Carbon Taxes and Fiscal Deficits

Chapter 13

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Outline of the presentation

- Background
- Previous analysis in Europe and the US
- Scenarios
- Model results
- Conclusions

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Implementation of ETR

- A short history:
  - first introduced in Northern Europe in the early 1990s
  - never implemented at European level (ETS instead) but gradually grew in popularity at national level
  - many ETR's have exemptions for particular industries, showing the political nature of tax reform
  - revenues have been used for a variety of different purposes, including environmental measures (not strictly ETR) and many changes to general taxation
  - ETR can be complementary to renewables policy, energy efficiency standards and other environmental regulation

What happened next… energy prices

Source: US EIA, http://www.eia.gov/forecasts/steo/realprices/
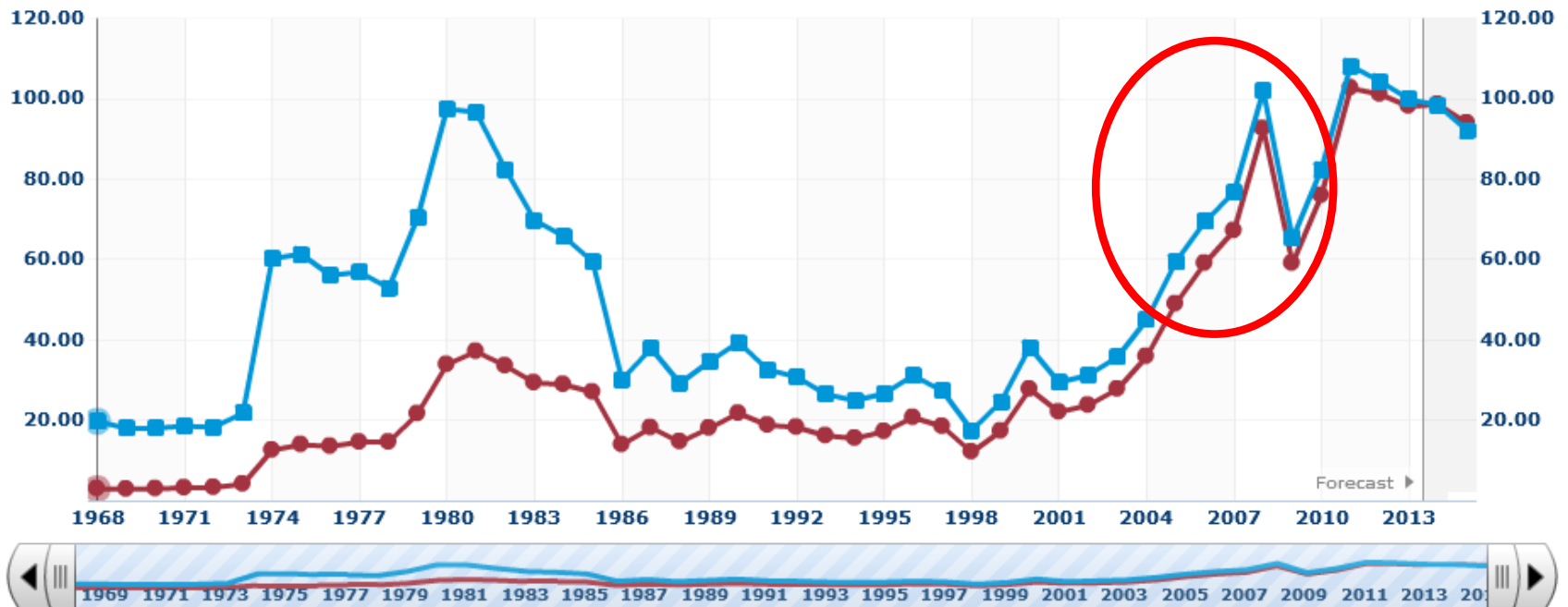
What happened next… crisis!

% of GDP

Govt expenditure

Tax revenues
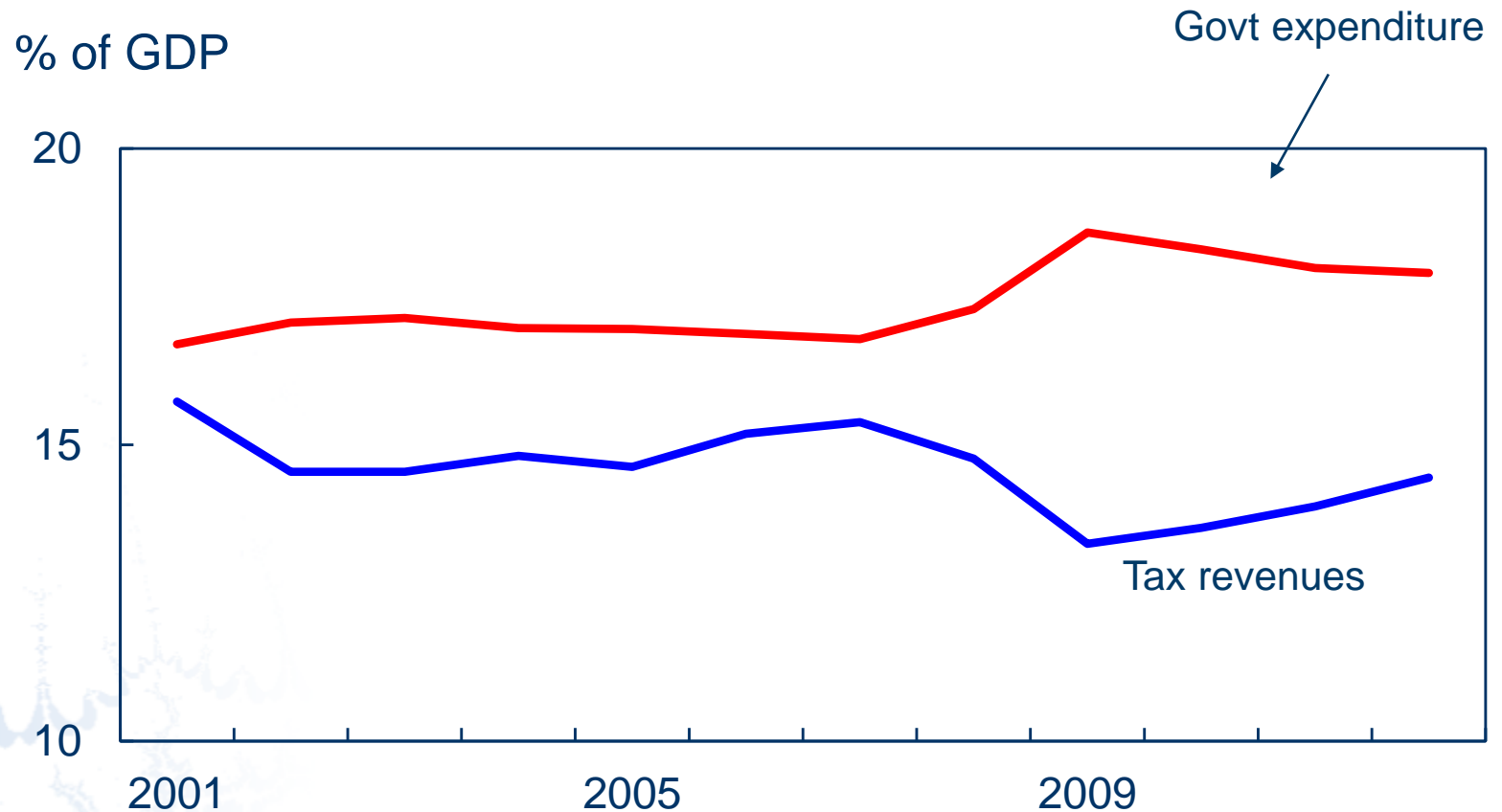
Source: World Development Indicators, World Bank

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From ETR to ET…

- In 2009/10, many countries introduced fiscal stimulus packages to support their national economies

- But public deficits, which were widening anyway, meant many countries imposed austerity packages

- ETR was no longer feasible, the question became which tax to increase

A major study in Europe

Carbon taxation
and fiscal consolidation:

the potential of carbon pricing to reduce Europe's fiscal deficits
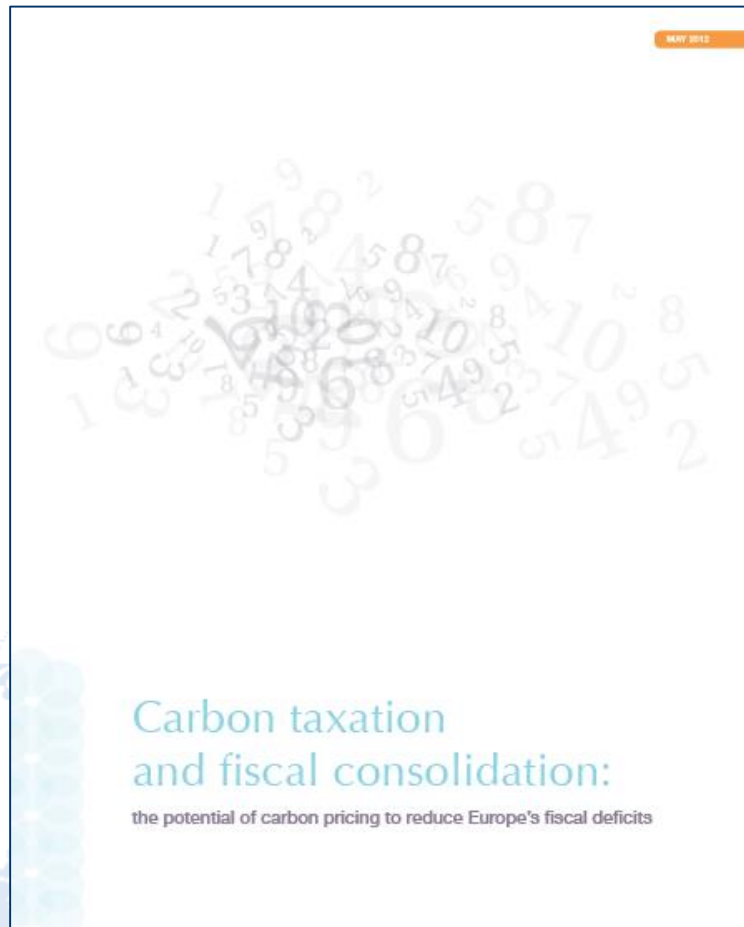
- This report used the E3ME model to compare the effects of a carbon tax against alternative instruments
- Vivid Economics (2012)

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Three Options were compared…

- The chart shows the impact on GDP in Spain for three different tax increases (same revenues)
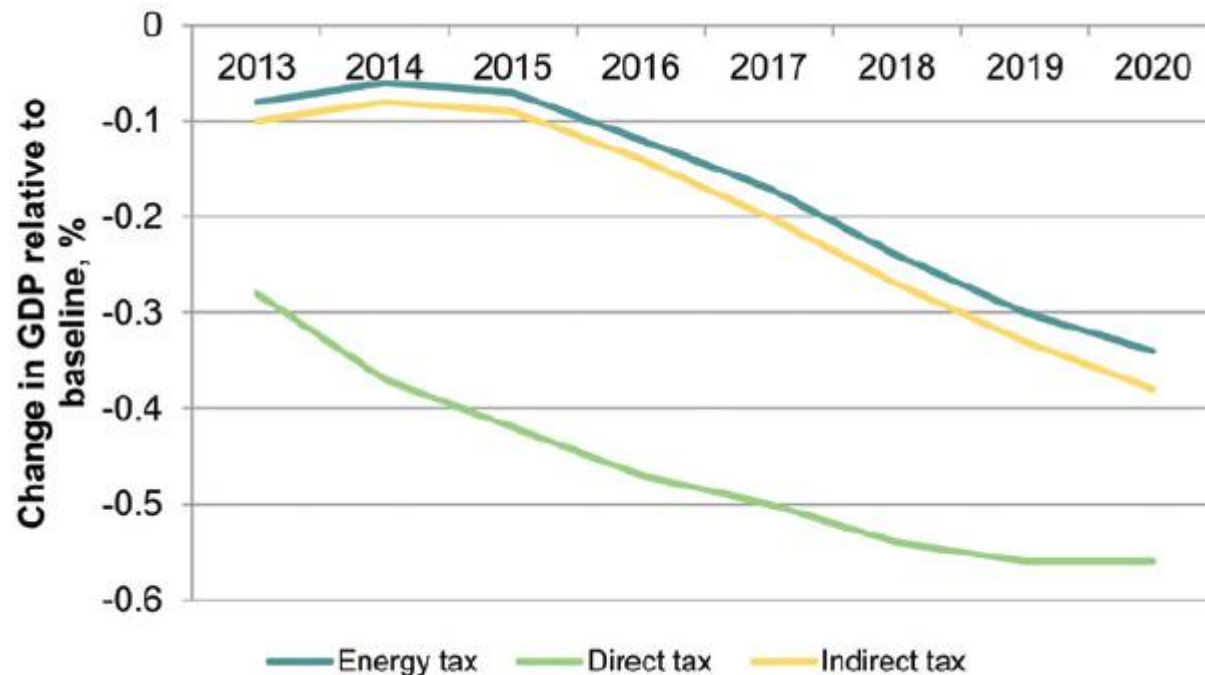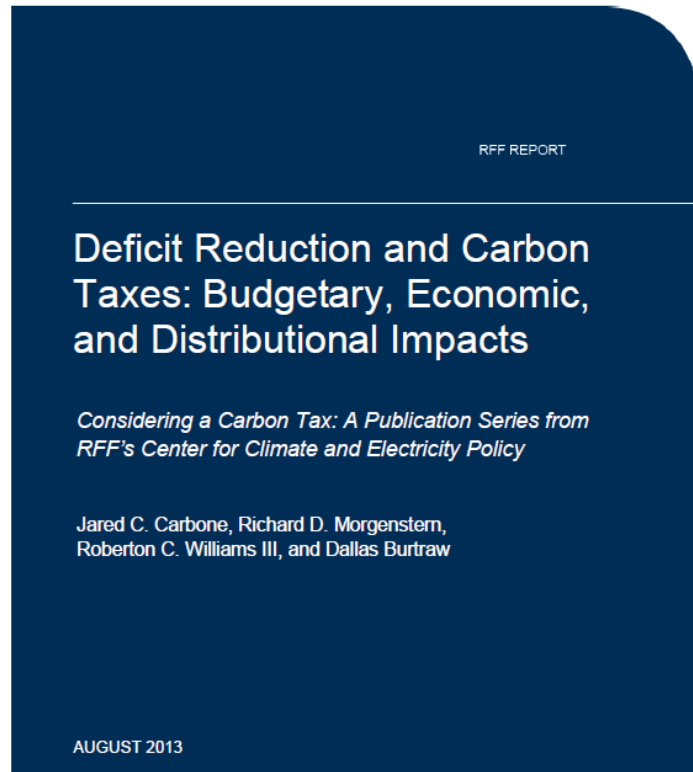

Source: Vivid Economics (2012), using the E3ME model

Conclusions from the study

- Similar results were found for Poland and Hungary
  - all three countries benefit from reducing fossil fuel imports
- Employment follows a similar pattern
- The report concluded that:
  - *Carbon-energy taxes have generally been considered an instrument of environmental policy rather than fiscal policy, but it is time to reconsider that view.*

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A major study in the US

RFF REPORT

Deficit Reduction and Carbon
Taxes: Budgetary, Economic,
and Distributional Impacts

*Considering a Carbon Tax: A Publication Series from
RFF's Center for Climate and Electricity Policy*

Jared C. Carbone, Richard D. Morgenstern,
Roberton C. Williams III, and Dallas Burtraw

AUGUST 2013

RESOURCES
FOR THE FUTURE

- This report used a CGE model to compare the effects of a carbon tax against alternative instruments
- By RFF in the US, Carbone et al (2013)

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Carbon taxes and the US deficit

Figure 5. Percentage Difference in GDP of Debt-Reduction Scenarios with a $30/ton CO_2 Tax Relative to Debt Reduction without a CO_2 Tax
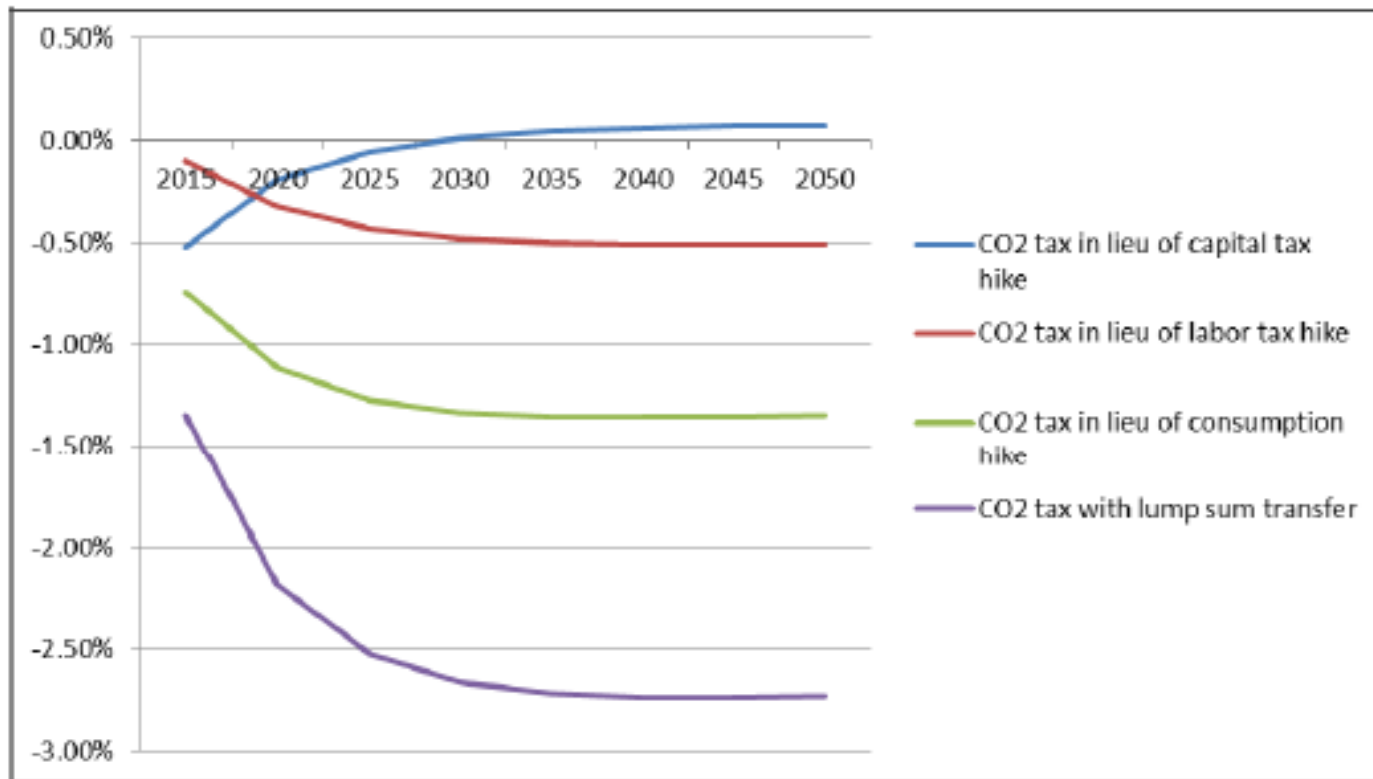
Source: Carbone et al (2013)

Results from the study

- The CGE modelling found that a $30/tonne carbon tax has a slightly worse effect on GDP than increasing consumption or (especially) labour taxes, but the difference is very small out to 2050

- But emissions fall by around 16% with the carbon tax, compared to Business as Usual

In East Asia…

Gross Debt, % GDP

Legend: China, Japan, Korea, Taiwan Province of China
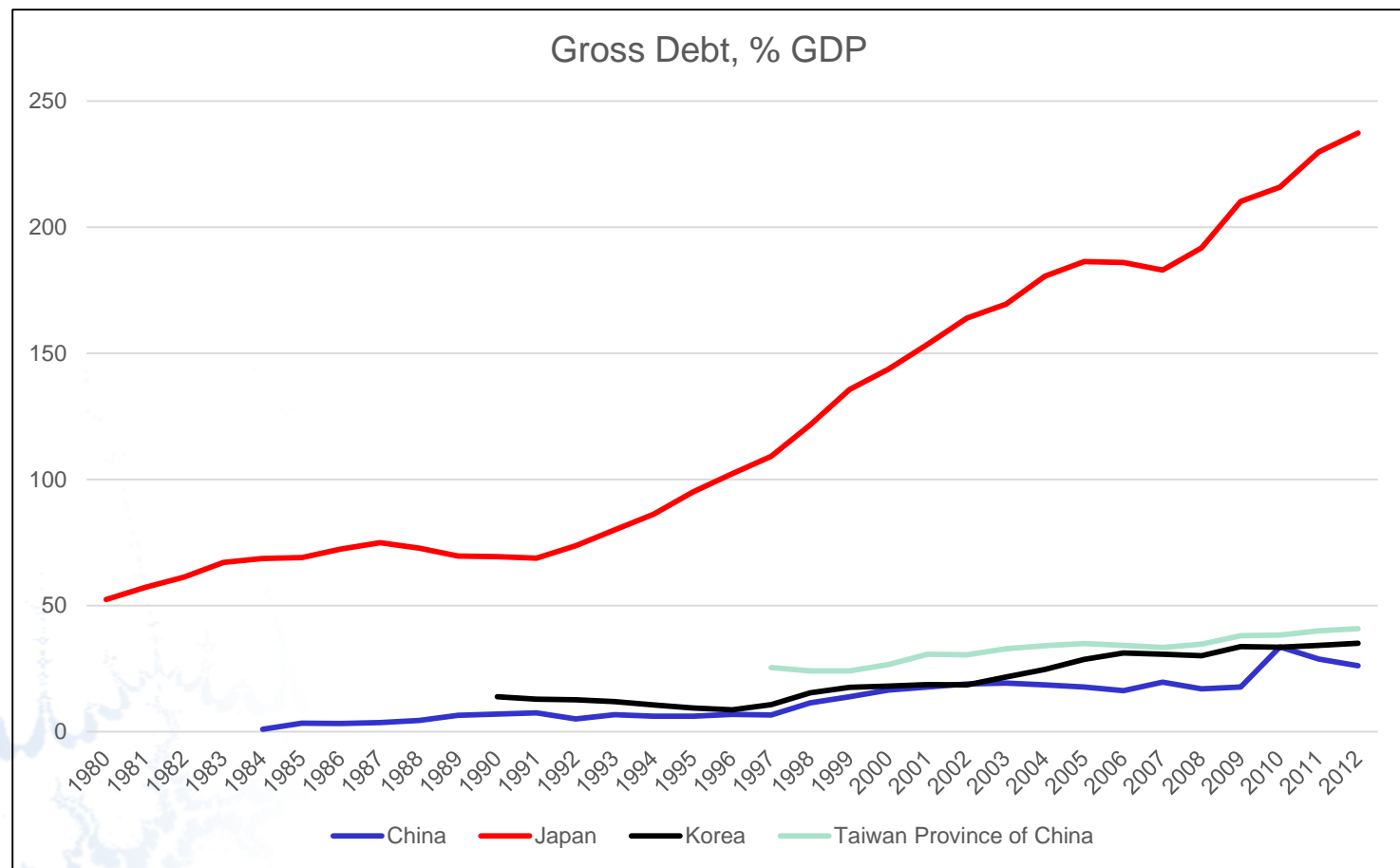
Source: IMF

Scenarios

Scenario	Revenues raised (% GDP, 2020)				Description
	CH	JA	KR	TA	
Reference case	0.0	0.0	0.0	0.0	See Chapter 10
S1	2.1	6.4	8.7	8.1	Carbon tax, see Chapter 10
S2	2.1	6.4	8.7	8.1	Increase in sales tax rate
S3	2.1	6.4	8.7	8.1	Increase in income tax rate
S4	2.1	6.4	8.7	8.1	Increase in labour tax rate

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Results – China, GDP

carbon tax

labour tax

VAT
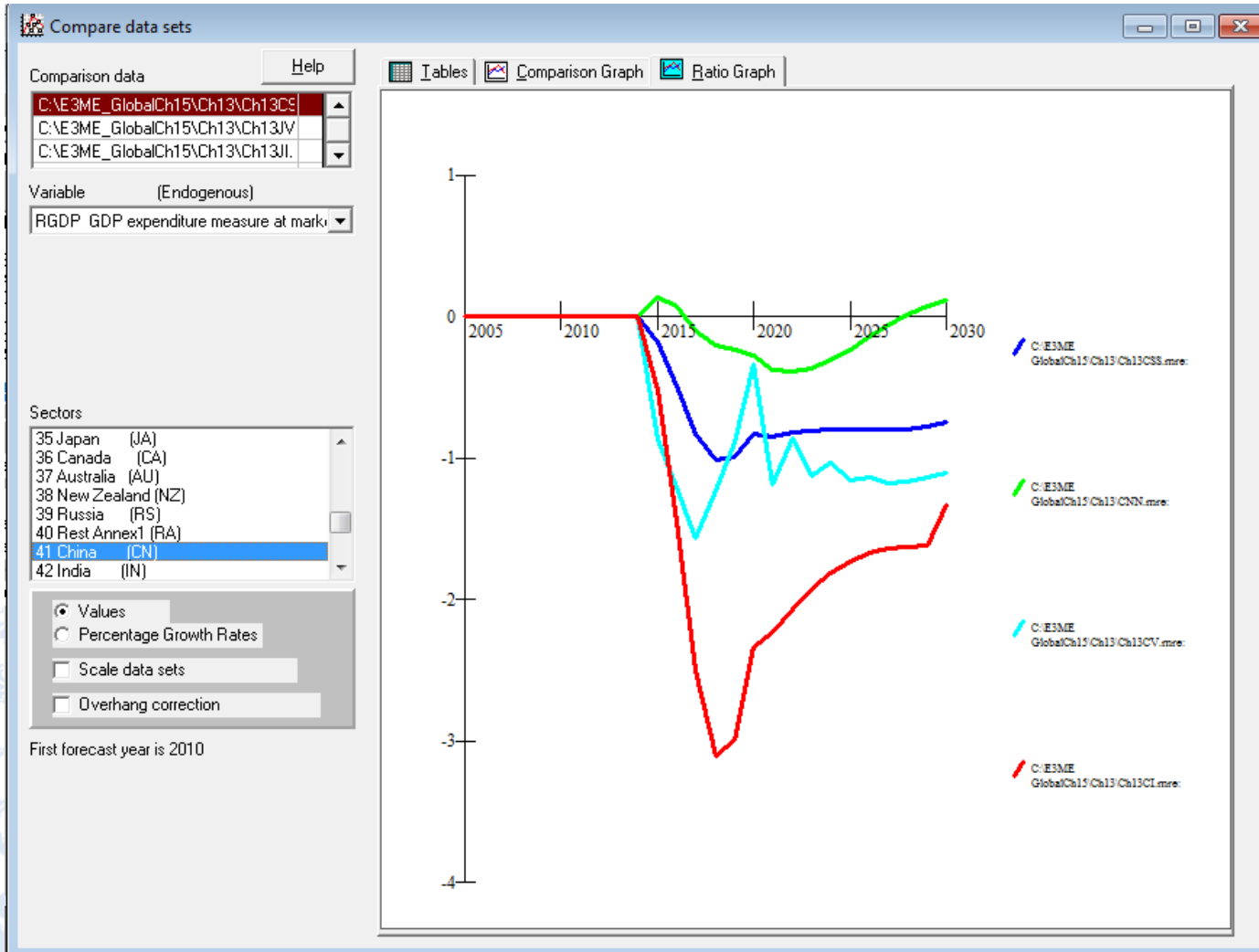
income tax

Results – Japan, GDP

carbon tax

labour tax

VAT
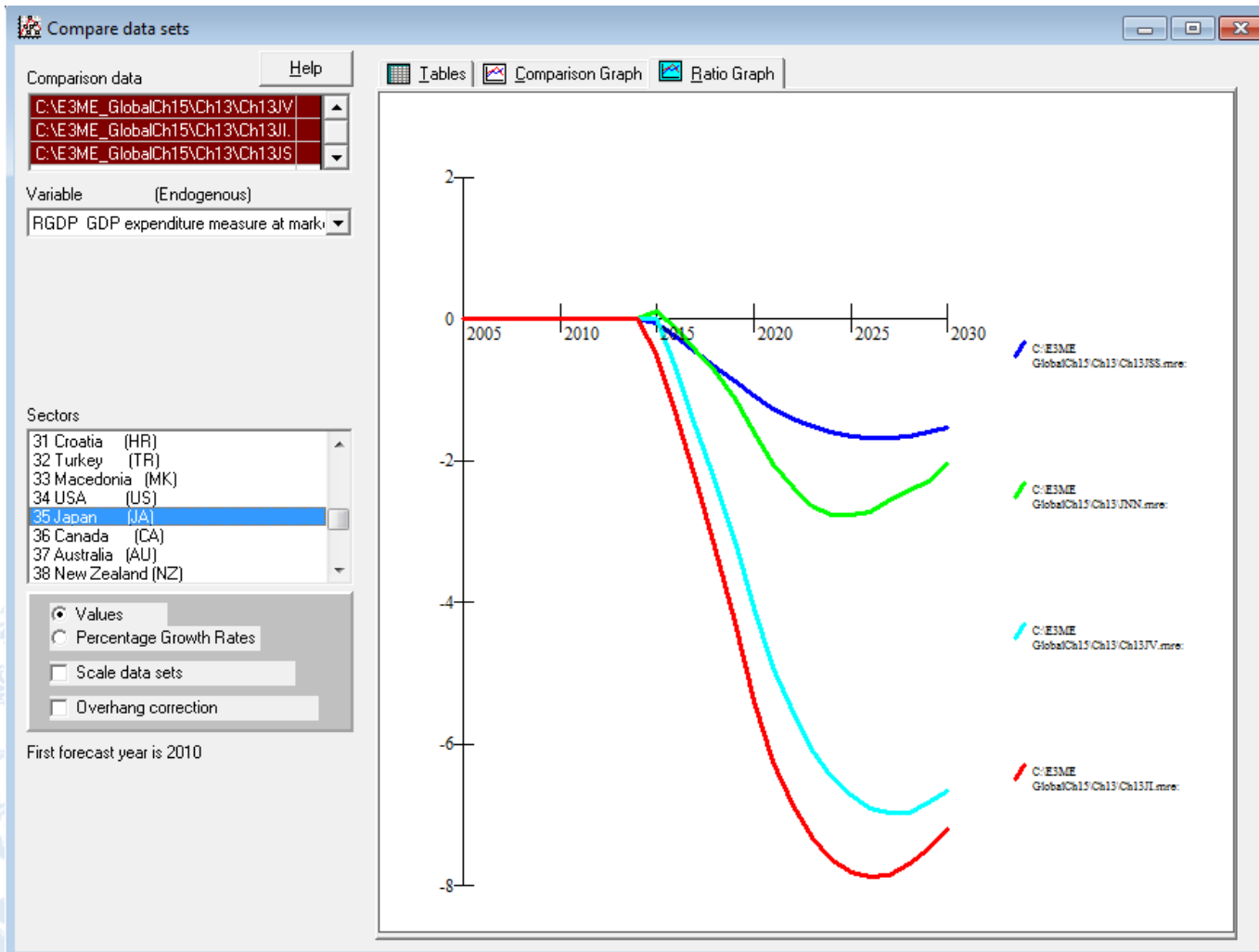
income tax
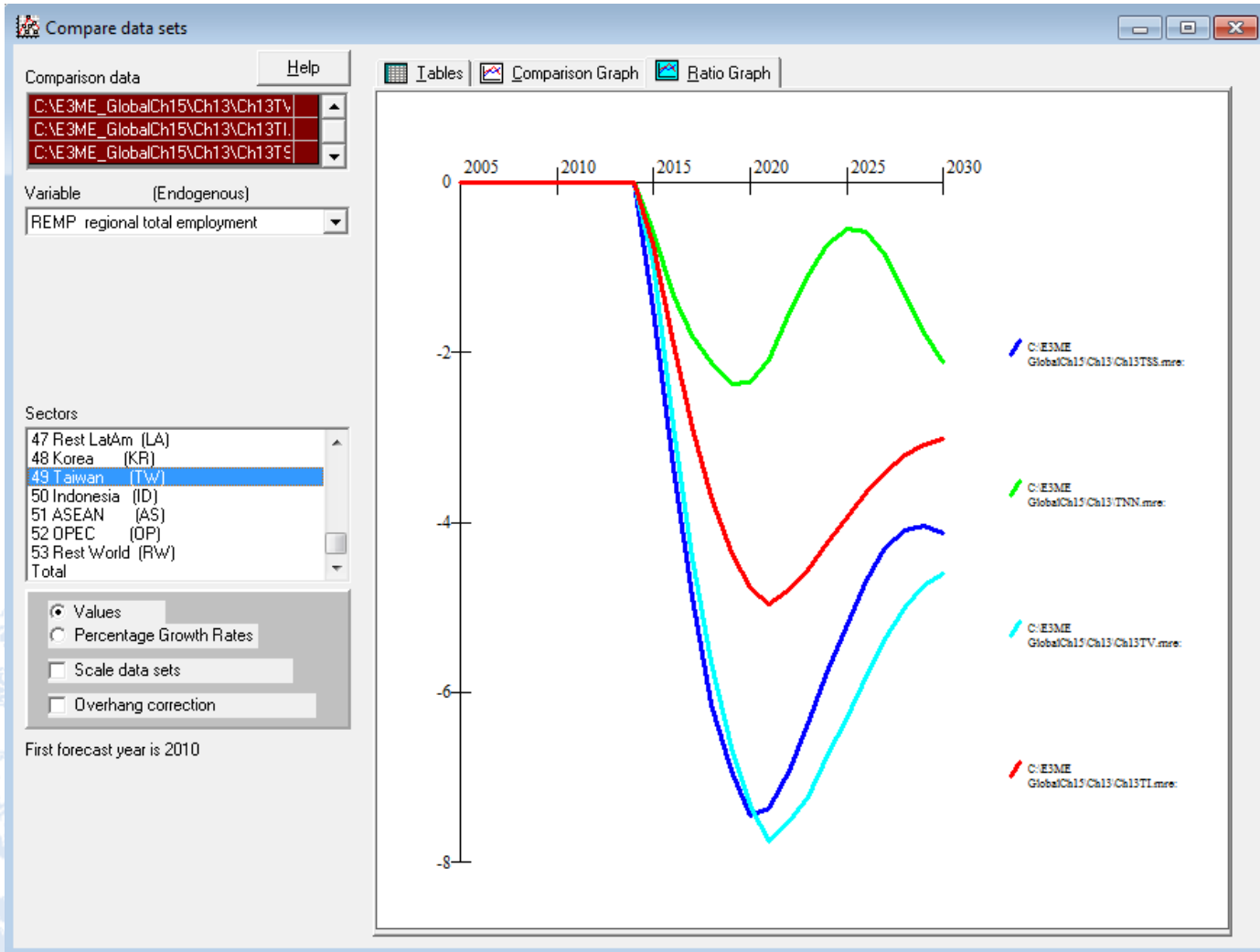
Results – Korea, GDP

carbon tax

labour tax

VAT
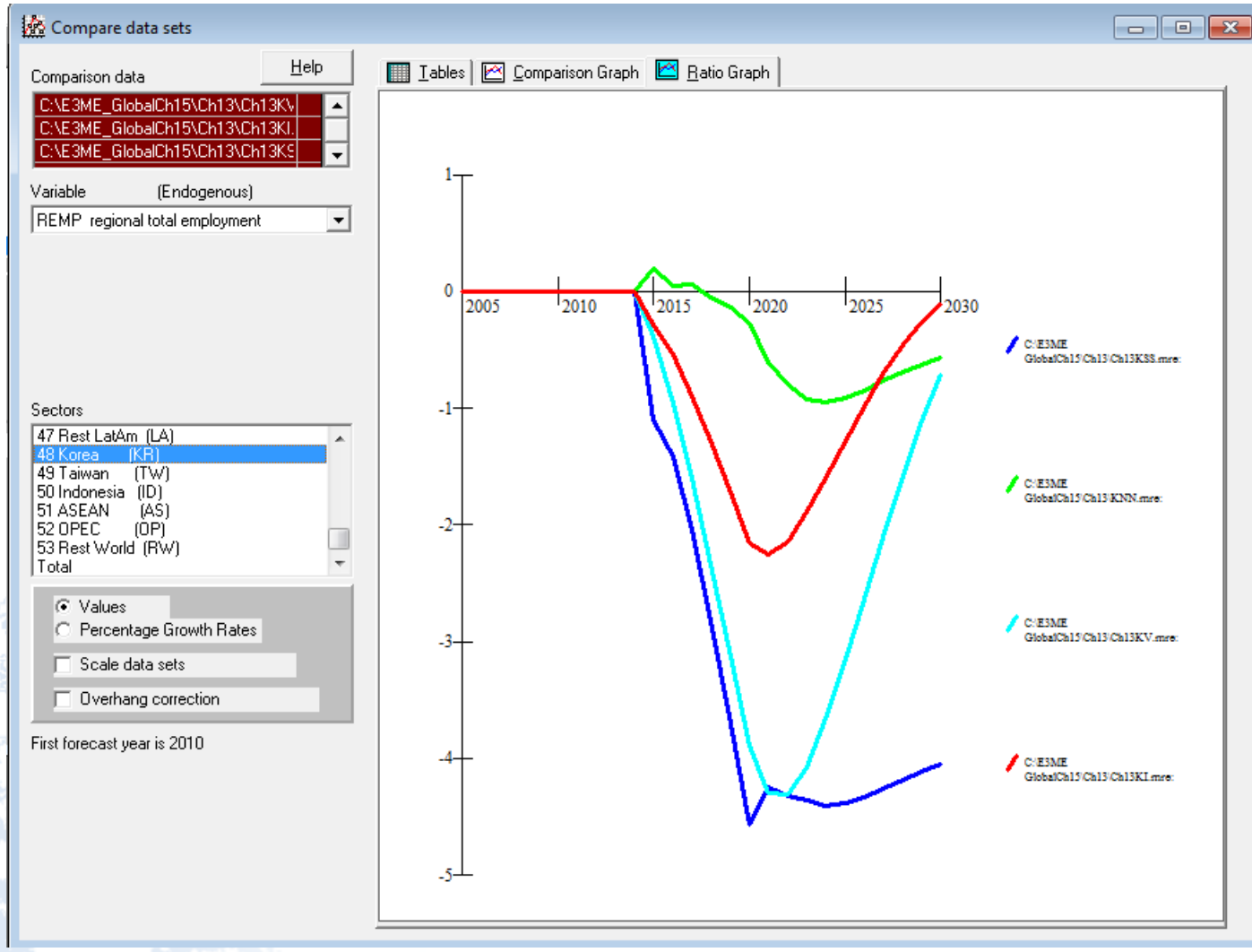
income tax

Results – Taiwan, GDP

carbon tax

labour tax

VAT

income tax

Conclusions

- There are some quite large national differences, particularly relating to labour markets and price movements

- Carbon taxes appear to come out quite favourably in most cases

- Remaining tasks:
  - a few results need to be checked further
  - consistency with other chapters (notably 10) needs checked