EUROPEAN COMMISSION / European Research Area / Social sciences & humanities

EUROPEAN POLICYBRIEF

WWWFOREUROPE WELFAREWEALTHWORK

Policy implications of resource constraints on the European economy

Authors: Kurt Kratena (WIFO), Mark Sommer (WIFO)

Reviewed by Helmut Haberl (Alpen-Adria-Universität Klagenfurt), Christian Lutz (Institute of Economic Structures Research), Janneke Plantenga (Utrecht University), Jeroen van den Bergh (Universitat Autònoma de Barcelona)

Policy Brief No. 6

November 2014

INTRODUCTION

Objectives of the research

The research undertaken designs macroeconomic scenarios for Europe that allow the economy to meet targets of considerable reduction of resource use. The latter refers to energy use and greenhouse gas emissions, to the input of metals and industrial minerals as well as of construction minerals. The analysis covers two different tax schemes (production- and consumption-based) for meeting certain targets of resource use reduction and deals with their macroeconomic and social impact. The results suggest that accompanying policies may be helpful for achieving these targets, with positive economic and social implications in the medium term.

Macroeconomic scenarios of resource use reduction

Starting point for the resource scenarios for Europe is research undertaken in the context of this project as well as on global resource scenarios developed by the United Nations Environment Programme (UNEP). The underlying biophysical constraints on a global scale are described by the research on 'planetary boundaries' that can be used for deriving policy targets on resource use at the global and European level. On the basis of a DYNK (Dynamic New Keynesian) model for the EU 27, different policy options for resource use reduction are analysed. The resources and the corresponding policy targets refer to greenhouse gas (GHG) emissions as well as to material inputs for which flow data are available (biomass, fossil fuels, minerals for construction, metal and other industrial materials).

Absolute decoupling is needed for a socio-ecological transition

Any practical scenario that allows achieving policy targets for resource use without violating economic and social targets requires the decoupling of resource use from income or GDP. Impact analysis on the reduction of GHG emissions is often based on partial models of the energy system without taking into account the socio-economic feedbacks of the instruments applied. The repercussions of policies that are successful in reducing emission and resource use can be positive, via a 'rebound effect', or negative, if the economic costs dominate the benefits and are not compensated by other measures. These repercussions usually do not work through one direct impact channel, but by the interplay of different feedbacks. Therefore, a comprehensive modelling approach that takes into account all linkages between the physical flows that are to be reduced and key variables in the economic system needs to be applied.

The European perspective on global resource use

For Europe, the reduction of resource use is linked to different policy goals. First, the European consumer is part of the global value chain and contributes directly and indirectly to global resource use. GHG emissions in Europe are still an important part of global emissions and emissions per capita are far beyond a sustainable global level. Second, security of supply and the risks attached to it are further considerations for European resource policy.

Global environmental responsibility and price competitiveness of European industry

The political targets, formulated in roadmaps for GHG emission reduction and resource efficiency, therefore prescribe significant reductions in resource use linked to domestic production (GHG emissions), as well as to domestic consumption (domestic material consumption, DMC). The main instrument discussed in this context is the introduction of prices/taxes for GHG emissions and for resource inputs like construction minerals and metal ores.

At the same time, the problem of 'leakage' is identified in a scenario of a "go-it-alone" European resource policy. Higher costs for European producers due to these taxes may lead to relocation of energy- and resource-intensive production. This in turn may hurt growth of income and jobs in Europe while leaving resource use and GHG emissions unchanged or even higher on a global scale.

In the end, the genuine source of leakage is consumer demand in Europe. Given this demand, producers outside Europe will increase their resource use, if European producers of energy- and material-intensive goods are not competitive. One can think of two possible strategies to overcome leakage: (i) increasing energy and resource efficiency more than proportionally, so that costs do not rise or (ii) taxing embodied emissions and resource use in order to reduce European demand for energy- and material-intensive products. Alternative (i) may be achieved by additionally spurring technical change via using part of the tax revenues for directed technical change. In the following, we analyse the socio-economic impact of alternative (ii) and compare it with the results of 'classical green tax' reform, applying the DYNK model for the EU 27 economy.

KEY OBSERVATIONS

Modelling biophysical constraints in the DYNK (Dynamic New Keyenesian) model

The DYNK model approach bears some similarities with DSGE (Dynamic Stochastic General Equilibrium) models, as it explicitly describes an adjustment path towards a long-term equilibrium. The DYNK model treats the EU 27 as a single integrated economy and traces the inter-linkages between 59 industries as well as the consumption of five household income groups using 47 consumption categories.

Long-run equilibrium and short-run policy impacts

The term 'New Keynesian' refers to the existence of a long-run full employment equilibrium, which will not be reached in the short-run, due to institutional rigidities. These rigidities include liquidity constraints for consumers (deviation from the permanent income hypothesis), wage bargaining (deviation from the competitive labour market) and an imperfect capital market. Depending on the distance to the long-run equilibrium, the reaction of macroeconomic aggregates to policy shocks can differ substantially.

Introducing technical change by linking the DYNK model to partial models

The DYNK model is – due to its detailed modelling structure of consumption and production activities – well suited for the analysis of the driving forces of resource use in the European economy. One main shortcoming is that technical progress is only partly modelled at a detailed level whether induced or endogenous, so that policies can only indirectly be applied (by using some other partial analytical models) in order to steer technical progress in a resource-saving direction.

Revenue-neutral tax reforms with a given public deficit path

The model is closed by further introducing a public budget constraint, specified via the Stability Programme for public finances of each EU Member State that defines the future path of government net lending to GDP. This closure rule implies that any new tax introduced in the EU 27 economy is compensated *ceteris paribus* by higher public expenditure in order to keep the same path for the deficit target. In the case of revenue-neutral tax reforms, public expenditure stays constant as in the 'baseline' scenario. Depending on the income multipliers and distorting effects of different taxes and expenditures, the short-run effect of tax reforms on GDP may therefore be positive or negative in that setting.

Two different taxation schemes to deal with resource use, decoupling and leakage

'Classical green tax reform' and

'Environmental fiscal devaluation'

Two different tax reform schemes have been analysed with the DYNK model for the EU 27 in order to understand the options for dealing with the challenges of absolute decoupling, price competitiveness of European manufacturing and leakage:
(i) the classical 'Green Tax Reform' where GHG emissions and inputs of resources are taxed on an increasing scale and social security contributions (employers' and employees') are reduced simultaneously so that (*ex post*) public revenue neutrality is guaranteed (ii) an 'Environmental Fiscal Devaluation' where GHG emissions and inputs of resources embodied in private consumption are taxed at the same rate and on the same increasing scale as in (i) above, and revenue neutrality is also achieved by the same rule for social security contributions as in (i). This tax reform can be seen as a special case

of fiscal devaluation, i.e. a change in the tax system that mimics the price effects of a devaluation of the currency by rising taxes on consumption (higher prices of domestic consumption) and lowering taxes on labour (lower prices of exports). In the case of environmental fiscal devaluation consumption prices rise due to taxation of embodied emissions and resource input, and export prices decrease due to lower social security contribution. Note that in the concept of 'Environmental Fiscal Devaluation' all consumption goods are taxed irrespective of their origin (like in the case of the Danish fat tax), so that no inconsistency with international trade agreements arises.

Both schemes foresee significant taxation of GHG emissions and resources

The tax rates for GHG emissions have been determined in line with the EU Roadmap for a low-carbon economy, starting off with a tax rate of 25 €/t of CO_2 equivalent (in € of 2005) in 2015 and rising continuously to 250 €/t of CO_2 equivalent (in € of 2005). The tax rates in the DYNK model for the three categories of minerals in the material flow database (minerals for construction, for industry and for metal production) have also been taken from other studies on resource taxation; they start with a tax rate of 2 €/t of domestic material extraction and imported materials and rise by 5% p.a. until 2050.

Implementation in the case of 'Green Tax Reform' is straightforward, as the tax rates lead to higher effective input prices for energy in production and consumption, and for domestic and imported mining and quarrying products in production.

Quantifying embodied emissions and resource use via model simulations

In the case of 'Environmental Fiscal Devaluation', the embodied emissions and resource inputs had in a first step to be quantified by simulating unitary consumption demand increases for all 59 commodities in the DYNK model. The results of these simulations yield a rough one-point-in-time estimate of domestic emission contents for each consumption category, as well as domestic material consumption (DMC), i.e the sum of induced domestic material extraction and induced material imports. From these results, the relationship between the outcome in terms of emissions and DMC and the shock in consumption demand can be calculated, which gives 'implicit coefficients' of embodied domestic emissions and resources. Induced imports of each consumption category are also accounted for in monetary units as part of the simulation results. Hence, what is not directly included into the calculation of embodied emissions and resource use are all indirect effects in the rest of the world linked to European consumer demand. The correct way to deal with such effects would be a simulation with a MRIO (multi-regional input-output) model, which was beyond the scope of this research. Accounting for these indirect effects is approximated by linking the implicit coefficients of embodied domestic emissions and resources to the imports induced by consumption. As the EU 27 probably uses a more environmentally friendly technology in production than the one contained in EU imports, this estimation of embodied emissions and resource use is likely to be biased downwards.

The *ex post* revenue neutrality via lower social security contributions is implemented as an additional constraint in the public sector block of the DYNK model which guarantees that the social security contribution rate is endogenously determined in the model solution at a level consistent with *ex post* revenue neutrality.

'Green Tax Reform' lowers GDP growth slightly, but has a positive mid-term labour market impact

'Green Tax Reform' has different short- and long-run effects on the labour market (Table 1), but a consistent negative impact (compared with the 'baseline') on GDP. This is due to price increases that in turn have a negative impact on exports as well as on household disposable income. The effective price of fossil energy rises due to CO_2 taxation; since fossil energy is not only a factor of production, but also a consumption good (fuels for cars and heating), the consumer price level rises more that the producer price level. This in turn has repercussions on the wage bargaining process, so that in the long-run, employees' gross wage rate increases more than in the 'baseline', offsetting a large part of the lower social security contributions until 2050.

Table 1: Macroeconomic effects of "Green Tax Reform"
difference to baseline in %

	2015	2020	2030	2050
GDP (constant prices)	-0.08	-0.58	-2.11	-5.58
Private consumption (constant prices)	-0.36	-1.55	-4.74	-10.53
Capital formation (constant prices)	0.00	-0.01	-0.04	-0.09
Exports (constant prices)	-0.24	-1.15	-3.85	-9.64
Employment (persons)	0.37	0.33	-0.01	-0.51
Employment (hours)	0.38	0.35	0.03	-0.46
Unemployment (persons)	-2.63	-2.71	0.09	10.30
Unemployment rate (% points)	-0.32	-0.29	0.01	0.49
GHG emissions, households	-5.35	-7.98	-11.76	-14.54
GHG emissions, production	-9.89	-17.66	-30.90	-45.29
GHG emissions, total	-8.66	-15.12	-26.18	-38.32
GHG emissions, leakage	0.00	0.07	0.37	1.53
DMC/capita	-6.02	-7.46	-10.16	-15.95
DMC, energy	-4.06	-7.19	-12.55	-17.60
DMC, minerals	-2.78	-0.18	6.61	15.74

Source: Own calculations

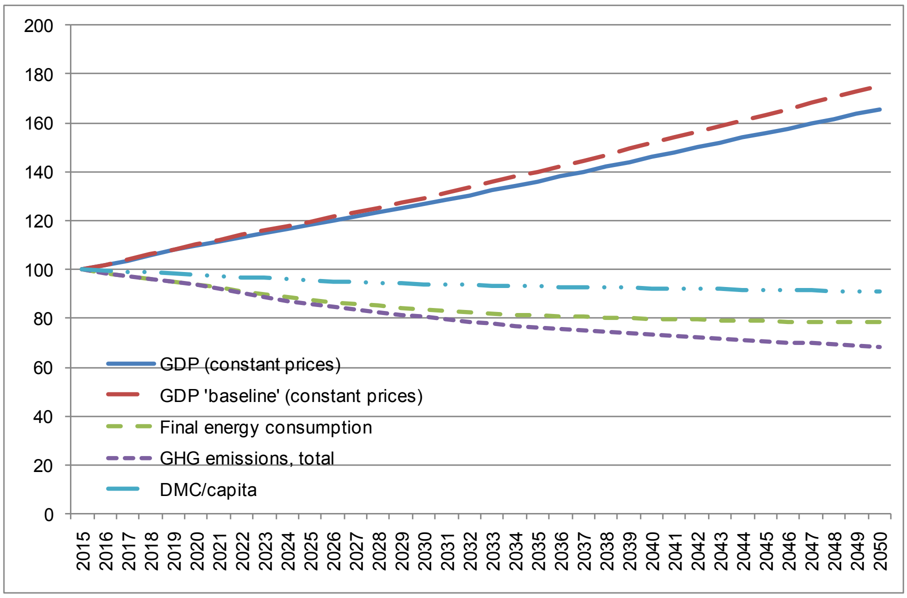
The labour market effect, driven by the change in relative prices between energy and resources on the one hand and labour on the other, is positive until 2030 (compared with the 'baseline'), turning negative thereafter due to the increasing negative output effect.

It is, however, important to note that the annual difference in GDP growth to the 'baseline' is rather small, with only 0.15% p.a. (Graph 1).

'Green Tax Reform' leads to absolute decoupling, but taxation is only one instrument

The main result of this scenario for the environment is that absolute decoupling of energy consumption and of GHG emissions from GDP is possible. This is not the case for DMC per capita for the material tax rate implemented in this scenario. This may, however, be the case for a higher tax on minerals than the one assumed here, based on the literature.

Graph 1: Impact of "Green Tax Reform" on GDP, emissions and material use



Source: Own calculations

In principle, the different environmental targets may give rise to synergies or trade-offs between each other. An example for expected synergies is that reducing the use of minerals for construction reduces transport activities and thereby fossil fuel use and GHG emissions. Trade-offs may arise from different kinds of rebound and substitution effects. In the 'Green Tax Reform' scenario, the European manufacturers of material and energy-intensive products lose world market shares and Europe will import more of these products. This leads to an increase (compared with the 'baseline') of DMC of minerals from 2030 onwards.

Comparing the results for energy consumption and GHG emissions with those from the impact analysis of the EU Roadmap for a low carbon economy, we note that in our model the reductions of energy use and emissions at the same CO_2 price level are considerably smaller. This is due to the fact that the EU Roadmap foresees several other instruments besides pricing of CO_2, like the support for renewables, and the widespread diffusion of other carbon-saving technologies like CCS (carbon capture and storage) and nuclear energy. These additional instruments are absent in our scenario of 'Green Tax Reform', only the share of renewables also doubles, induced by the CO_2 price hike.

Leakage of GHG emissions is at least 4% in the long-run, but also leads to trade-offs between emission and resource use reduction

The leakage in terms of GHG emissions amounts to 4% in 2050, but, as explained above, this estimate (which represents the lower bound of what the literature finds about GHG leakage) might be strongly biased downwards due to our resort to EU 27 technology in terms of embodied emissions and resource use.

As for the distributional consequences of 'Green Tax Reform', our results suggest a regressive impact by levels of household income (Table 2) hitting households with lower income more. On average, energy consumption is depressed more than total consumption of non-durable goods. Nominal disposable income is higher than in the 'baseline', due to higher employment (until 2030) and higher wage rates, but consumer prices increase far more than producer prices, due to the fact that energy is both a factor of production and a consumption good. Therefore, real disposable income is considerably lower than in the 'baseline' scenario, with losses being particularly high for the two lowest income groups (1st and 2nd quintile).

In an additional simulation, these regressive effects have been compensated by changing the distribution scheme of transfers across households (Table 3). In this scenario, the income losses are almost even across income groups, and the feedback effects in the consumption block (and therefore also in the full model) are minor.

Table 2: Effects of "Green Tax Reform" on households
constant prices, difference to baseline in %

	2015	2020	2030	2050
Durable consumption	-0.13	-0.60	-1.56	-2.31
Nondurable consumption	-0.49	-2.06	-6.40	-14.08
Energy	-4.75	-7.27	-11.10	-14.50
Real disposable income, total	-0.10	-1.01	-3.79	-9.57
1st quintile	-1.10	-2.72	-6.79	-14.04
2nd quintile	-0.74	-2.18	-6.00	-12.97
3rd quintile	-0.42	-1.62	-5.01	-11.51
4th quintile	-0.08	-1.02	-3.91	-9.85
5th quintile	0.31	-0.28	-2.43	-7.53

Source: Own calculations

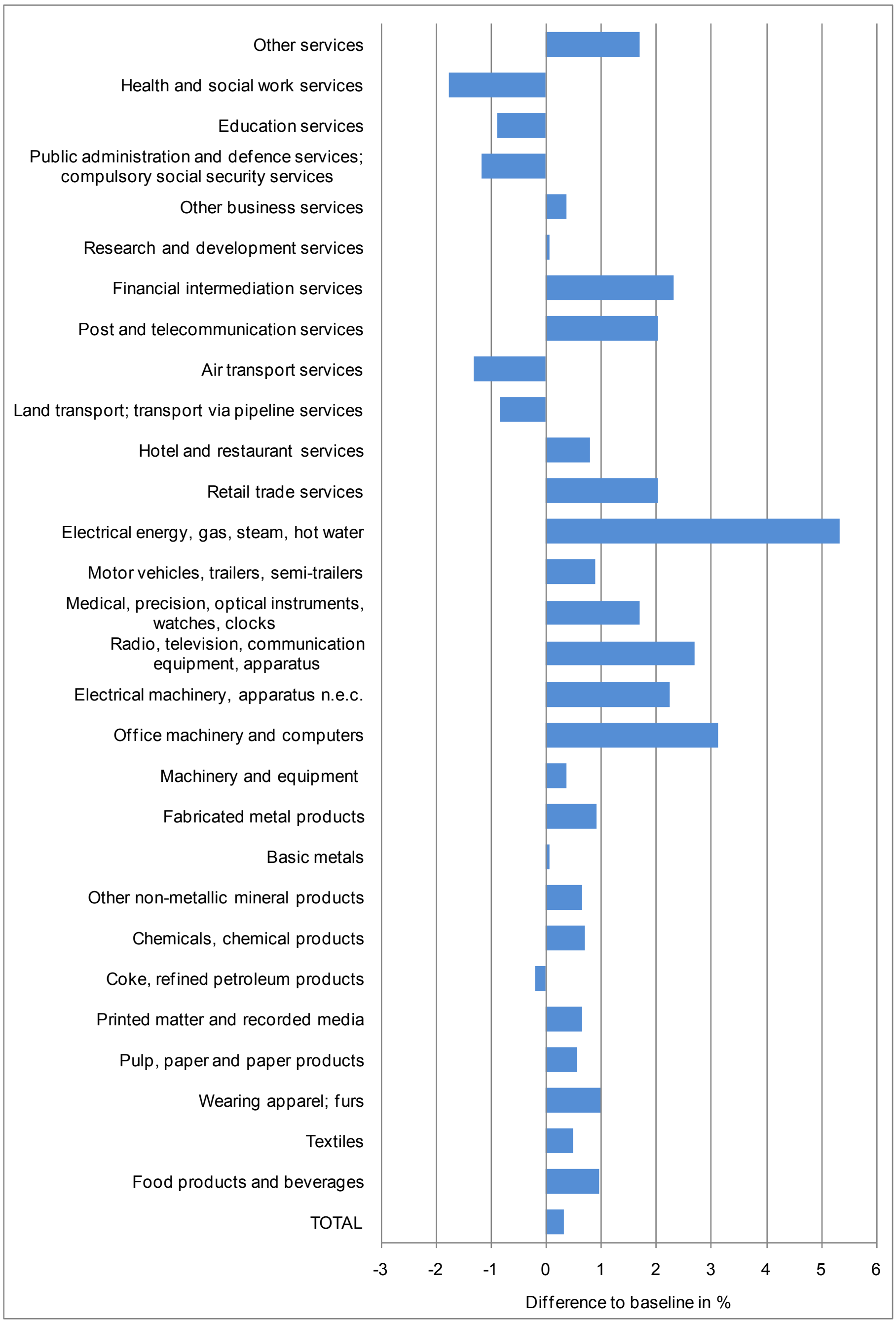
Table 3: Effects of "Green Tax Reform" on households with compensation policy
constant prices, difference to baseline in %

	2015	2020	2030	2050
Durable consumption	-0.14	-0.62	-1.60	-2.41
Nondurable consumption	-0.49	-2.06	-6.37	-14.07
Energy	-4.75	-7.27	-11.09	-14.53
Real disposable income, total	-0.10	-1.02	-3.83	-9.76
1st quintile	-0.88	-2.23	-5.46	-10.26
2nd quintile	-0.62	-1.91	-5.23	-10.77
3rd quintile	-0.39	-1.55	-4.81	-10.97
4th quintile	-0.14	-1.15	-4.28	-10.98
5th quintile	0.26	-0.39	-2.75	-8.55

Source: Own calculations

Graph 2 shows the employment effects of the 'Green Tax Reform' scenario across industries in 2020. The average employment effect of 0.33% is the result of very heterogeneous effects by industry, with job losses in the public sector (due to cuts in public expenditure in order to meet the deficit target) and high employment gains in the electricity sector (due to substitution towards labour inputs) as well as in some manufacturing and service sectors. The transport sector also loses jobs from the 'baseline' scenario. Given the actual gender structure of employment by industry, these employment effects have an almost neutral impact on gender equality. Though some of the employment losses are concentrated in industries with a female labour share of more than 70% (health, education), in general the employment effects in service sectors, where the female labour share is about 50% to 60%, are positive. The female labour share in those manufacturing sectors that reveal an above average employment effects is higher than in other manufacturing sectors (about one third).

Graph 2: Employment effects (2020) of "Green Tax Reform"



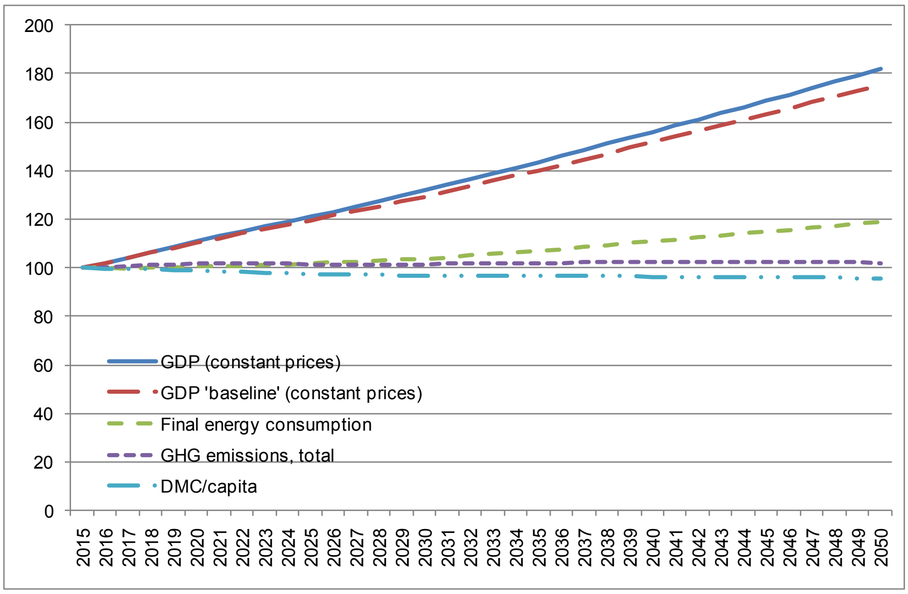
Source: Own calculations

Table 4: Macroeconomic effects of "Environmental Fiscal Devaluation"
difference to baseline in %

	2015	2020	2030	2050
GDP (constant prices)	0.67	1.29	2.55	4.45
Private consumption (constant prices)	-0.03	-0.74	-2.08	-3.59
Capital formation (constant prices)	0.00	0.00	0.00	-0.02
Exports (constant prices)	0.36	0.77	0.78	-2.93
Employment (persons)	0.57	0.91	1.54	2.27
Employment (hours)	0.55	0.88	1.46	1.97
Unemployment (persons)	-4.08	-7.44	-16.24	-45.78
Unemployment rate (% points)	-0.50	-0.81	-1.41	-2.16
GHG emissions, households	-3.60	-7.13	-10.17	-8.75
GHG emissions, production	-0.50	-1.65	-3.90	-10.06
GHG emissions, total	-1.34	-3.09	-5.44	-9.76
GHG emissions, leakage	-0.04	-0.12	-0.24	-0.29
DMC/capita	-0.43	-1.05	-2.13	-6.17
DMC, energy	-1.20	-2.05	-3.79	-11.09
DMC, minerals	-0.59	-1.13	-1.50	-0.97

Source: Own calculations

Graph 3: Effects of "Environmental Fiscal Devaluation" on GDP, emissions and material use



Source: Own calculations

'Environmental Fiscal Devaluation' boosts output and employment in the long-run

'Environmental Fiscal Devaluation' increases both output (GDP) and employment in the short- as well as in the long-run compared with the 'baseline' scenario. The negative impact on consumption is smaller than in the case of 'Green Tax Reform', though the price effect on fossil fuels directly used by households (fuels for cars and for heating) is the same. An important positive impact on GDP in this scenario stems from the reduction of imports. The difference between the two schemes is explained by the differential impact on price competitiveness and exports. The changes in the price system lift exports above the 'baseline' until 2030. This in turn raises employment in addition to the positive effect of lower social security contributions, and also boosts disposable income. The macroeconomic effects clearly show the mechanism of fiscal devaluation: demand is shifted from domestic to foreign sources, leading to a positive net impact on GDP.

The average growth rate of GDP is about 0.1% p.a. higher than in the 'baseline' (Graph 3).

'Environmental Fiscal Devaluation' does not lead to absolute decoupling, but

While the scenario of 'Environmental Fiscal Devaluation' improves all environmental outcomes *vis-à-vis* the 'baseline', the desired absolute decoupling is not achieved (Graph 3). Although GHG emissions can be stabilised, energy consumption as well as DMC per capita still rise.

decreases emissions and resource use globally by lower European imports ('negative leakage')

As all imports are reduced in this scenario, due to the taxation of the embodied environmental impact on consumption, also the DMC of minerals decreases. 'Environmental Fiscal Devaluation' in Europe therefore reduces emissions and resource use on a global scale by more than within the EU 27, yielding a negative leakage effect. As has been explained above, our estimates of leakage are biased downwards by using the European technology as a proxy for the technology of EU imports. The negative leakage in terms of GHG emissions amounts to 4% of domestic emission reduction.

Putting the full burden of price adjustments on consumers has significant regressive effects (Table 5). This highlights an important trade-off between environmental goals to be achieved through consumer responsibility on the one hand, and considerations of income distribution and equality, on the other. In some cases, this policy would increase energy poverty in a significant way. Compensation schemes correcting such effects need to be introduced in order to avoid unwanted distributional shifts. Unlike in the scenario of 'Green Tax Reform', compensation has not been simulated here, but the next section discusses some options in this regard.

Table 5: Effects of "Environmental Fiscal Devaluation" on households
constant prices, difference to baseline in %

	2015	2020	2030	2050
Durable consumption	0.26	0.55	1.03	3.74
Nondurable consumption	-0.11	-1.15	-3.17	-5.44
Energy	-2.90	-5.85	-8.19	-5.50
Real disposable income, total	0.30	0.29	0.68	3.63
1st quintile	-0.30	-1.52	-3.75	-7.12
2nd quintile	-0.03	-0.85	-2.32	-4.08
3rd quintile	0.16	-0.24	-0.81	-0.42
4th quintile	0.35	0.40	0.82	3.64
5th quintile	0.49	0.94	2.39	7.91

Source: Own calculations

RECOMMENDATIONS FOR POLICY

Synergies and trade-offs between different environmental, economic and social policy goals

The results presented above clearly show potential synergies and trade-offs between different environmental, economic and social policy goals. At the same time they also reveal the potential contribution of Europe to the global problem of resource use. The results for leakage are probably biased downwards. The option of Environmental Fiscal Devaluation should not be in opposition to international trade agreements, as consumption goods are taxed like in the case of an excise duty (e.g. tobacco) irrespective of their origin.

Imputing environmental costs to producers and consumers leads to absolute decoupling and leakage

Price instruments (taxation schemes) that fully impute environmental costs to European consumers and producers lead to a loss in price competitiveness and to leakages of emissions as well as resource use. This may give rise to conflicts between different environmental targets. Though the leakage in terms of GHG emissions may be small, the relocation of production outside Europe significantly increases domestic material consumption embodied in imports. In the case of European unilateral action, the leakage problem can only be dealt with by directly addressing embodied emissions and resource use in European final consumption. A policy that fully includes environmental costs for European consumers and producers is more efficient in reaching environmental goals and may actually achieve absolute decoupling, which is needed for socio-ecological transition. Such a policy, although slightly reducing the average growth rate of GDP, may still have potential positive mid-term effects on the labour market.

Putting the burden on consumers only does not lead to absolute decoupling, but is accompanied by negative leakage

Price instruments (taxation schemes) that put the full burden of environmental costs on the European consumer, by invoking his global responsibility, are tantamount to fiscal devaluation by increasing price competitiveness and shifting demand from domestic to foreign sources. Such policy is not very efficient with regard to environmental goals and is unlikely to achieve absolute decoupling. Since it reduces the global environmental impact of the European consumer, it would lead to negative leakage.

The two alternative taxation schemes analysed here represent two different policy options that could be chosen by different European countries. Countries in a good competitive position and with high environmental ambitions in energy and climate policies could directly opt for the "Green Tax Reform". Countries with low environmental ambitions in energy and climate policies and more severely hit by the Great Recession could in the short-term opt for the "Environmental Fiscal Devaluation".

Both policies have a regressive impact on household income distribution and need to be accompanied by compensation schemes, if such effects are to be avoided. As far as direct taxation of energy use by households is concerned, progressive taxation schemes for those energy carriers that are metered accordingly (natural gas, electricity) may be envisaged.

ACKNOWLEDGEMENT

We are grateful to Georg Busch for valuable comments. The responsibility for the content remains with the authors.

RESEARCH PARAMETERS

Objective of the research

In the face of the financial and economic crisis and long-term challenges from globalisation, demographic shifts, climate change and new technologies, Europe needs to redefine its development strategy. The objective of WWWforEurope – Welfare, Wealth and Work for Europe – is to strengthen the analytical foundation of this strategy. It goes beyond the Europe 2020 targets of smart, sustainable and inclusive growth and lays the basis for a socio-ecological transition. The new development strategy aims at high levels of employment, social inclusion, gender equity and environmental sustainability.

The research Programme

WWWforEurope will address essential questions in areas of research that reflect vital fields for policy action to implement a socio-ecological transition:

- It will deal with challenges for the European welfare state, exploring the influence of globalisation, demography, new technologies and post-industrialisation on welfare state structures.
- It will analyse the impact of striving towards environmental sustainability on growth and employment and provide evidence for designing policies aimed at minimising the conflict between employment, equity and sustainability. This involves using welfare indicators beyond traditional GDP measures.
- It will investigate the role that research and innovation as well as industrial and innovation policies can play as drivers for change by shaping the innovation system and the production structure.
- It will focus on governance structures and institutions at the European level and the need for adjustments to be consistent with a new path of smart, sustainable and inclusive growth.
- It will explore the role of the regions in the socio-ecological transition taking into account institutional preconditions, regional labour markets and cultural diversity and examining the transitional dynamics of European regional policy.

This research will be conducted within a coherent framework which from the outset considers linkages between research topics and highlights how different policy instruments work together. The results of all research areas will be bound together to identify potential synergies, conflicts and trade-offs, as a starting-point for the development of a coherent strategy for a socio-ecological transition.

Methodology

The project builds on interdisciplinary and methodological variety, comprising qualitative and quantitative methods, surveys and econometrics, models and case studies.

PROJECT IDENTITY

Coordinator	Karl Aiginger, Director, Austrian Institute of Economic Research
Consortium	Austrian Institute of Economic Research Budapest Institute Nice Sophia Antipolis University Ecologic Institute University of Applied Sciences Jena Free University of Bozen/Bolzano Institute for Financial and Regional Analyses Goethe University Frankfurt ICLEI - Local Governments for Sustainability Institute of Economic Research Slovak Academy of Sciences Kiel Institute for the World Economy Institute for World Economics, RCERS, HAS KU Leuven Mendel University in Brno Austrian Institute for Regional Studies and Spatial Planning Policy Network Ratio University of Surrey Vienna University of Technology Universitat Autònoma de Barcelona Humboldt-Universität zu Berlin University of Economics in Bratislava Hasselt University Alpen-Adria-Universität Klagenfurt University of Dundee Università Politecnica delle Marche University of Birmingham University of Pannonia Utrecht University Vienna University of Economics and Business Centre for European Economic Research Coventry University Ivory Tower Aston University
European Commission	Domenico Rossetti di Valdalbero, DG Research and Innovation
Duration	1 April 2012 – 31 March 2016
Funding scheme	FP7 Collaborative Research Project
Budget	EC contribution: EUR 7,999,858.25
Website	www.foreurope.eu
For more information	Kristin Smeral, wwwforeurope-office@wifo.ac.at