

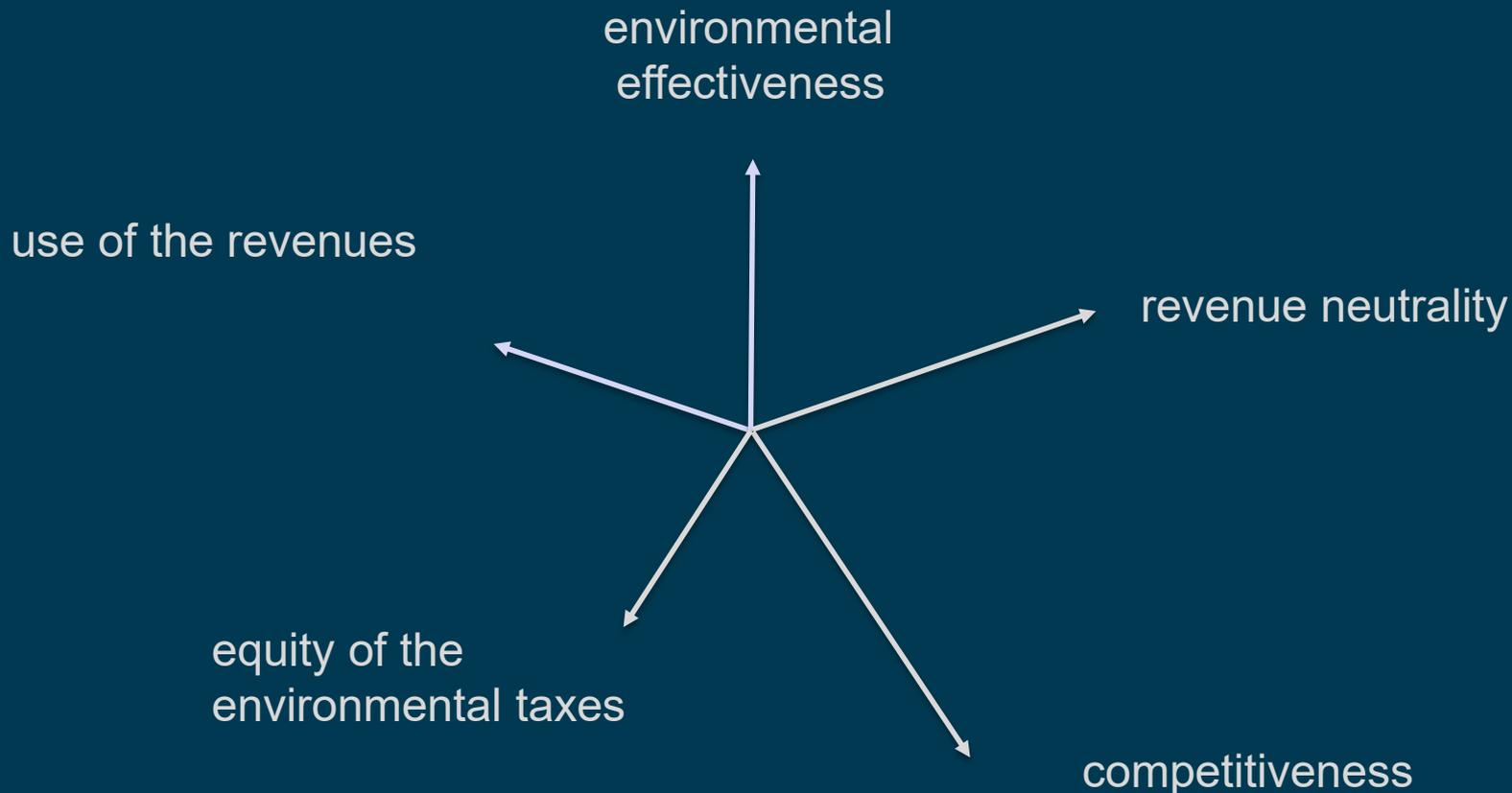
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## Multidimensional framework for the evaluation of the effectiveness of environmentally related taxes and subsidies, present state and way forward



Joint OECD/UNECE Seminar on the Implementation of SEEA  
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Grete Luukas (Statistics Estonia, EPEA)  
Presented by Kaia Oras, Statistics Estonia

# Dimensions to be covered in monitoring of the green fiscal reform\*



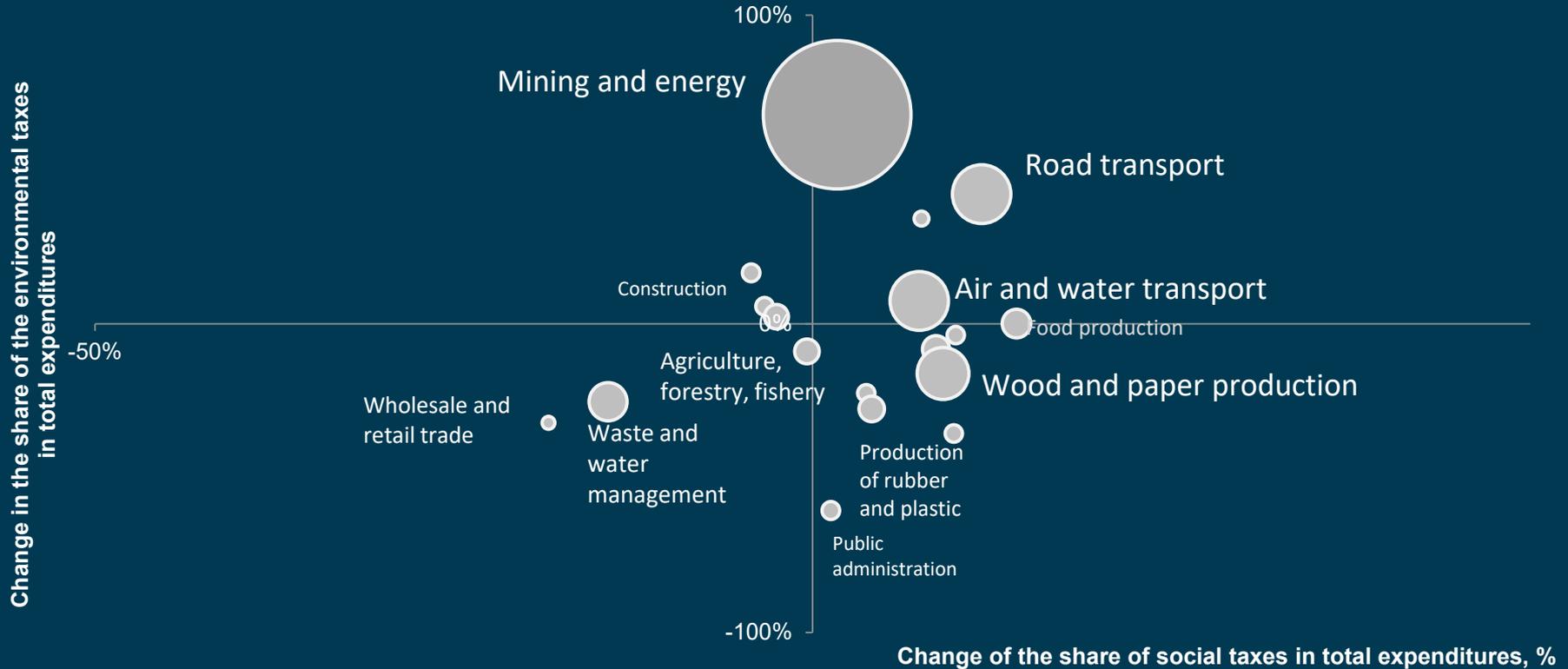
\* - Environmental tax reform base document. Estonian Ministry of Finance, 2005

- Environmental Taxation A Guide for Policy Makers, OECD, 2011



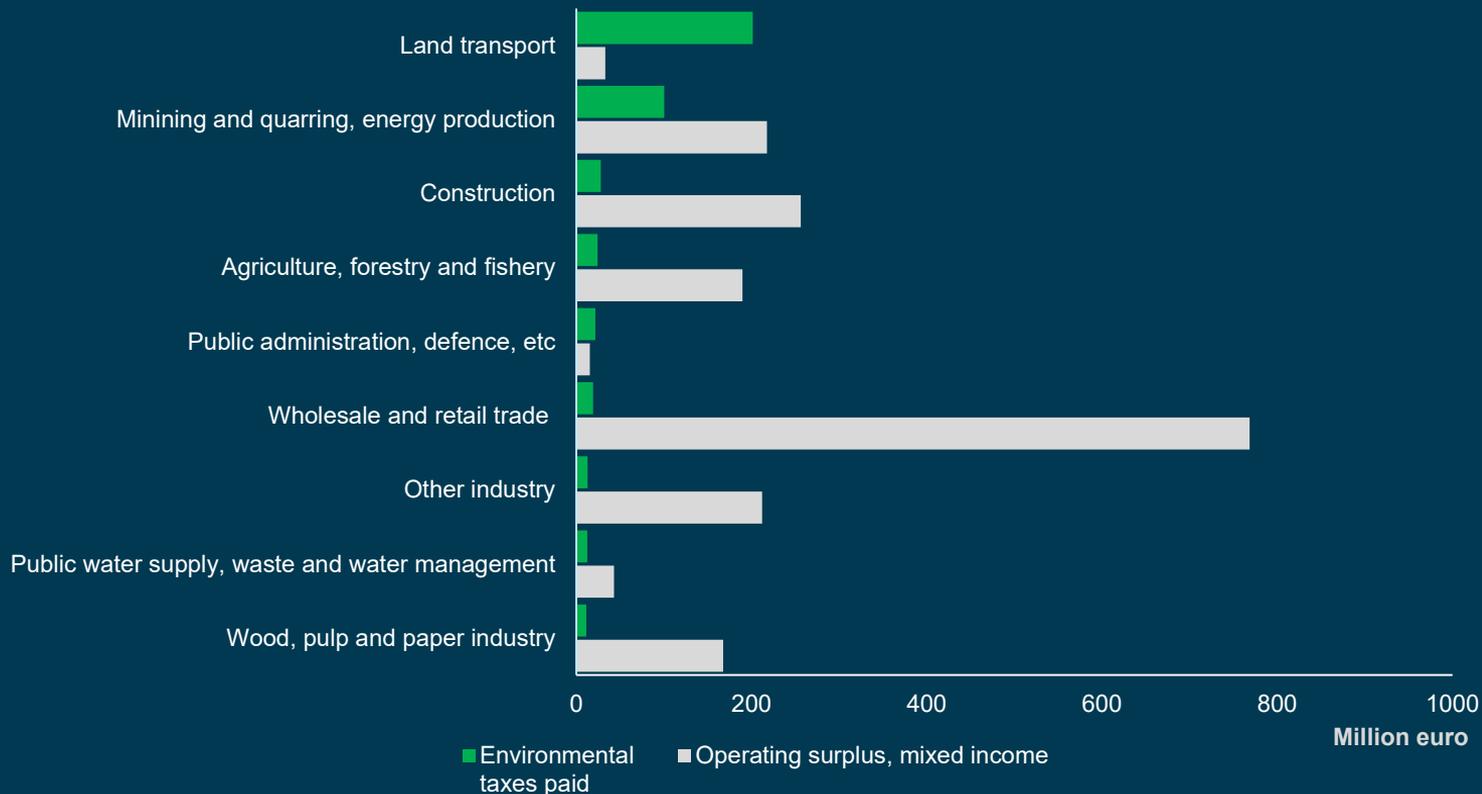
# Revenue neutrality: Is there a zero impact on total taxes? For which sectors has the share of environmental taxes in total expenditures grown most?

## Changes in burden of social contributions and environmental taxes, 2010-2016



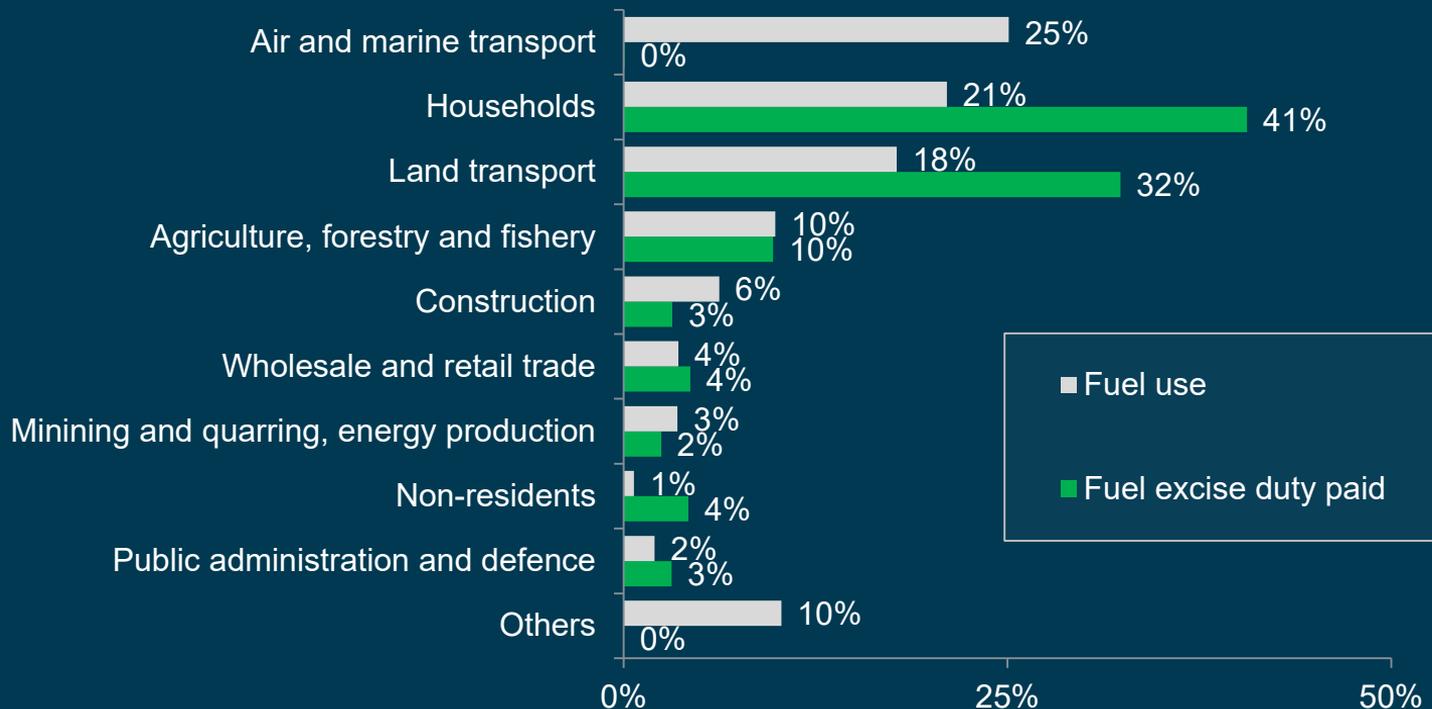
## Competitiveness aspect: how heavy is the burden of environmental taxes?

Comparison between environmental taxes and generated surplus among the main payers of environmental taxes, 2016?



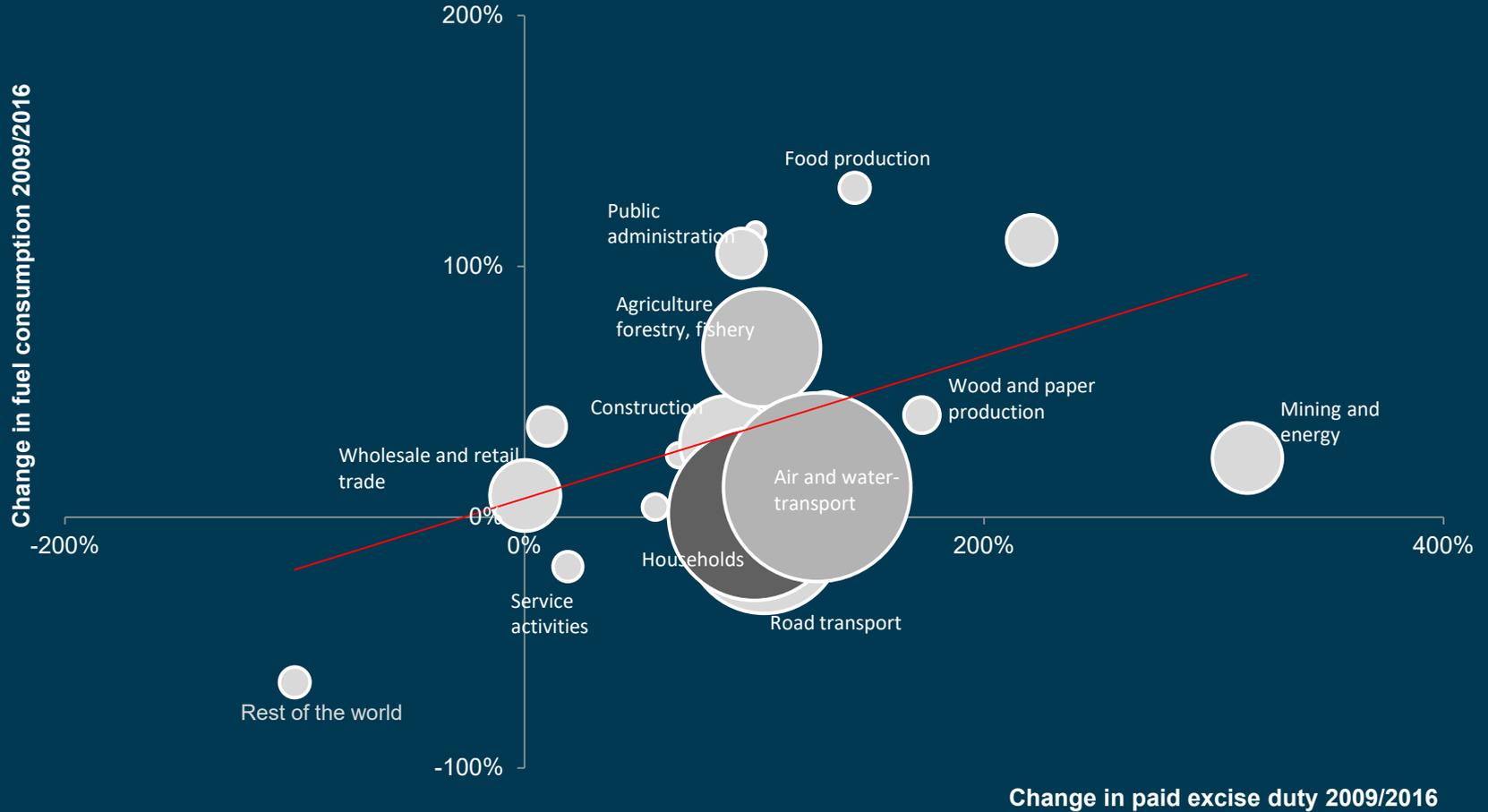
## Equality aspect: does the consumption of transport fuels and the payments for fuel excise duty distribute evenly?

Relative sectorial distributions of the consumption of transport fuels and payments of excise duty on transport fuels in 2016





# Environmental efficiency of the fuel excise duty: how has the fuel excise duty influenced fuel consumption in different sectors (size of the bubbles refer for fuel consumption), 2009-2016?



# Current work on improvement of the evaluation of effects of fiscal measures

## Some criticism and suggestions:

- To take into account other environmental costs of enterprises before doing analyses of equity and competitiveness aspects of environmental fiscal reform
- To apply the supply-demand side restrictive-supportive approach for evaluating action taken from governments fiscal perspective \*
- To analyse the impact of taxes on prices (and vice versa)
- To integrate visibly tax exemptions and reduced tax rates e.g. subsidies
- To evaluate the impact on households income

\* - SEI Initiative on Fossil Fuels and Climate Change: Michael Lazarus and Georgia Piggott, SEI USA - Fossil Fuels Production Reduction Process Management: Missing Piece in Climate Policy Puzzle; <https://www.sei.org/wpcontent/uploads/2018/04/managing-the-decline-of-fossil-fuel-production-a-missing-piece-of-the-climate-policy-puzzle.piggott-lazarus.pdf>



# In order to take into account relevant environmental costs

## What did we do?

- Integrated available expenditure and investment data to the analyses of the fiscal measures
- Made an effort to link taxes classification with CEPA/CREMA classification
- We added missing fiscal instruments (fees, charges, resource rent) to an analysis
- Drafted the template to collect the figures both from national accounts and environmental accounts to calculate relevant variables



# SECTORIAL LEVEL VARIABLES FOR ANALYSIS

## Environmental variables (more than a hundred)

### ENVIRONMENTAL TRANSACTIONS FROM EPEA:

CEPA/CREMA and by institutional sector:

Consumption of EP products (P.2,P.3)

Env. Investments, GFCF (P.51g\_NP)

Earmarked taxes received (D.2)

Environmental taxes received (D.2)

Total taxes received (D.2)

Environmental taxes paid (D.2)

Transfers received and paid (D.3,D.7, D.9)

Total national environmental expenditure  
(P2+P3+P51g\_NP+D2-D.3-D7-D9)

### ECONOMIC VARIABLES

by NACE and institutional sector:

Total surplus (B.2g B.3g)

Total taxes paid

Output (P.1)

Export (P.6)

Total expenditures  
(P2;P3) + taxes (D2)

### SOCIO ECONOMIC VARIABLES

Employment

Social contributions (D 1.)

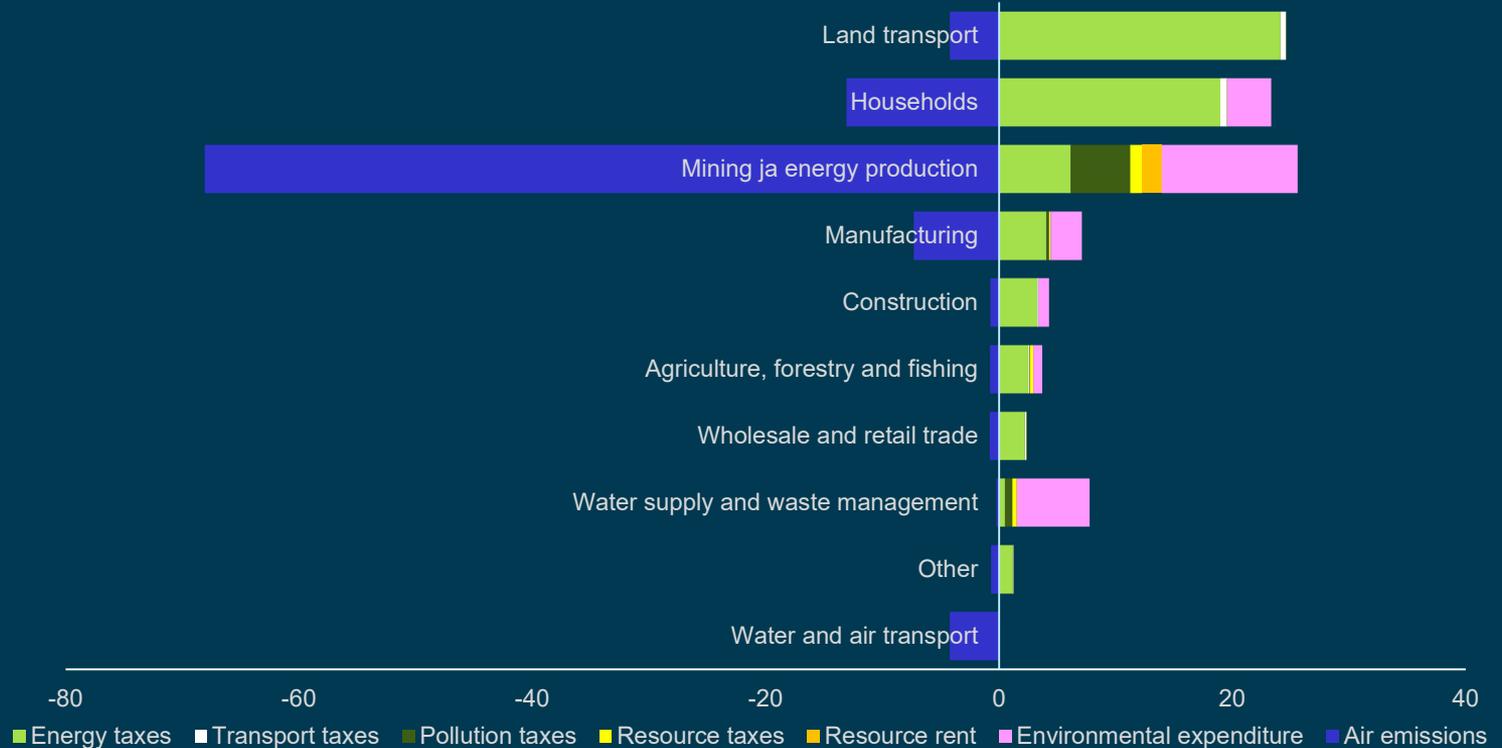


# Selection of indicators for the evaluation of the effectiveness of the green fiscal reform

<b>DIMENSION/focus</b>	<b>Indicators, (by NACE, time series)</b>
<b>COMPETITIVENESS: Environmental tax burden</b>	environmental taxes / total expenditures social contributions /total expenditures
<b>COMPETITIVENESS: Environmental expenditure burden</b>	Environmental expenditure / value added Environmental expenditure / surplus
<b>EQUITY: „Polluters pay principle“, who is carrying the burden of environmental taxes?</b>	Paid environmental taxes/ tax base
<b>EQUITY: „Polluters pay principle“, who is carrying the burden of expenditures?</b>	environmental expenditures / respective tax base
<b>ENVIRONMENTAL EFFECTIVENESS: Have the loads of the emissions or resource use decreased?</b>	tax base, environmental pressure
<b>ENVIRONMENTAL EFFECTIVENESS: Have the loads of the emissions or resource use per unit of economic output decreased?</b>	tax base/value added
<b>How have the environmental tax revenues been used?</b>	general government expenditures on environmental protection/ receipts from environmental taxes

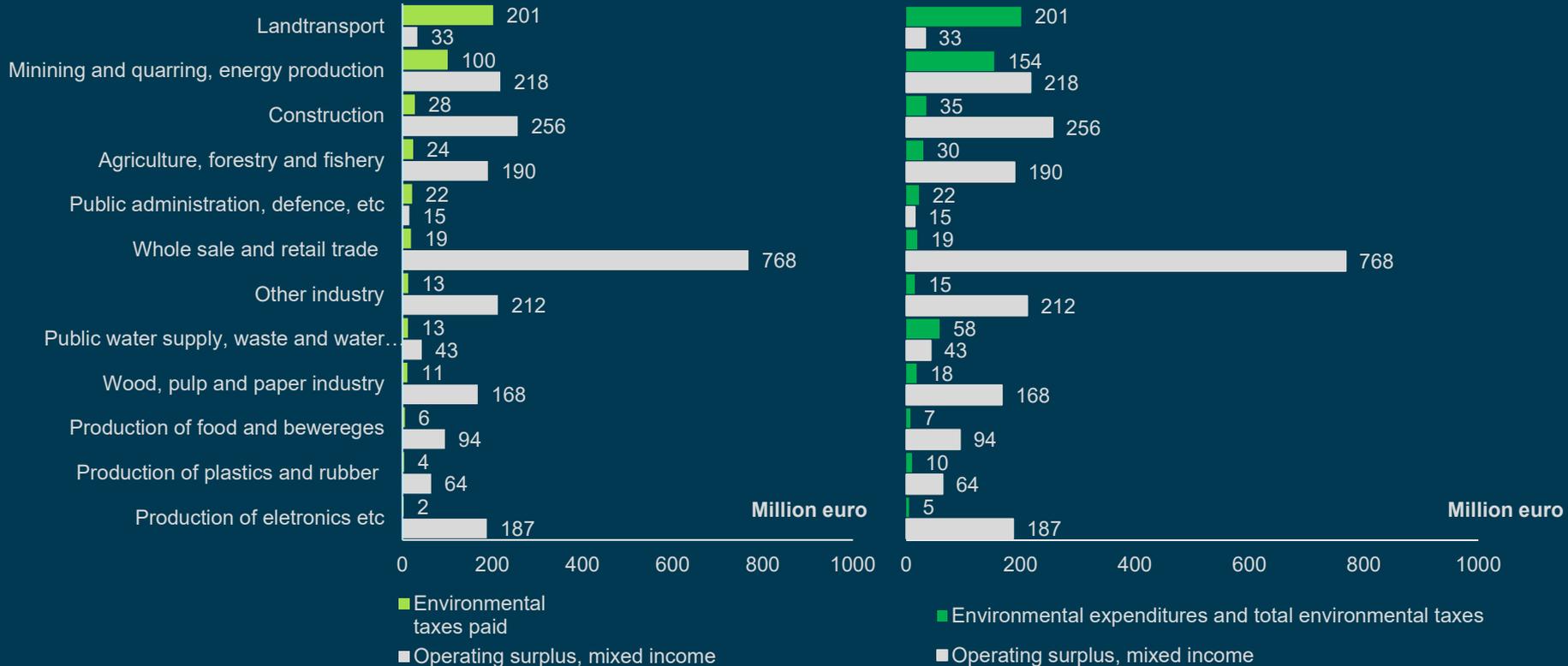


# Environmental effectiveness and equity aspect: sectorial distribution of environmental costs (right) by economic activities compared with total air emissions (as proxy) on the left, 2016





## Comparison of the burden of environmental costs of various sectors: on the left environmental taxes versus surplus; on the right all environmental costs versus surplus, 2016





## Summary of the issues we have discussed:

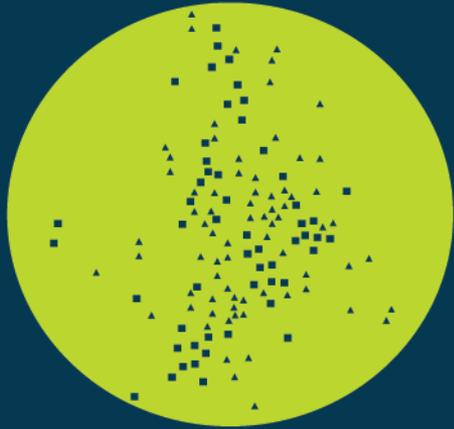
- Resource management expenditures definitions and methods need to be developed in order to get comparable figures.
- Tax exemptions, preferential tax rates and other environmentally harmful subsidies of interest.
- User interface comprising the effects of environmental fiscal instruments on competitiveness, equity, environmental effectiveness needs to be developed. Technical solution or just a publication and database?
- The draft table of the transactions and other figures for calculation of relevant dimensions of the green fiscal reforms has been created.

## SUGGESTIONS were...

- To integrate the environmental costs (+/-)
- Analyse the impact of taxes on prices and *vice versa*(-)
- Integrate environmentally harmful subsidies (-)
- To apply the supply-demand side restrictive-supportive approach for the evaluation of the actions taken from government side (+/-)

„+/-“ - partially accomplished

„-“ - not accomplished



**WORK IN  
PROGRESS**



## Some questions

- 1. Is the draft table template of the transactions and other variables for the evaluation of the efficiency of green fiscal reform relevant? All comments on possible inconsistencies are highly appreciated.**
- 2. Is the supply and demand side supportive and restrictive measures a suitable framework for users while analysing governments green fiscal policy?**
- 3. As variables still need to be further tested and discussed, are there other statistical offices or institutes interested? Who would you like to cooperate with us?**

Next steps and for discussion:

1. Dimensions still to be considered:

- impacts of environmental fiscal instruments on households income
- resilience and risks (regarding several of the tax bases)

2. Collaborate with statistical community in order to learn from the best practices

3. Work on communication (main findings, visualize the outcomes but not only).  
Development of a technical solution (on-line database)

**More on a topic:**

**Link to the:**  
thematic [article](#) and background [paper](#)

**Thanks to:**

- **Our colleagues in Statistics Sweden who have given us feedback and suggestions in our work**
- **The LG for the suggestions received last year**

**Please send your feedback to: [kaia.oras@stat.ee](mailto:kaia.oras@stat.ee)**