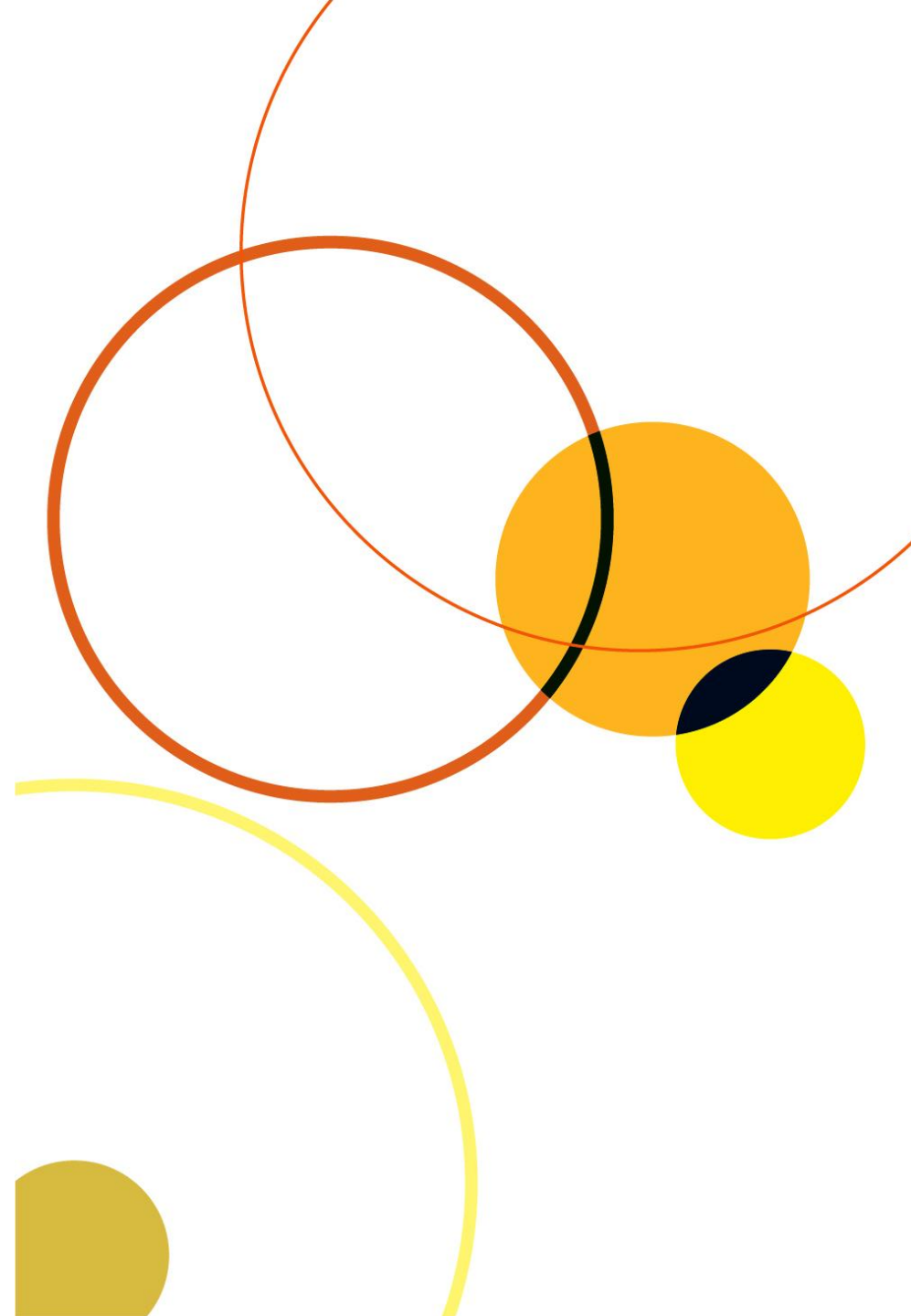


: vivideconomics

Energy-carbon fiscal reforms for budget consolidation

**Presentation prepared for meeting
with the Nemzetgazdasági
Minisztérium (Ministry for National
Economy)**

June 2012



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CETRiE: Carbon and Energy Tax Reform in Europe

The Carbon and Energy Tax Reform in Europe (CETRiE) project is a partnership between Green Budget Europe and the European Climate Foundation in association with Vivid Economics

The project is based on a major new study on energy and carbon taxation in Europe by Vivid Economics, an economics consultancy described on the final slide. The study was released on the 15th of May 2012, and can be found on Vivid Economics' website.

The logo for Green Budget Europe, featuring the words "Green Budget Europe" in a green, handwritten-style font.

Green Budget Europe is a platform that aims to promote Environmental Fiscal Reform and Market-Based Instruments on the European level and brings together EU and government institutions, NGOs, industry associations, and experts.

<http://www.green-budget.eu>



ECF aims to promote climate and energy policies that greatly reduce Europe's greenhouse gas emissions and help Europe play an even stronger international leadership role in mitigating climate change.

<http://www.europeanclimate.org/>

Summary of argument

Carbon prices and energy taxes have a greater role to play in the fiscal armoury

new fiscal strategy is driven by fiscal imbalance and the cost of borrowing

- Hungary's 10 year borrowing costs are 7.8 per cent, 6.28 per cent above Germany's
- seven EU member states have bond yields more than 3 per cent above Germany
- a fiscal straightjacket has been imposed by the Treaty on Stability Coordination and Governance 2012

energy taxes and carbon prices

- could raise significant revenue as a fraction of GDP
- impose economic costs which are no higher than and may be lower than other forms of taxation (such as income and value added tax) and offer additional environmental benefits
- create adverse effects on poor households and energy-intensive trade-exposed firms which are politically acutely difficult but can be largely mitigated

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Nearly all countries in our sample run both excessive deficits and hold excessive national debts

Hungary is relatively well positioned, especially with regards to the deficit

Figure 1. Deficits vary by a factor of more than 3

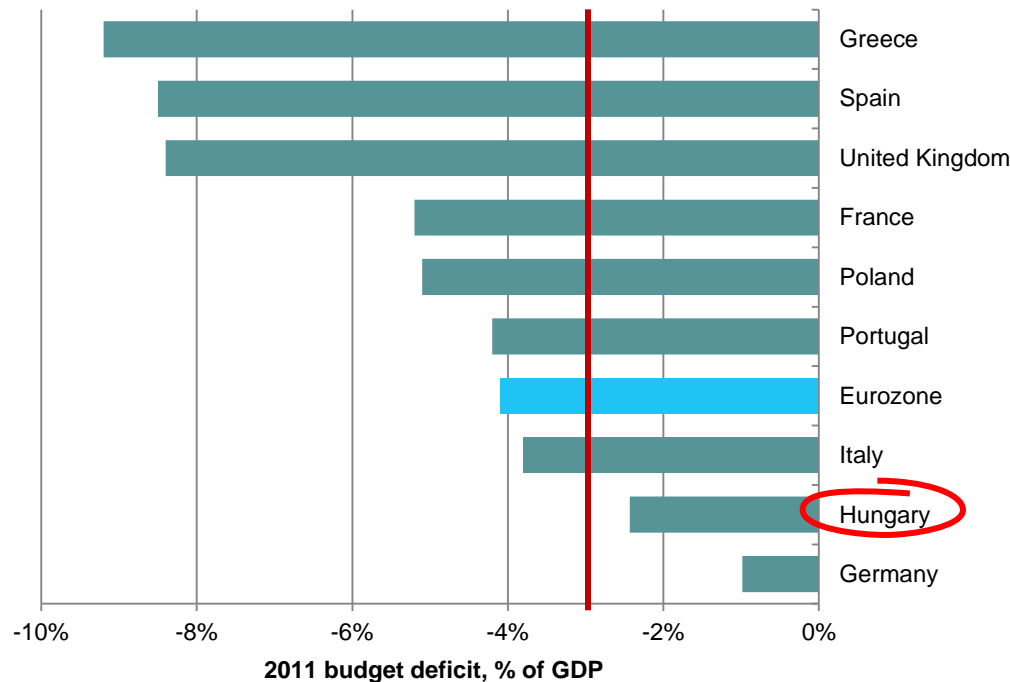
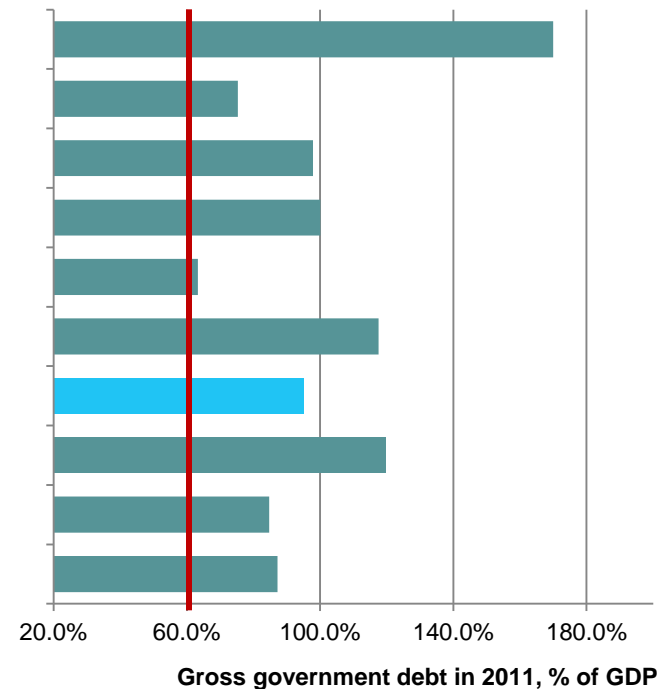


Figure 2. All nine countries hold gross debt levels above 60%



Note: Ignoring one-off items for Hungary (Hungarian fiscal balance in 2011 incl. one-off items: 4.2% of GDP, surplus)

Source: Vivid Economics, OECD Economic Outlook, No 91 (May 2012), Hungarian Ministry for National Economy

Inter-country variations are smaller when measured in PPP terms, but still significant

At PPP exchange rates, Hungary's energy taxes are comparable with the UK

Table 1. Measuring taxes at market exchange rates strongly understates the level of energy taxation in Hungary

Country	Average implicit CO ₂ energy tax rates (€/tCO ₂ , PPP)	Average implicit CO ₂ energy tax rates (€/tCO ₂ , market exchange rate)
Portugal	87	72
Italy	74	78
UK	71	71
Hungary	71	44
Greece	63	58
Germany	62	66
Spain	60	56
France	58	66
Poland	58	35

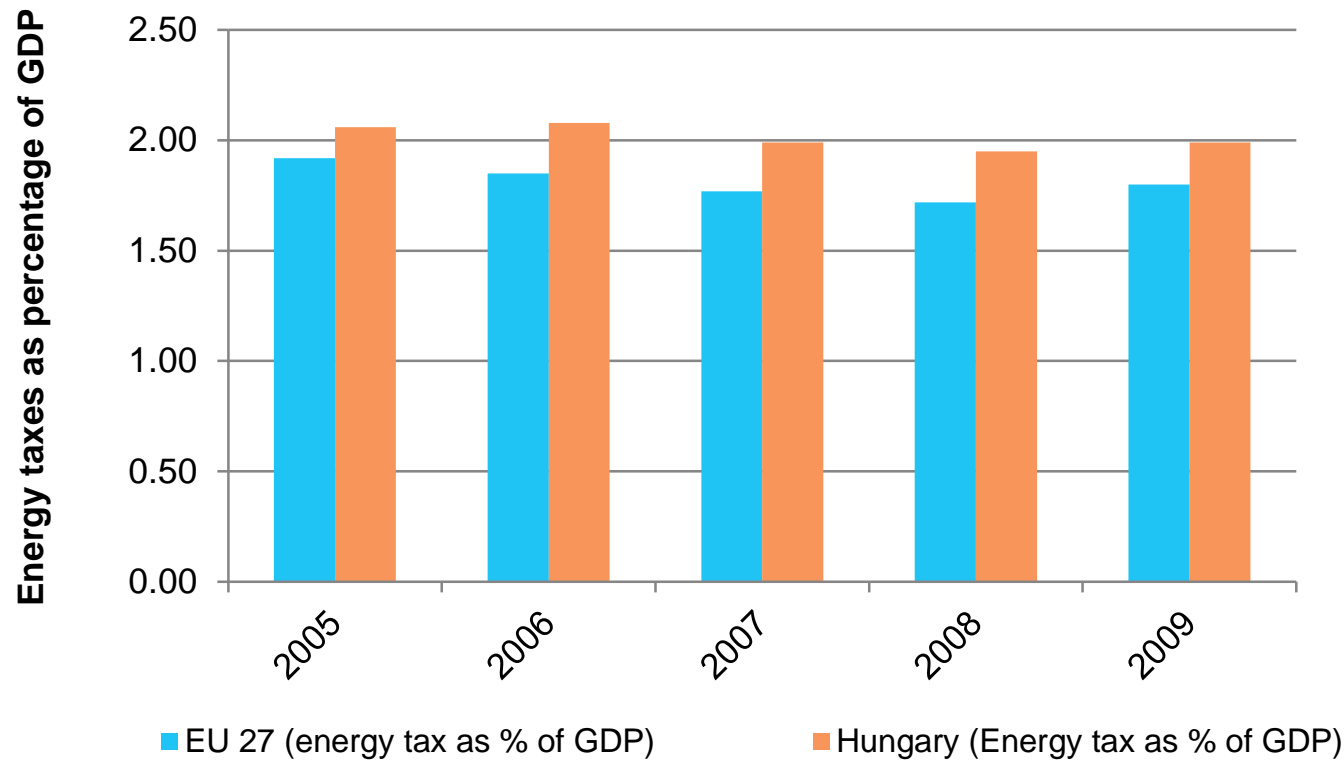
Note: Tax rates are up to date as of February 2012, and weighted by 2008 emission data

Source: Vivid Economics

Hungary derives a larger share of GDP as revenues from energy taxes than the EU average

But there has been a slight decline in the share of GDP raised through energy taxes

Figure 3. Hungary has consistently raised more revenue from energy taxes than the EU average

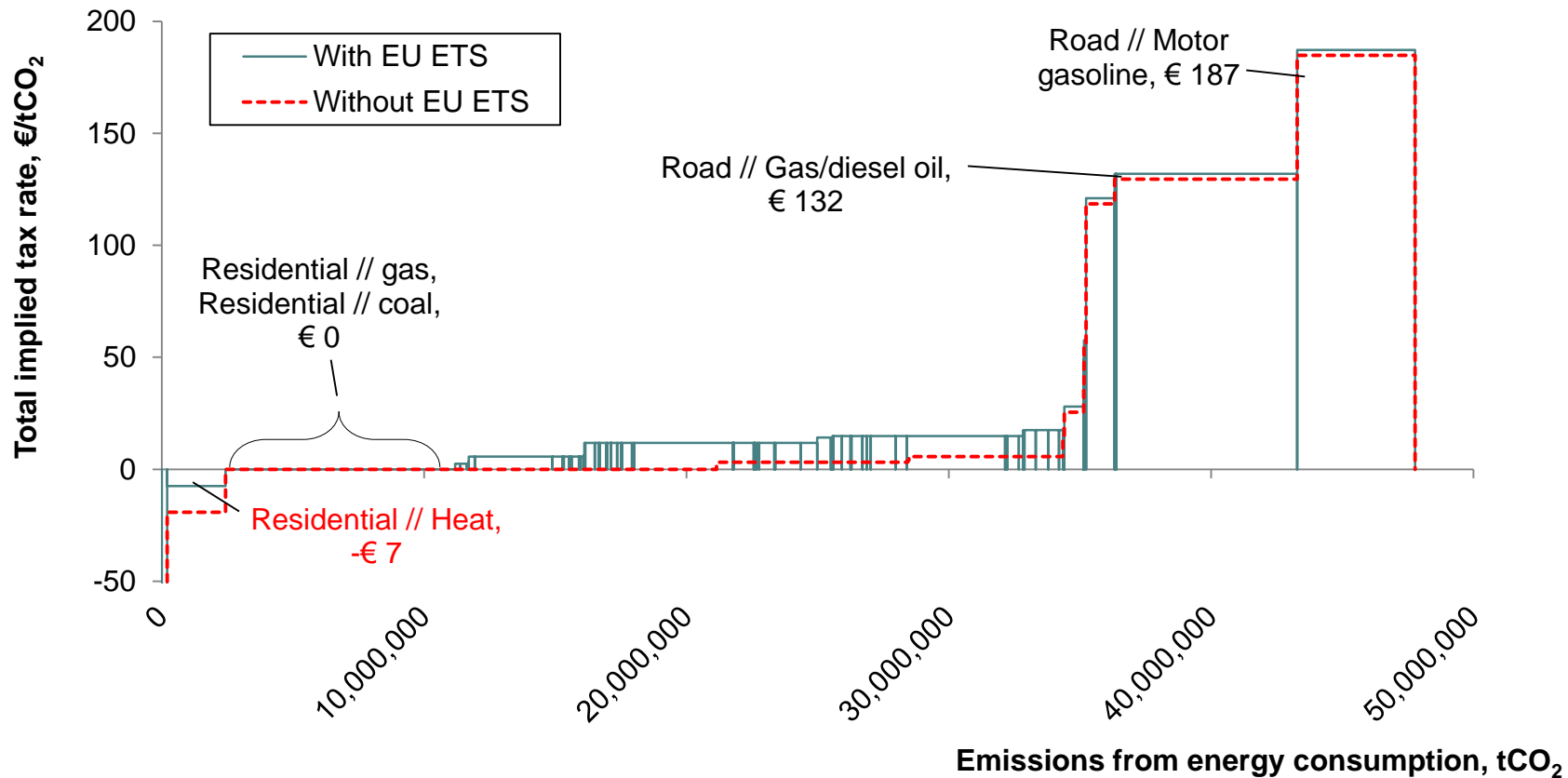


Source: Vivid Economics and Eurostat, most recent data available (2009)

A high average energy tax rate masks significant variation of energy taxes across the economy

More than 20 per cent of Hungary's emissions from energy use are untaxed or subsidised

Figure 4. Large amounts of untaxed emissions suggest room for tax increases and rationalisation



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Carbon-energy tax reform could more than halve the Hungarian deficit

While causing lower macroeconomic harm than other taxes raising the same revenue

significant revenue-raising potential in Hungary and comparable economies

- energy tax reform to harmonise rates and reflect externalities might increase total tax revenues in Hungary by around **1.2 per cent of GDP** by 2020 (compared to a deficit of 2.4 per cent of GDP);
- similar results in Poland (1.3 per cent of GDP) and Spain (1 per cent of GDP)
- a tighter EU ETS cap might raise additional revenues of around 0.2 per cent of EU GDP

economic costs of energy taxes and/or of auctioning EUAs may be better and certainly no worse than labour or value added taxes

- higher ETS allowance prices can be as efficient in raising revenue as taxes provided a sufficient proportion of allowances is auctioned

The modelled energy tax package focusses on three elements

The reform package has been further adjusted to take country-specific features into account

the energy tax package is tailored to the specific circumstance of Hungary but consists of three main elements:

1. steady increases in taxation of road diesel fuel to reflect its emissions intensity relative to gasoline
2. introduction and subsequent gradual increase in taxes on domestic energy consumption
3. increases in taxation on non-domestic energy users outside the EU ETS

much of this is consistent with the spirit of the proposals in the proposed revision to the Energy Tax Directive

there is a particular focus on emissions outside the EU ETS

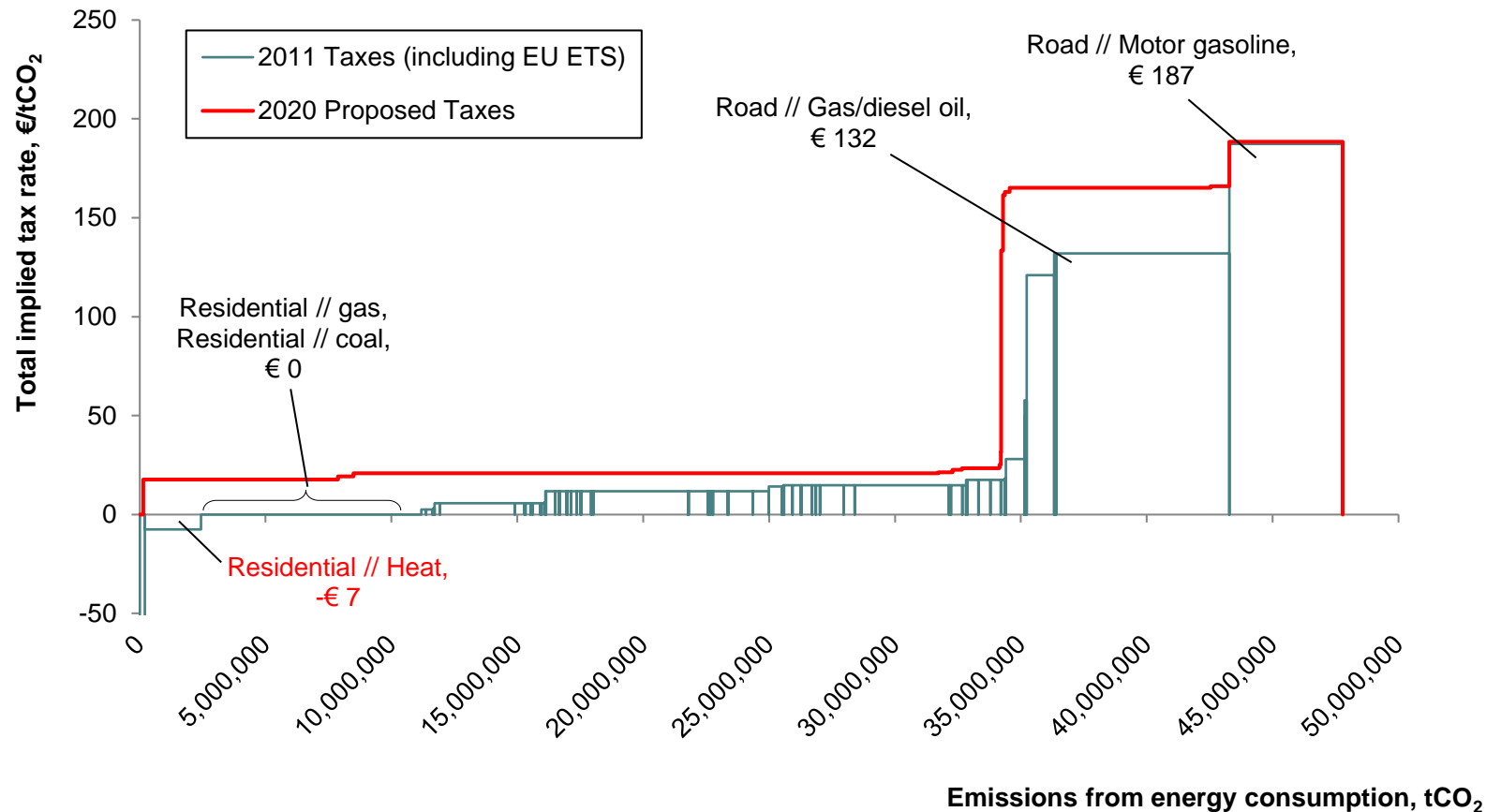
the impact of reform proposals on the energy tax structure in Hungary is show on the next slide

we compare the macroeconomic and environmental impact of this package of reforms with direct and indirect taxes that raise the same revenue

Reform proposals energy tax curve – the reform proposals aim for a consistent carbon price across most emissions

Transport fuels are an exception as they cause further externalities

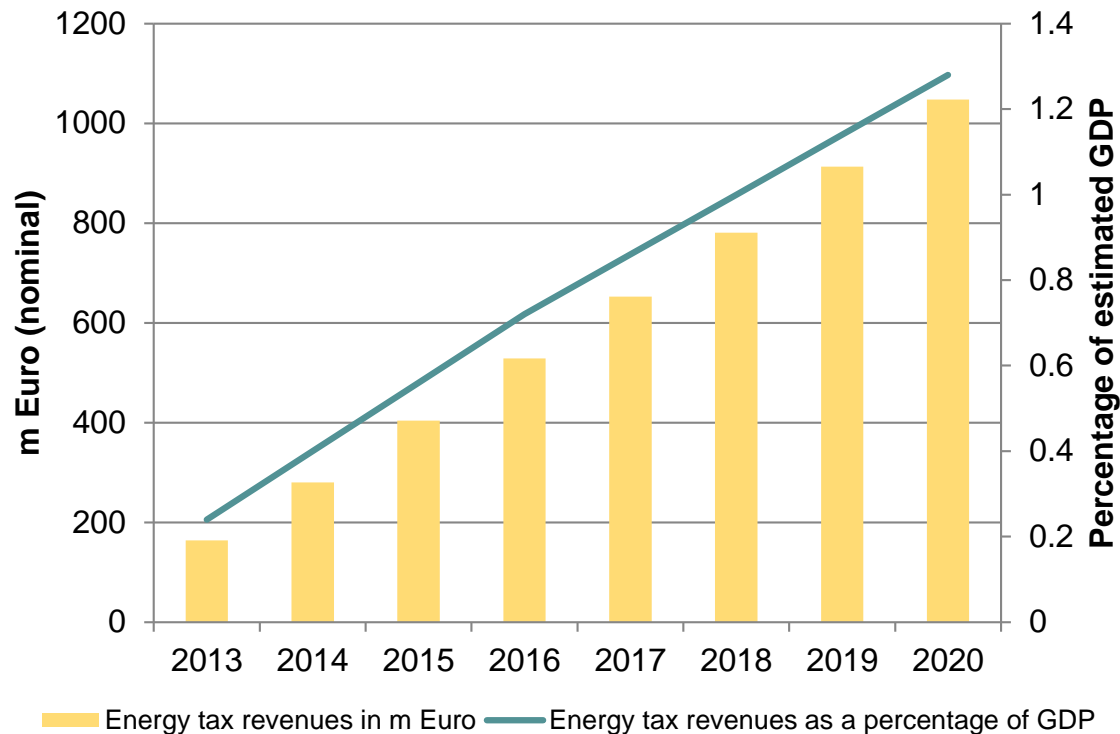
Figure 5. A more consistent taxation of energy is possible



Carbon energy tax reform can raise substantial revenues

The gradual phasing in of the reforms is reflected in the gradually increasing revenue

Figure 6. Energy tax reform can raise more than €1 billion, or 1.2 per cent of GDP, by 2020

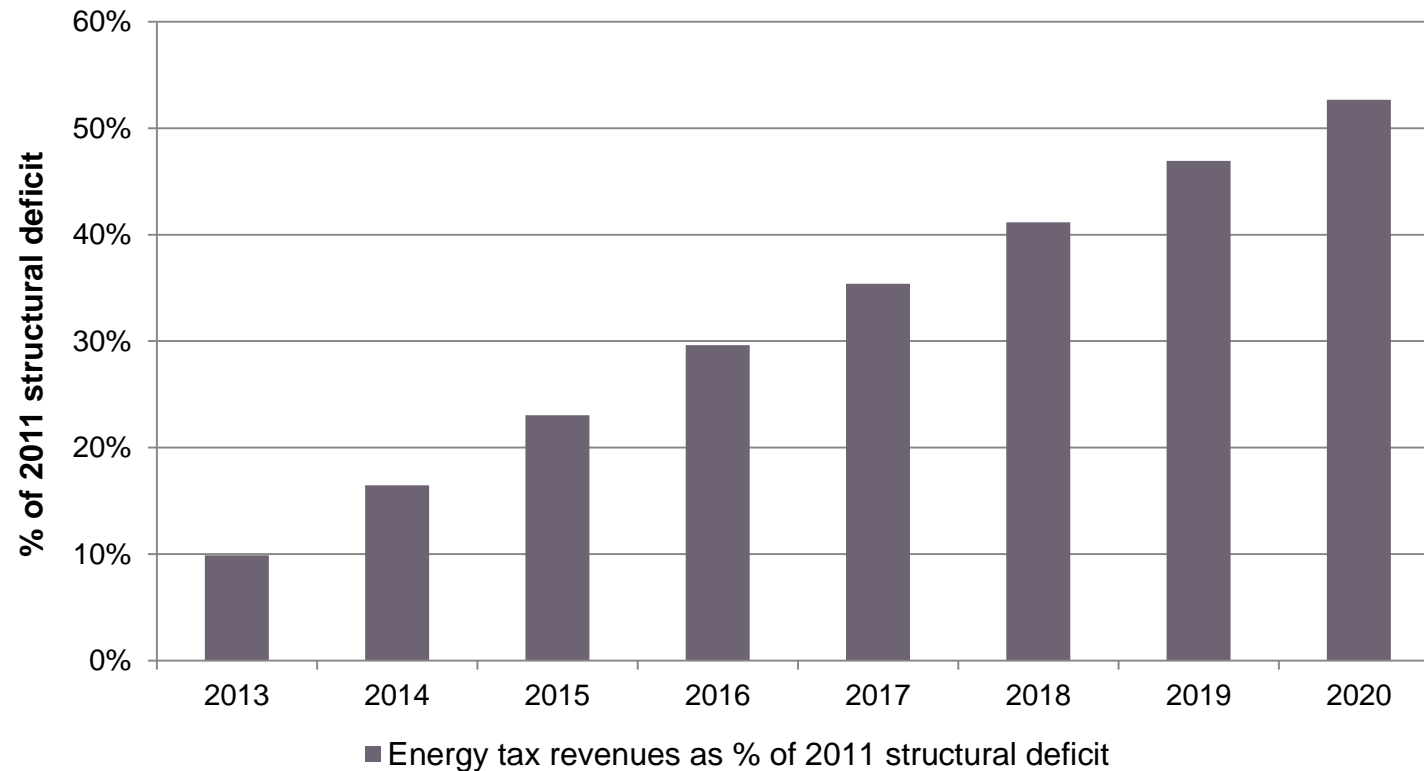


Source: Cambridge Econometrics E3ME model

Energy tax reform can halve the deficit by 2020

Short term revenues are significant, too

Figure 7. The gradual increase in revenues reflects the phased introduction of the modelled energy tax reform



Source: Vivid Economics

Energy tax reform causes the least macroeconomic damage of the three options considered

Energy tax reform also delivers abatement (not shown here), unlike the two alternatives

Figure 8. Energy tax reform cap has a smaller negative impact on GDP

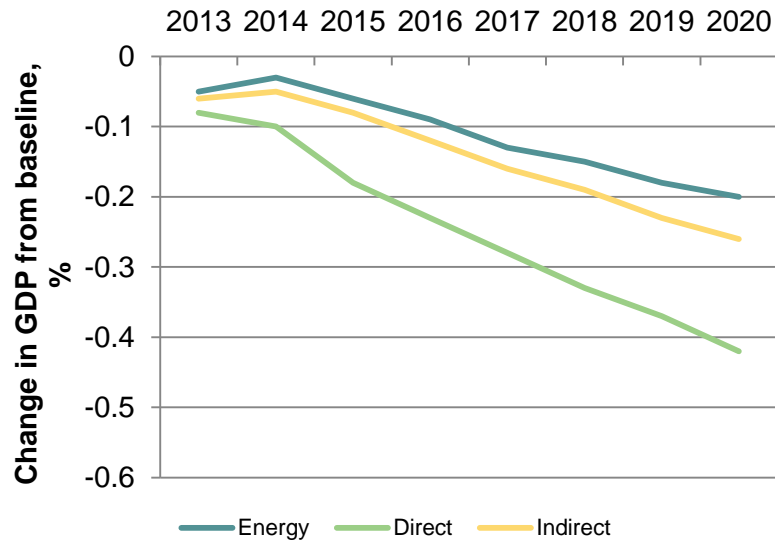
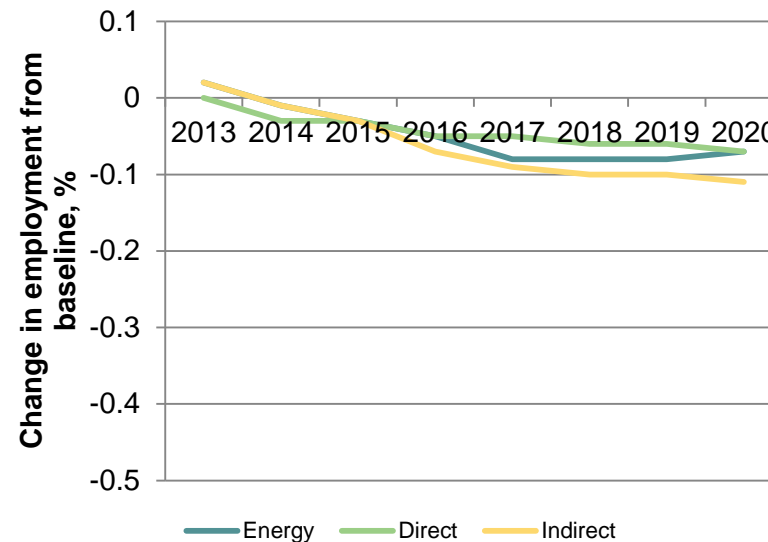


Figure 9. And no worse employment impact



Source: Cambridge Econometrics E3ME model

The superior performance of energy taxes is explained by three factors

Two further factors explain the different labour market impacts

three main reasons why energy taxes perform better than direct and indirect (VAT) taxes

- **energy taxes are expected to have a smaller economic impact than direct taxes**
 - both labour taxes and energy taxes reduce real income, lowering consumption
 - wages appear more responsive to changes in prices than changes in tax rates, meaning that a greater proportion of the decline in real incomes is recovered following energy/indirect tax changes
- **energy taxes have a similar, but often lower, impact on consumption/GDP, than VAT rises**
 - both energy and indirect taxes raise prices, thus lowering real wages and consumption; but
 - VAT is fully passed through, the energy taxes falling on firms are only *partly* passed through in prices; hence the fall in real wages and consumption due to energy tax is smaller
 - if energy imports are significant, a greater proportion of the decline in economic activity from energy tax rises may take place outside of the country/EU
- **energy taxes reduce consumption of energy-intensive goods and fuels**
 - decline in production caused by energy tax occurs partly outside Hungary (and outside EU)
 - reduced imports of hydrocarbon fuels
 - reduced market share in energy-intensive goods

Tightening the EU ETS in line with a 30 per cent abatement target can contribute further revenue

At lower macroeconomic costs than a direct tax raising the same amount

Figure 10. Tightening the EU ETS cap has a smaller negative impact on EU GDP than raising the same revenues from direct taxes

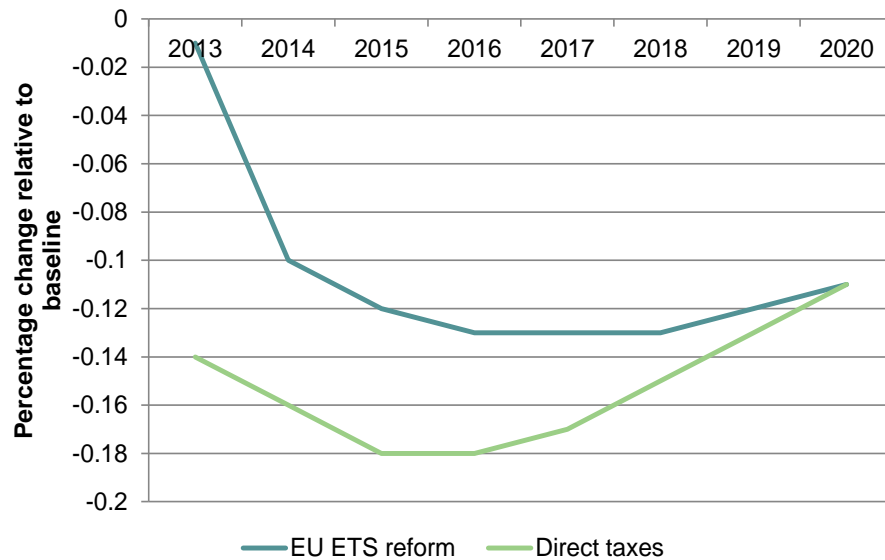
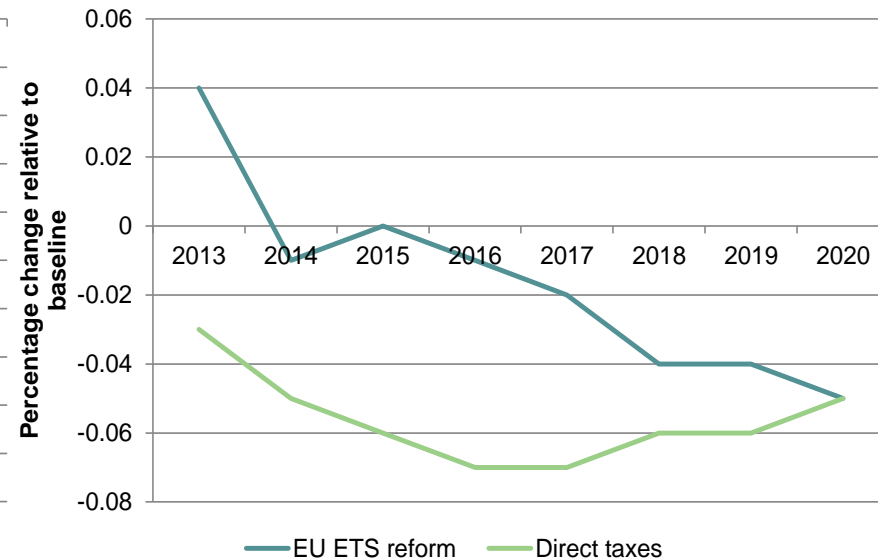


Figure 11. And a less detrimental impact on employment



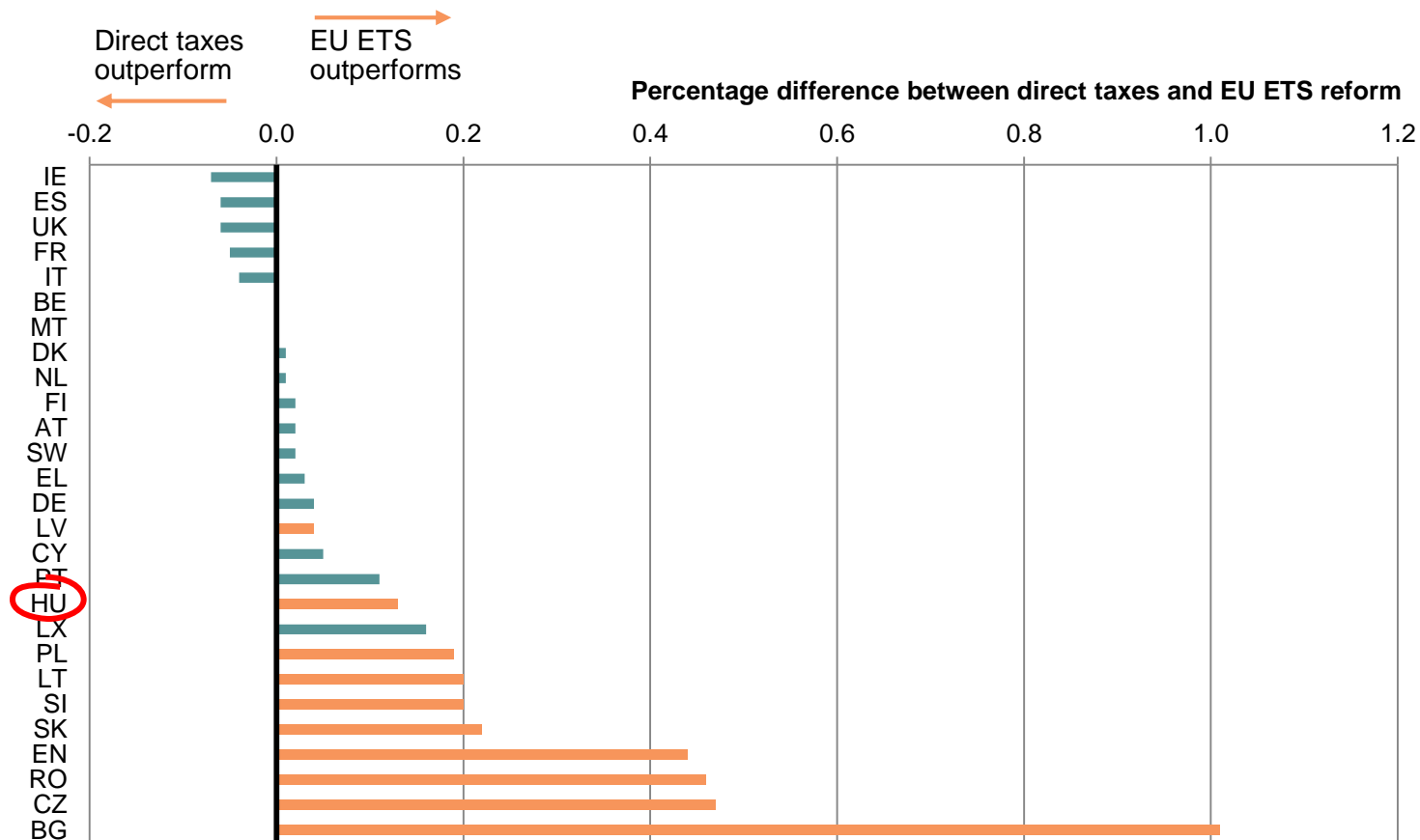
Source: Cambridge Econometrics E3ME model

Note: The results assume no change to the rules on free allowance allocation

EU ETS reform is a particularly attractive approach for raising revenues for many new member states countries

This reflects the redistribution of auction revenues planned under Phase III of the EU ETS

Figure 12. In many countries direct taxes reduce GDP by more than 0.2 per cent more than EU ETS reform



Source: Cambridge Econometrics E3ME model

Note: New member states are shaded orange

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Two challenges have historically held back energy taxes

Both challenges are politically powerful as well as based on legitimate concerns

competitiveness

- energy taxes and carbon prices impose costs solely on domestic producers
- competitive disadvantage for domestic producers vis-à-vis other European and non-European producers

distributional concerns

- poor households spend a larger proportion of income on energy
- therefore energy taxes can be particularly harmful on the poor
- it is politically and morally difficult to deprive the poor of basic necessities like heating

Both challenges can be addressed in the most part

Distributional impacts are relatively regressive, BCAs are a long run option

EU ETS and business energy taxes: two options

- free allowances
 - increases profit, does not restore prices or output
- smart BCAs
 - can reflect principle of common but differentiated responsibility
 - adjust BCAs by country action and income group benchmark
 - limit BCAs to basic products where carbon cost is a substantial proportion of GVA

More details in
the annex

distributional concerns: a more complicated story, and possible solutions

- even if regressive, may not have as negative an impact on disadvantaged households as other taxes
- compensation
 - depending on pre-existing national institutions and data, distributional concerns can be addressed to a reasonable degree

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In conclusion – carbon energy tax reform offers a significant opportunity

National and European policy discussions where these results are relevant

national opportunities

- bringing diesel rates gradually in line with gasoline rates
- bringing energy taxes into line with each other and an appropriate carbon price

proposed more consistent taxation across sectors, fuels and countries

- Energy Tax Directive reform: moving to minimum rates for energy and carbon
 - a general case for carbon taxation outside the EU ETS
 - a case for more consistent treatment of heating and transport fuels
- marginal tax curves show scope for harmonisation

potential tightening of the EU ETS cap

- provides an appropriate price signal as a result of surplus allowances carried over from phase two
- increases revenue raised, cutting reliance on other tax bases

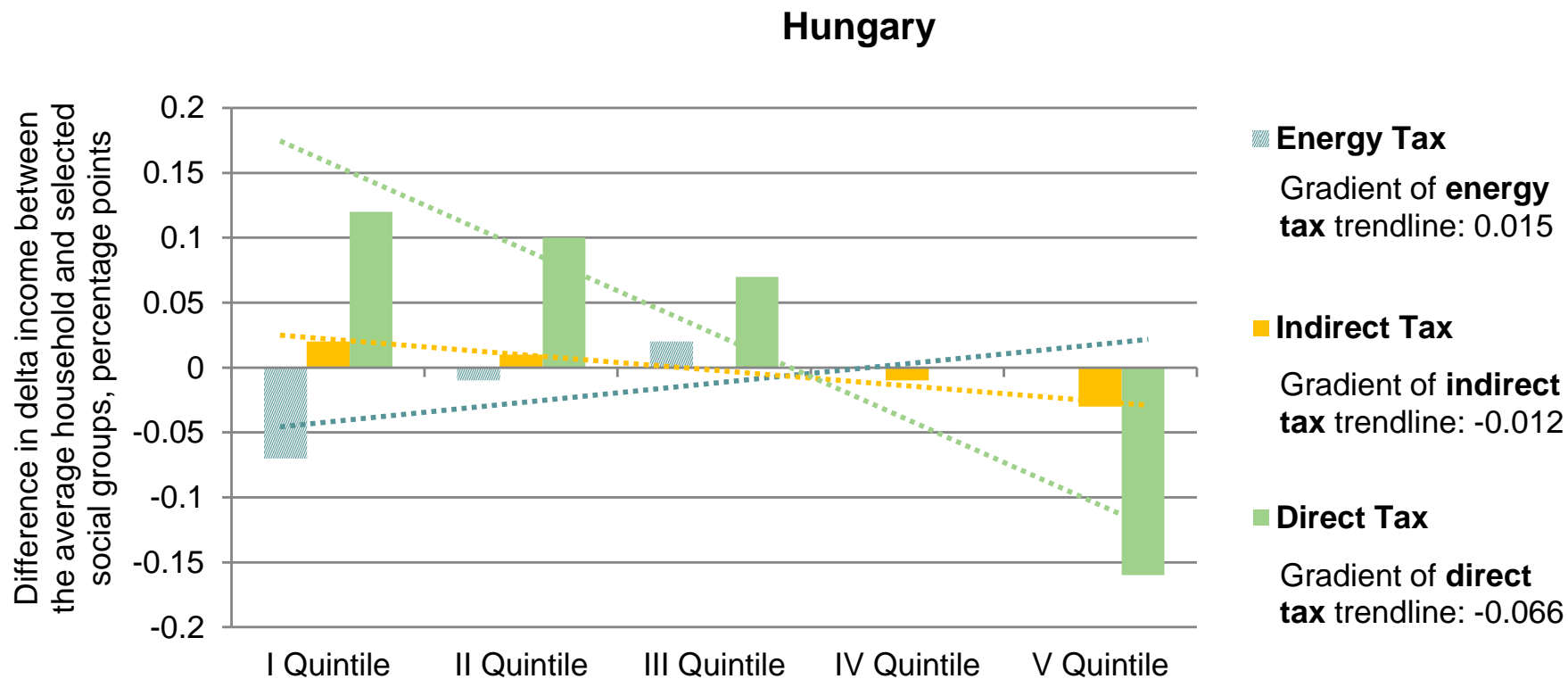
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While the energy tax package is more regressive at first sight...

Figure 13. Under the energy tax package the poorest quintile suffers the greatest percentage income loss, while under the direct tax package the richest quintile suffers the greatest percentage loss



Note: The first quintile contains the 20 per cent of household with lowest incomes

Source: Cambridge Econometrics E3ME model and Vivid Economics

...it leads to lower income losses for all vulnerable subgroups than the other two proposals

This is due to a much lower GDP loss compared to the other two packages

Table 2. For each vulnerable group, the income loss is lowest with an energy tax reform

Income loss in 2020 from different tax options (per cent loss relative to baseline – smallest loss in bold)			
Social group	Energy tax reform	Indirect tax	Direct tax
Poorest quintile	-0.66%	-0.66%	-1.05%
Manual workers	-0.62%	-0.68%	-1.18%
Unemployed	-0.67%	-0.68%	-1.06%
Retired	-0.59%	-0.66%	-0.86%
Inactive	-0.71%	-0.80%	-0.83%
Urban	-0.56%	-0.71%	-1.26%
Rural	-0.65%	-0.67%	-1.11%
Population average	-0.58%	-0.69%	-1.17%

Note: Baseline refers to scenario in which none of the three options are introduced

Source: Cambridge Econometrics E3ME model and Vivid Economics

How can distributional impacts be alleviated?

Alleviation policy involves trade-offs between equity and efficiency

good alleviation policy fulfils three criteria

- **Incentive consistency:** strengthens/does not weaken the incentive to save energy
- **Good targeting:** reaches all those who need it, and none of those who do not need it
- **Low costs:** low administrative costs; gives as much support as needed, but no more

combining all three criteria in one policy is a challenge.

first-best option: monthly or quarterly lump sum assistance to eligible households paid via energy bills, the size of which is determined by historical energy consumption to exactly offset the bill increase due to energy tax increases

second best options might include:

- uniform lump sum assistance to all eligible households; appropriate when energy needs are relatively similar across all relevant households; preserves incentive consistency, but over/undercompensates some households
- exemption from energy tax increase for eligible households; appropriate when energy needs are diverse; weakens incentive to save energy, but leaves all eligible households unaffected by the energy tax increases

Indicative calculations show the costs of compensation policies to be manageable

This holds across all the countries investigated in the study

table below shows the compensation necessary to leave the poorest quintile just as well off after the proposed reforms as before

this gives an indication of the **minimum** cost of alleviation policies; ignores administrative costs or provisions for support policies beyond poorest 20 per cent

Table 3. Poorest quintile income losses are less than 10% of new tax revenue in the three countries

Income losses of poorest quintile due to respective energy tax reform packages (= amount of compensation necessary), relative to baseline scenario		
Country	€m	As per cent of country-specific ETR revenues
Hungary	60	6%
Poland	430	8%
Spain	715	7%

Note: Actual alleviation policy may wish to target a group other than the poorest 20 per cent by income; these numbers are therefore only indicative in nature

Source: Cambridge Econometrics E3ME model and Vivid Economics



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Company Profile

Vivid Economics is a leading strategic economics consultancy with global reach. We strive to create lasting value for our clients, both in government and the private sector, and for society at large.

We are a premier consultant in the policy-commerce interface and resource and environment-intensive sectors, where we advise on the most critical and complex policy and commercial questions facing clients around the world. The success we bring to our clients reflects a strong partnership culture, solid foundation of skills and analytical assets, and close cooperation with a large network of contacts across key organisations.

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