vajalike kulutuste tegemisega kuulub suuresti avaliku sektori ülesannete hulka, väärib teema senisest põhjalikumalt käsitlemist, millist eesmärki püüab täita ka käesolev uurimus.

2. Riigi keskkonnakaitselised kulutused

Vaatlusaluse perioodi alguses, aastatel 1995-2000, olid valitsuse keskkonnakulutused Eestis suhteliselt stabiilsed, tasemel 20 miljonit eurot aastas (püsihindades). Sellele järgnenud ajavahemikul 2001-2005 keskkonnakulutused aasta-aastalt suurenesid. Kasv jätkus 2008. aastani, olles eriti märkimisväärne aastatel 2006 kuni 2008. Sealpeale hakkasid kulutused kahanema, langesid 2011. aastal tagasi 2006. aasta tasemele. 2011. aastal olid riigieelarvelised keskkonnakaitselised kulutused veidi üle 68 miljoni euro, mis moodustas selle aasta riigieelarve kuludest ligikaudu 1,5 protsenti. Võrreldes 2010. aastaga langesid kulutused 2011. aastal oluliselt. Kulutuste vähenemine toimus võrreldes 2009. aastaga ka 2010. aastal. Aga näiteks aastatel 2007-2009 ületasid keskkonnakulutused 2 protsenti riigi eelarvelistest kogukulutustest.

Eesti avaliku sektori keskkonnakulutustest perioodil 1996-2010 annab ülevaate tabel 1. Hindamaks makromajandusliku keskkonna (sh majanduslanguse) mõju keskkonnakulutustele, on tabelis toodud riigi ja omavalitsuse keskkonnakulutuste protsent sisemajanduse kogutoodangust.

Andmetest nähtub, et nii riigi kui omavalitsuste keskkonnakulutused on vaatlusalusel perioodil märkimisväärselt kõikunud. Nii riigi kui omavalitsuste keskkonnakulutuste olulised suurenemised langevad ühtede ja samadele aastatele, 1997, 2001 ja 2005. Arvestades, et keskkonnakulutuste hulka kuuluvad ka mahukad investeeringud prügimajandusse ja veepuhastusse, võib eeldada kulutuste tsüklilisust. Siiski saab keskkonnakulutuste korreleerumisest SKP muutustega teha mõningaid järeldusi kulutuste tundlikkuse kohta makroökonoomilistest arengutest.

Korrelatsioon SKP-st on väiksem riigi keskkonnakulutustel ($r=0.22$) omavalitsuste kulutustega võrreldes ($r=0.36$). Kui perioodi kaks viimast aastat välja arvata, siis korrelatsioon suureneb, olles 0.27 riigi ja 0.55 omavalitsuste kulutustel. Andmetest võib järeldada, et riigi kulutused on makromajanduslikust keskkonnast võrreldes omavalitsuste kulutustega vähem mõjutatavad ja riigi kulutuste mõju SKP fluktuatsioonidest on aja jooksul pigem vähenenud. Kui võrrelda keskkonnakulutusi kriisiperioodidel 1998-1999 ja 2008-2009, võib täheldada erinevusi. Nii oli esimese kriisi (1998-1999) mõju riigi keskkonnakulutustele tunduvalt suurem kui viimase (2008-2009). Viimasele majanduslangusele järgnenud SKP kasv aga riigi keskkonnakulutuste mahtu positiivselt ei mõjutanud, need jätkasid vähenemist ka 2011. aastal. Küll aga kasvasid omavalitsuste keskkonnakulutused 34 miljonilt eurot 2010. aastal 49 miljoni euroni 2011. aastal.

Tabel 1. Eesti SKP, riigi ja omavalitsuste keskkonnakaitseliste kulutuste dünaamika aastatel 1996-2011, väljendatuna muutuse protsentides aastas (püsihindades)

	SKP	Keskkonnakaitseliste kulutused	
		Riik	Omavalitsused
1996	5,9%	28,1%	-14,1%
1997	11,7%	42,6%	14,0%
1998	6,8%	1,6%	4,6%
1999	-0,3%	-1,6%	-4,4%
2000	9,7%	-13,5%	-6,2%
2001	6,3%	62,5%	58,8%
2002	6,6%	11,7%	5,6%
2003	7,8%	12,1%	-6,4%
2004	6,3%	10,0%	1,2%
2005	8,9%	26,1%	39,6%
2006	10,1%	-12,1%	6,0%
2007	7,5%	45,1%	-7,5%
2008	-4,2%	33,9%	-1,3%
2009	-14,1%	-16,7%	-13,9%
2010	3,3%	-27,2%	-15,0%
2011	8,3%	-17,4%	44,1%

Allikas: autorite arvutused, Eesti statistika.

3. Keskkonnakulutuste sõltuvus finantseerimisallikatest

Tabelis 2 on esitatud andmed riigi kulutuste kohta keskkonnakaitsele ja veevarustusele, Keskkonnainvesteeringute Keskuse (KIK) kaudu tehtud keskkonnakulutused ja KIK-i vahendatud EL fondidest tehtud keskkonnakulutused. Kahjuks on aegrida regressioonanalüüsi teostamiseks liiga lühike.

Toodud andmetele toetudes võib täheldada seost riigi ja KIK-i keskkonnakulutuste vahel, välja arvatud asjaolu, et 2011. aastal ületas EL-i fondidest lähtuv finantseerimine riigi vastavaid kulutusi mitmekordselt. Ökoloogilise maksureformi esimesel aastal (2006) kasvasid riigi kulutused ca 8 miljoni euro võrra, samal ajal kui finantseerimine EL-i fondidest suurenes tervelt 18 miljonit eurot. Riigi keskkonnakulutused hakkasid oluliselt kasvama järgmisest, 2007. aastast. 2008. aastal kasvasid võrreldes 2007. aastaga nii riigi, KIK-i kui KIK-i vahendatud EL-i fondidest finantseeritavad keskkonnakulutused. KIK-i omamaistest vahenditest tehtud kulutused suurenesid 13 miljonit ja EL- fondidest vahendatud kulutused 22 miljonit eurot. See näitab EL-st lähtuva finantseerimise suuremat mõju ökoloogilise maksureformiga võrreldes. Kokkuvõttes võib väita, et perioodil 2005-2011 moodustasid KIK-i toetused, mis formeerusid ette kokkulepitud kasutusotstarbega keskkonnakuludest, ligikaudu 37 protsenti riigi kulutustest keskkonnale ja veevarustusele. See jääb mahu poolest tuntuvalt alla EL-i fondidest tehtud keskkonnakulutustele.

Tabel 2. Riigi kulutused keskkonnakaitsele ja veevarustusele, Keskkonnainvesteeringute Keskuse (KIK) kaudu tehtud keskkonnakulutused ja KIK-i vahendatud EL fondidest tehtud keskkonnakulutused, miljon eurot

	2005	2006	2007	2008	2009	2010	2011	Total
Riigi kulutused keskkonnakaitsele ja veevarustusele	61,3	58,5	94,8	133,6	111,2	81,3	69,1	609,8
KIK-st tehtud keskkonnakulutused	45,0	70,6	73,7	108,3	110,0	98,0	182,7	688,3
sh KIK-i programmi toetused	23,4	31,1	31,0	43,0	37,4	23,9	33,9	223,7
KIK-i vahendatud EL-i fondide raha	21,6	39,5	42,7	65,3	72,5	74,1	148,9	464,6

Allikas: Autorite arvutused, Eesti statistika, KIK-i aastaraamatud ja aastaaruanded 2005-2011.

4. Järeldused

Kuigi keskkonnatulude ette kokkulepitud sihtotstarbelist kasutamist keskkonnakulutusteks ei ole põhjust alahinnata, võib siiski väita, et Eesti avaliku sektori keskkonnakulutustes mängis analüüsitaval perioodil suhteliselt suuremat rolli EL-i fondidest lähtuv keskkonnakaitseliste tegevuste finantseerimine. Analüüs näitab ka, et perioodil 1996-2011 olid riigi keskkonnakulutused võrreldes omavalitsuste keskkonnakulutustega makroökonomilistele muutustele vähem tundlikud. Riigi tehtud kulutuste mahu väiksemast tundlikkusest võib järeldada, et keskkonnatulude eelnevalt kokkulepitud kasutamine keskkonnakuludeks aitab kaasa keskkonna kvaliteedi parandamiseks tehtavate kulutuste stabiilsusele. Samas võib Eesti näite põhjal järeldada, et keskkonnatulude kasutuse ette kindlaksmääramine ei ole meetmena piisav. Selline järeldus tugineb tõsiasi, et aastatel 2006-2008 oli keskkonnakulude suurenemine enam mõjutatud EL-i fondidest pärit vahenditest samal perioodil kasvanud keskkonnamaksudega võrreldes. Samuti võib eeldada, et oma mõju avaldas ka majanduskriisi tingimustes muudetud keskkonnatulude kasutuse ette kindlaksmääramise kord.

Kuigi ette kindlaksmääratud kasutusega keskkonnatuludel on avaliku sektori keskkonnakulutustes oluline osa, võib siiski väita, et avaliku sektori keskkonnakulutuste suurenemisel on määravama tähtsusega EL-i fondidest pärit vahendid. Küll on põhjust oletada, et EL-i fondidest keskkonnakulutuste finantseerimine ei pruugi olla igavene, mistõttu väärrib keskkonnatulude keskkonnakulutusteks kasutamise põhimõtte säilitamist ja edasiarendamist.