The role of tax policy in fiscal consolidation: Insights from macroeconomic modelling

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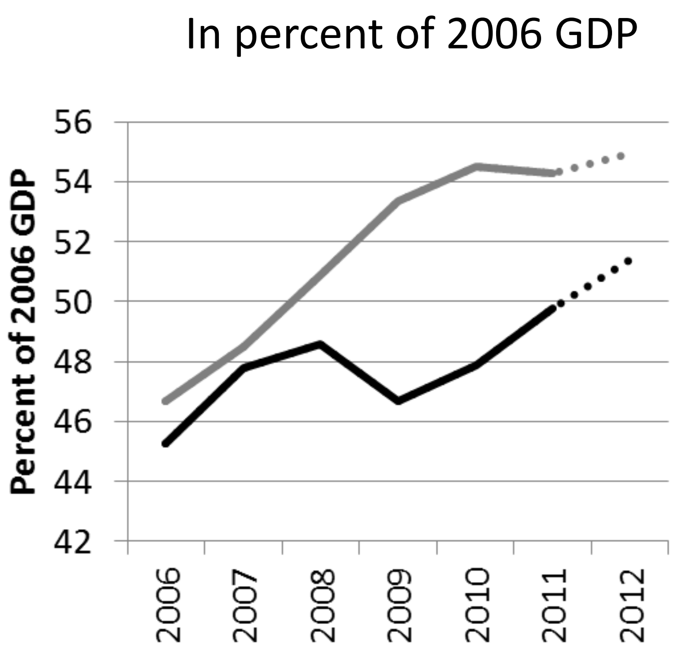
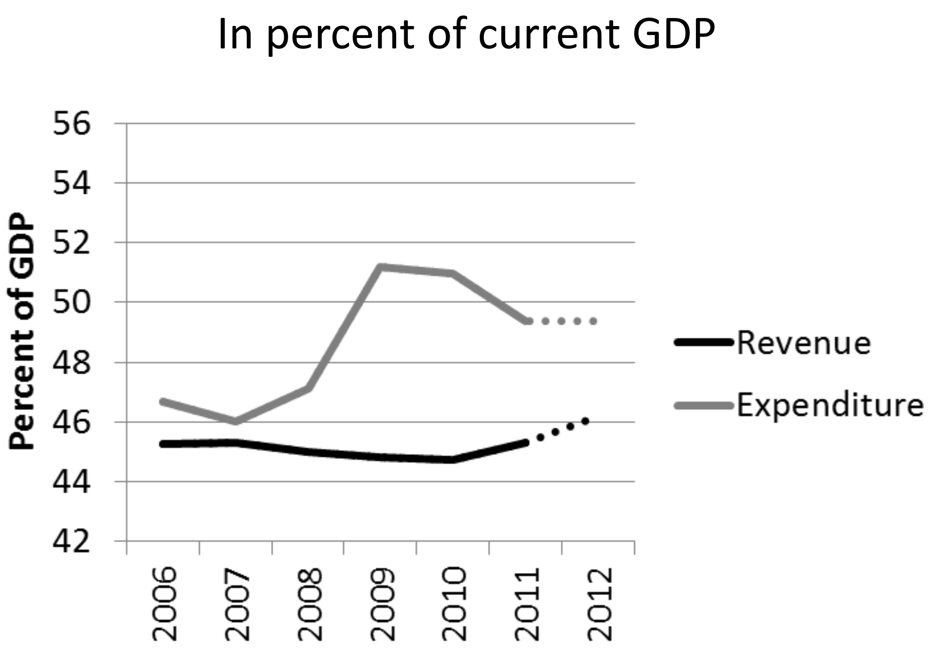
Introduction

- Severe fiscal crisis in a number of euro area countries, but also need for deficit and debt in the euro area <u>as a whole</u>
  - Sustained increase in government expenditures relative to current GDP
  - Government rising over 90% of GDP
  - To ensure sustainability need to either raise taxes or bring expenditure back to pre-crisis level

Introduction

Total government expenditure and revenues in the euro area

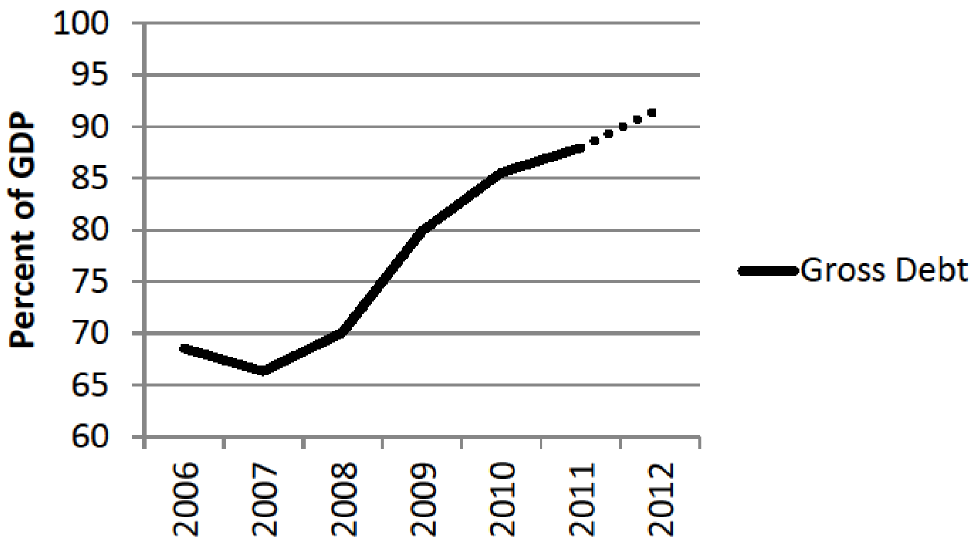




Notes: Data are taken from the European Commission's AMECO database. Dotted lines refer to 2012 estimates of the European Commission.

Introduction

Gross government debt in the euro area



Notes: Data are taken from the European Commission's AMECO database. The chart shows gross debt relative to current euro area GDP. The dotted line indicates the 2012 estimate of the European Commission.

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Introduction

- Objective:
  - Evaluate role of tax and expenditure changes in stabilizing debt-to-GDP ratios
  - Need to account for endogenous response of economic activity, and therefore need to use a structural macroeconomic model (ECB/NAWM).
  - Compare with earlier findings and conduct robustness checks with other model(s)

Recent findings

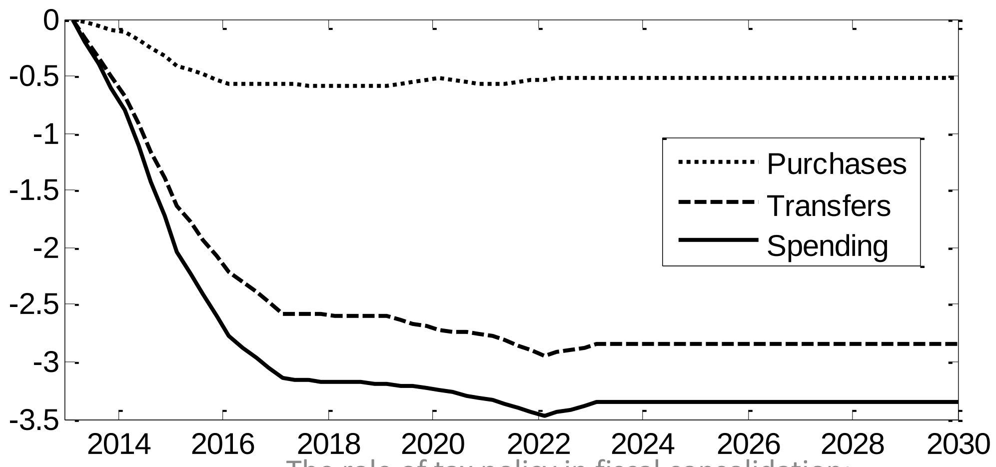
- Coenen, McAdam and Straub (2008) and Coenen, Mohr and Straub (2008):
  - Large-scale New Keynesian DSGE model (NAWM)
  - Lowering euro area taxes to US levels increases output and hours worked by **more than 10%**
  - Tax policy for consolidation
    - In the short-run: increase in tax rate causes a recession
    - In the long-run: lower debt level allows for lower tax rate and therefore higher economic activity

Recent findings

- Alesina and Ardagna (2012) and Alesina, Favero and Giavazzi (2012) on expansionary consolidations:
  - Empirical, narrative approach, case studies
  - Spending based adjustments associated with mild, short-lived or no recession at all
  - Tax based adjustments associated with deep and prolonged recessions

Recent findings

- Cogan, Taylor, Wieland and Wolters (2012):
  - U.S. House of Rep. 2013 Budget Reform Proposal.
  - Reduction in spending is used to reduce debt level and to reduce income tax rate by 5 percentage points
  - Example for expansionary consolidation



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Models

- New Area-Wide Model: Coenen, McAdam and Straub (2008)
  - two-country DSGE model of the euro area and the US, non-Ricardian households, disaggregate government spending, distortionary taxes, lump-sum taxes which feedback to government debt

Models

Fiscal authority's budget constraint:

$$P_{G,t}G_t + TR_t + B_t + M_{t-1} =$$
$$\tau_t^C P_{C,t}C_t + \tau_t^N (W_{I,t}N_t^I + W_{J,t}N_t^J) + \tau_t^{W_h}(W_{I,t}N_t^I + W_{J,t}N_t^J) + \tau_t^{W_f} W_t N_t +$$
$$\tau_t^K (R_{K,t}u_t - (\Gamma_u(u_t) + \delta)P_{I,t})K_t) + R_t^{-1}B_{t+1} + M_t$$

Fiscal rule:

$$\frac{TR_t}{P_{Y,t}Y_t} - TR_t^* = \varphi_{B_Y}\left(\frac{B_t}{P_{Y,t}Y_t} - B^*\right)$$

Models

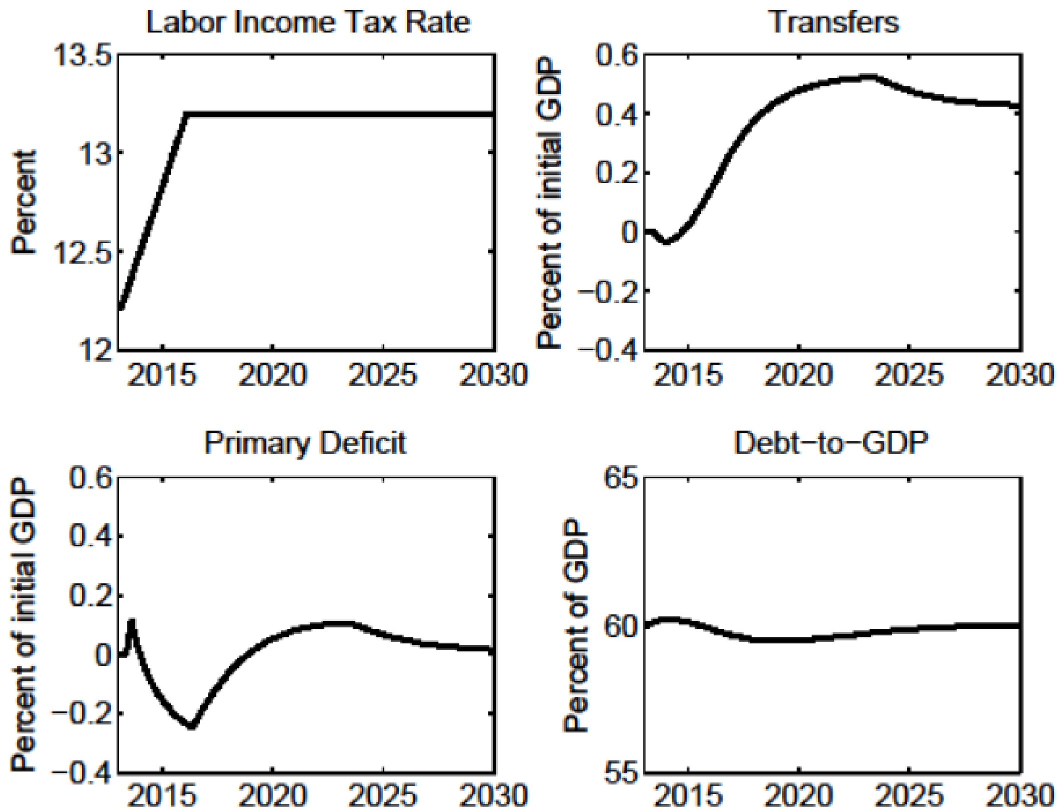
- EU-Quest: Ratto, Roeger and int´Veld (2009)
  - Open-economy model of the euro area
  - Estimated with euro area data from 1981 to 2006
  - Fiscal policy rules for government consumption, government investment and government transfers
  - Distortionary taxation in capital, consumption and labor income
  - “rule of thumb” households

Permanent tax rate changes

- In our simulations, change in tax revenue used to adjust debt level and/or lump-sum transfers.
- 2 scenarios:
  - Permanent change in tax revenue accommodated by a permanent change in transfer expenditure
  - Permanent change in tax revenue ultimately offset by the change in interest paid on debt at a new debt-to-GDP ratio

Permanent tax rate change

(1) Permanent increase in labor income tax rate, constant government debt



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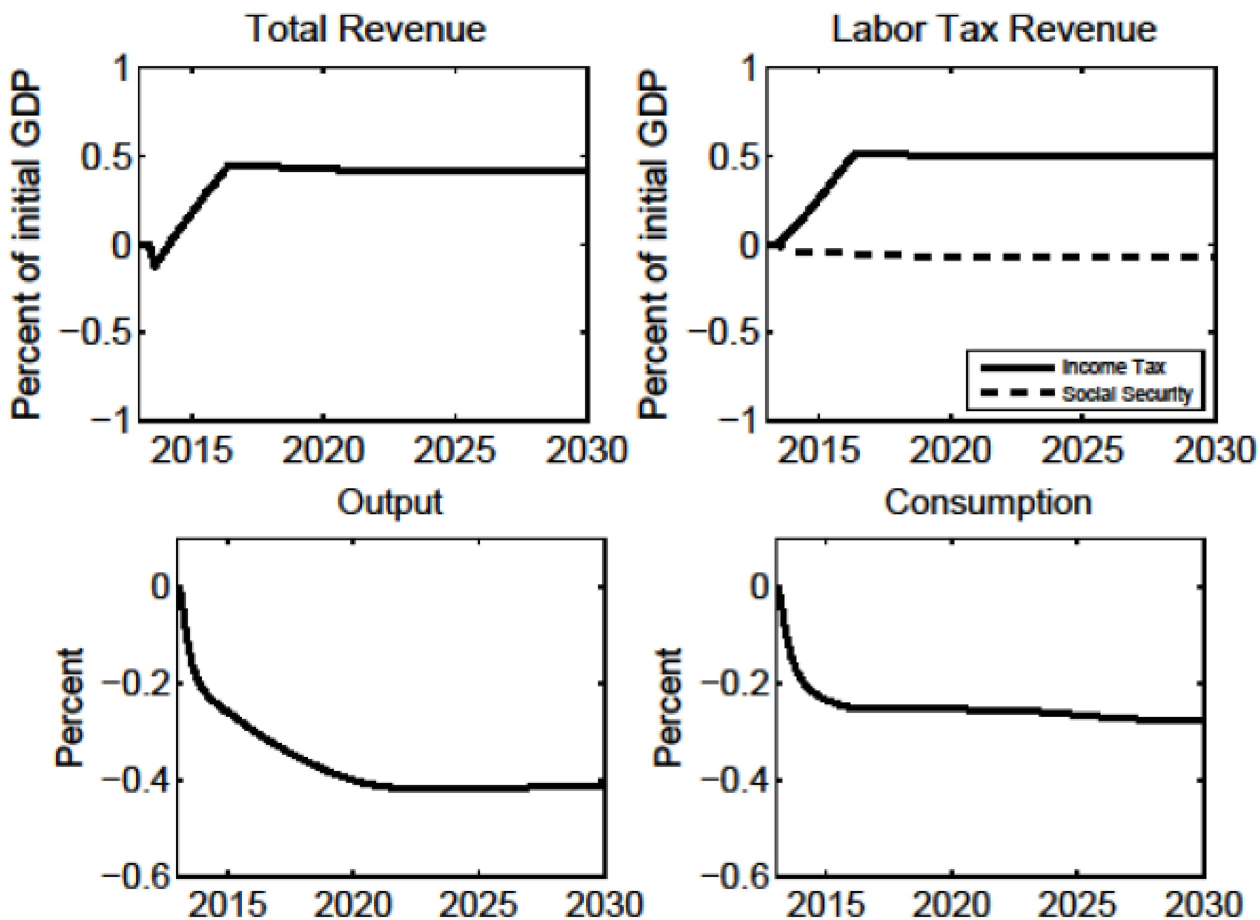
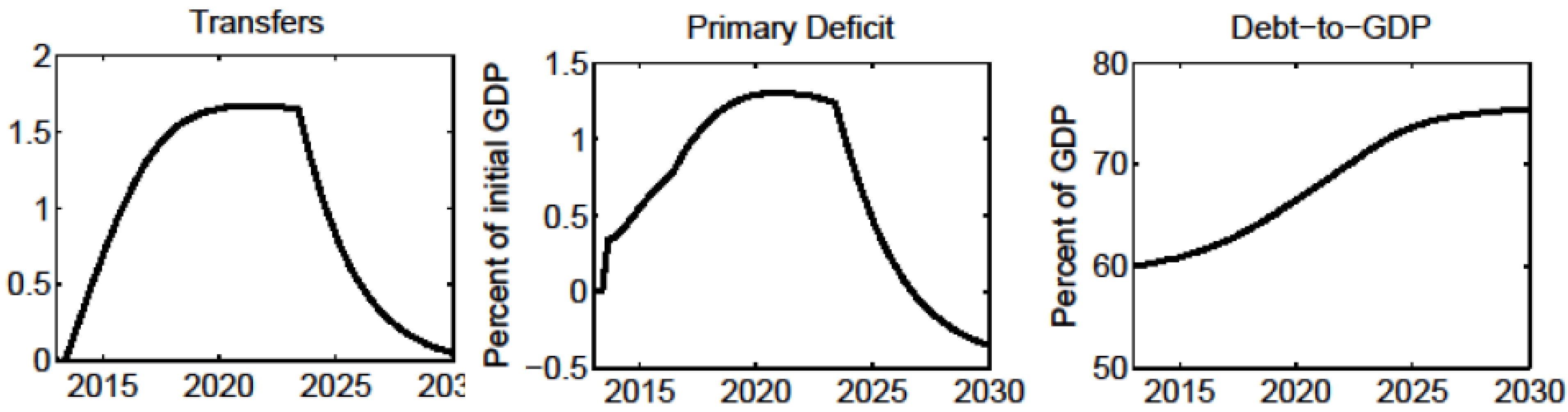


Permanent tax rate change

(2) Permanent increase in labor income tax rate, higher government debt



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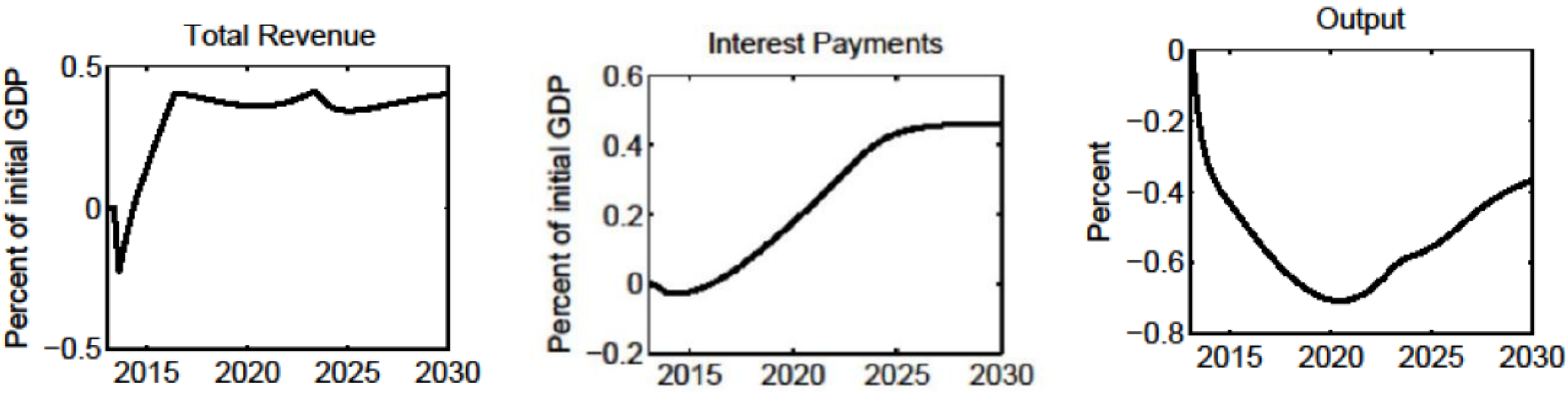

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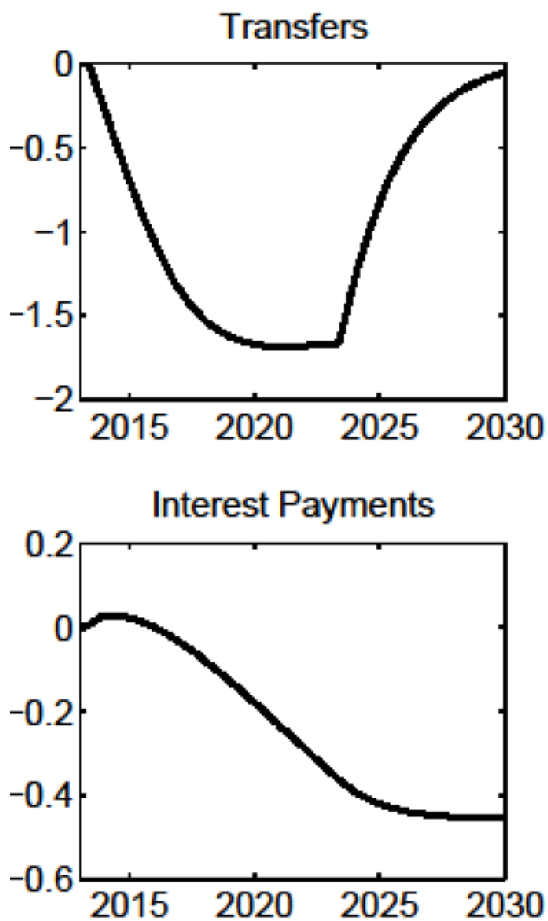
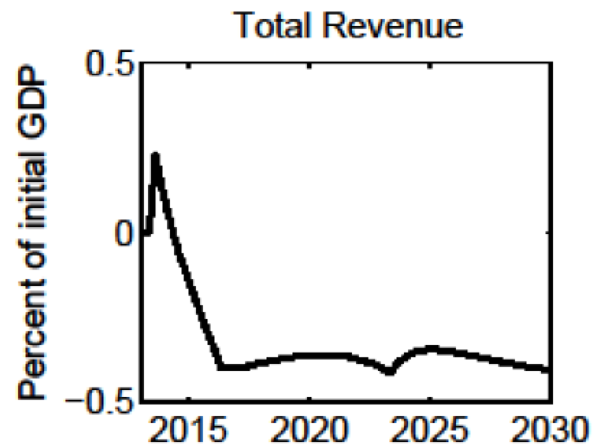
Permanent tax rate change

(3) Permanent reduction in labor income tax rate, lower government debt





Permanent tax rate change

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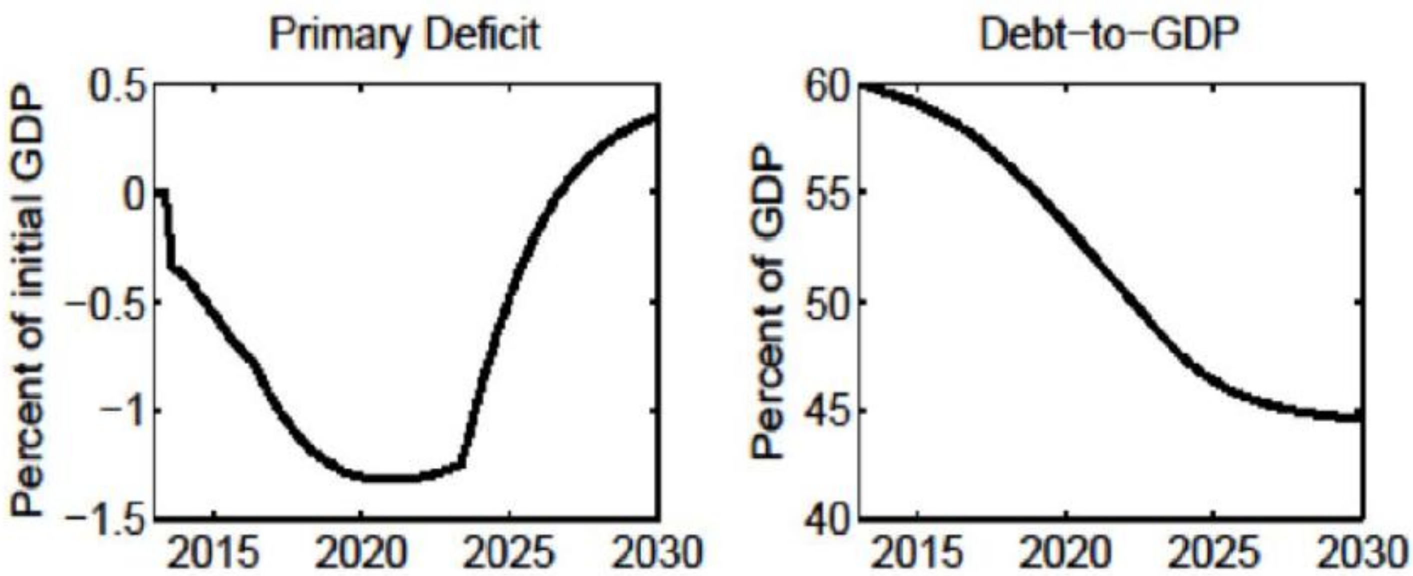
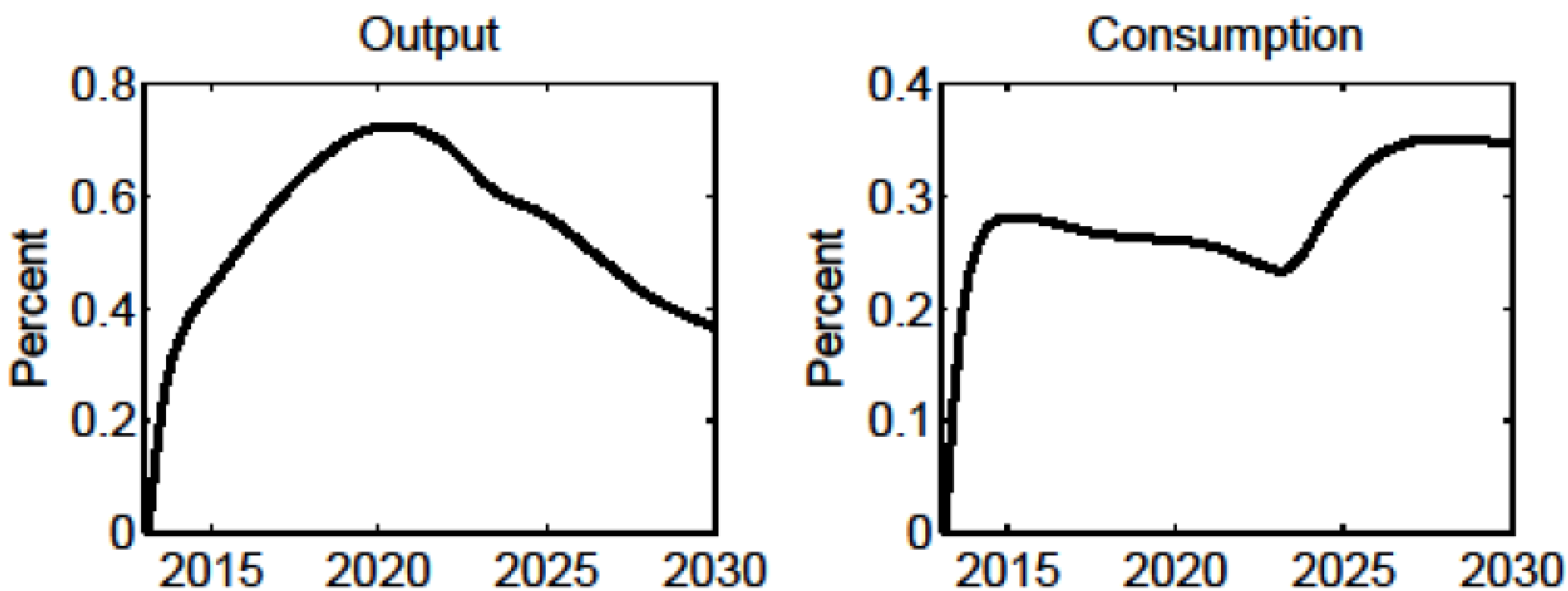


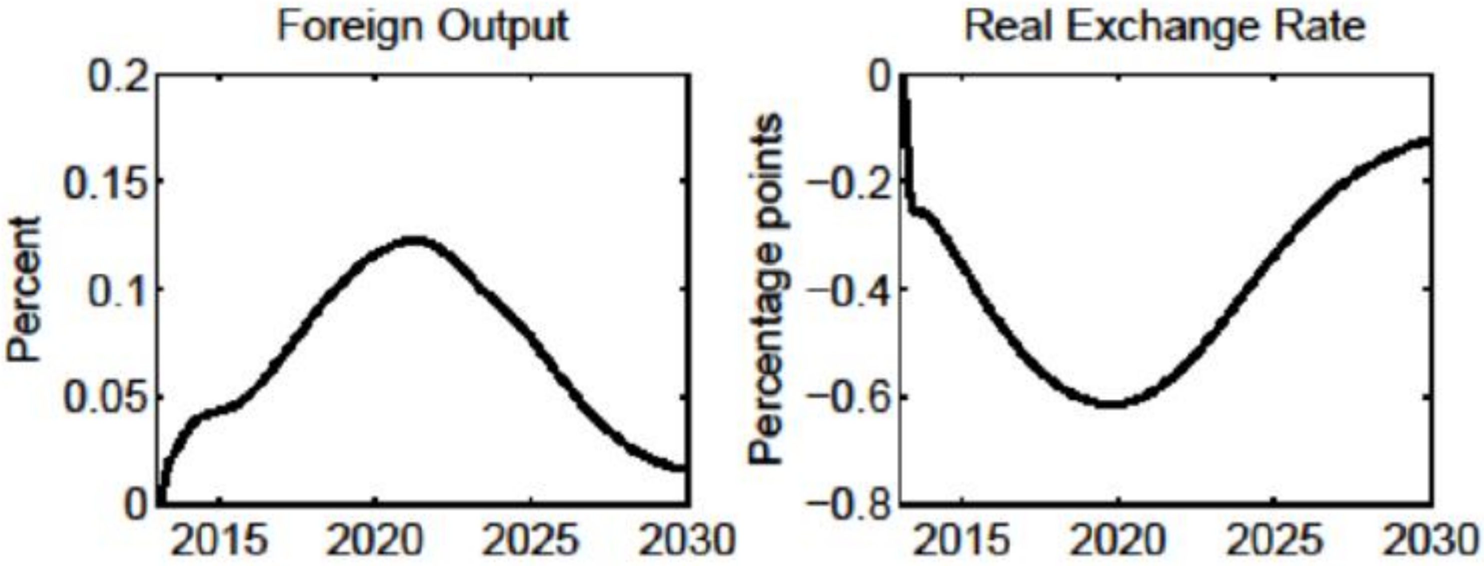
Permanent tax rate change

(3) Permanent reduction in labor income tax rate, lower government debt➔ Expansionary consolidation.



Permanent tax rate change

(3) Permanent <u>reduction</u> in labor income tax rate, <u>lower</u> government debt➔ <u>Positive international spillovers.</u>



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Permanent tax rate changes

- Permanent **reduction** in labor income tax rate, lower government debt, long-run effects

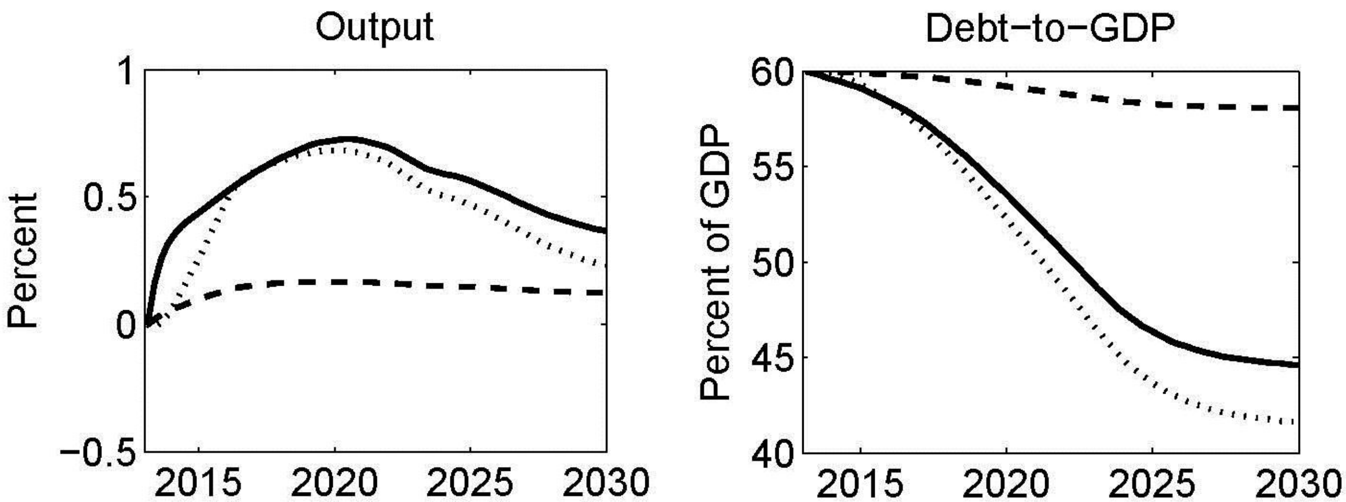
Table 1: New Steady-State versus old Steady-State (percentage change)

Labor income tax rate	-1		Total revenue	-0.45		Consumption	0.22
Primary deficit	0.45		Income tax revenue	-0.52		Investment	0.04
Debt-to-GDP	-15.49		Social security contribution	0.06		Net exports	0.03
Total expenditures	-0.45		Capital tax revenue	0.00		Hours worked	0.35
Transfers	0.00		Consumption tax revenue	0.04		Capital	0.20
Government Purchases	0		Real interest rate	0.00			
Interest paid on gov. debt	-0.45		Output	0.30			

Notes: Table reports percentage changes or percentage point changes in the new steady state relative to the initial steady state.

Permanent tax rate changes

- Fiscal consolidation with lower consumption and capital taxes



Notes: **Dotted lines**: reduction of consumption tax by 1 pp. **Solid lines**: Reduction of income tax by 1 pp, **Dashed lines**: Reduction of capital tax by 1pp.

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Permanent changes in tax rates

- Fiscal consolidation with lower consumption and capital taxes, long-run effects

Variables	income tax reduction 1pp	consumption tax reduction 1pp	capital tax reduction 1pp
Debt-to-GDP	-15.49	-18.49	-1.99
Total expenditures	-0.45	-0.54	-0.06
Total revenue	-0.45	-0.54	-0.06
Output	0.30	0.15	0.12
Consumption	0.22	0.11	0.01
Investment	0.04	0.02	0.07
Net exports	0.03	0.02	0.03
Hours worked	0.35	0.17	0.03
Capital	0.20	0.10	0.33

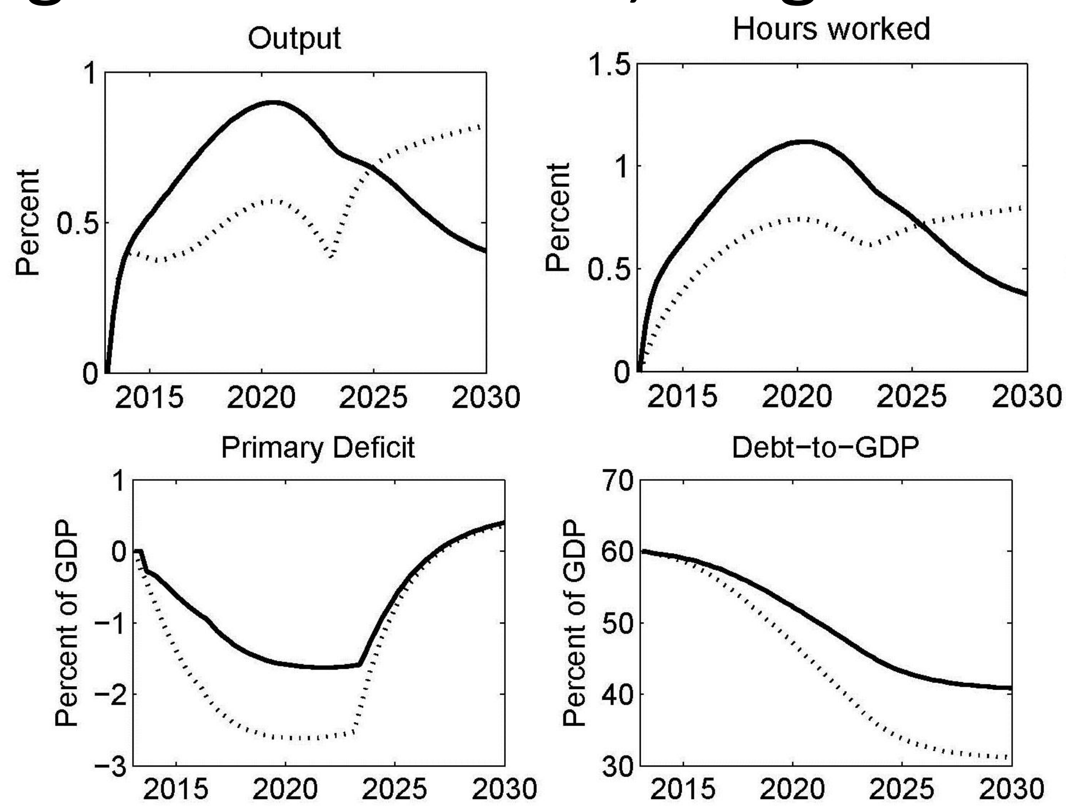
Notes: Table reports percentage changes or percentage point changes in the new steady state relative to the initial steady state.

Robustness analysis

- Compare results from benchmark scenario (income tax reduction by 1 p.p. and debt reduction) in different models
  - Coenen et al. (2008)
  - EU-Quest
  - More models to be added at later stage: Make use of the Macroeconomic Model Data Base (www.macromodelbase.com)

Robustness analysis

- Permanent **reduction** in labor income tax rate, lower government debt, long-run effects



Dotted lines: EU-Quest model
Solid lines: Coenen et al. model

Robustness analysis

- Permanent **reduction** in labor income tax rate, lower government debt, long-run effects

Variables	Coenen et al model	EU Quest model
Debt-to-GDP	-19.5	-29.0
Total expenditures	-0.57	-0.47
Total revenue	-0.57	-0.47
Output	0.31	0.84
Consumption	0.18	0.56
Investment	0.05	0.15
Net exports	0.03	0.02
Hours worked	0.35	0.91
Capital	0.21	1.13

Notes: Table reports percentage changes or percentage point changes in the new steady state relative to the initial steady state.

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Conclusion

- Well designed expenditure-revenue program for consolidation can stimulate growth in the short-run **and** long-run
- If the current baseline implies tax increases to achieve consolidation, then reduction of transfers to pre-crisis levels (relative to GDP) would avoid such tax increases.

  ➔ no explicit tax reductions would be needed to achieve expansionary path relative to such a baseline.

Conclusion

- Distortive effect of taxes depresses economic activity in the long-run
- Permanent tax reduction and debt consolidation financed by temporary transfer cuts leads to expansionary consolidation.
- Make efficient use of the fiscal room from lowering debt by reducing taxes
- Well designed expenditure-revenue program for consolidation can stimulate growth in the short-run **and** long-run