Fiscal Policy Matters

A New DSGE Model for Slovakia

CBR COUNCIL FOR BUDGET RESPONSIBILITY

Zuzana Mucka (mucka@rrz.sk) | Council for Budget Responsibility, Slovakia

Questions

Q1: How much fiscal consolidation hurts?

Q2: What drives Slovak economy?

Modelling Framework

Medium-scale DSGE model of Slovak economy

- Based on the work of Andrle (2009), Forni (2007) and Cuche-Curti (2009)
- Augmented to reflect the specificities of Slovakia

Key differences in modelling:

- Typical **Small Open Economy** without autonomous monetary policy
- **Multiple endogenous growth processes** describing convergence towards EA
- Primarily **export-oriented economy** (increasing trade-openness) and **sensitive to prices of foreign inputs**
- Extensive **reliance of the production side on foreign inputs**, high capital-labour ratio
- **Public goods** are widely consumed by households and public sector is an essential employer
- Households only hold a small share of SK government bonds and domestic capital ownership is rather limited, so they need to borrow **additional financial resources** from the foreign economy
- **Realistic fiscal rules** mirror Slovakia's EU obligations, public debt consolidation as well as common practice
- Public debt is far from its safe level, government runs deficits and **fiscal consolidation** is needed
- Sovereign bonds pricing considers expected **debt sustainability**

Solution

non-linear non-stationary quarterly model: stationarised, solved, calibrated and estimated

Table 1: Key Great Ratios

Variable Name	Value	Variable Name	Value
Growth rate of SK real economy (p.a.)	3 %	Growth rate of EU real economy	1 %
Growth rate of SK trade volumes	5 %	Trade balance to GDP	0.04
Aggregate consumption to GDP	0.55	Current account to GDP	0.050
Aggregate demand for oil to GDP	0.08	Aggregate non-energy imports to GDP	0.81
Domestic CPI	1.02	Foreign CPI	1.02
Domestic Bonds : Gross return	1.04	ECB Rate (p.a.) : Gross return	1.02
Primary deficit to GDP	0.001	Public debt to GDP	0.4
Aggregate Export to GDP	0.94	Net foreign private debt to GDP	0.38
Government purchase to GDP	0.10	Aggregate investment to GDP	0.22
Government investment to GDP	0.035	Public-to-private sector employment ratio	0.25
Public goods to GDP	0.14	Consumption tax rate	0.15
Capital Tax rate	0.231	Trade balance to GDP	0.04
Labour Tax rate	0.39	Aggregate wage bill to GDP	0.37
Households transfers to GDP	0.14	Public sector wage bill to GDP	0.09

Fiscal Consolidation

Aim:

- study effects of various fiscal policies the government might implement to stabilize the debt and deficit that are currently considerably above their safe levels
- describe the response of economy assuming that the fiscal authority aims to cut public debt to a target level of 40% of GDP over 20 years

Simulation:

- **Initial state**
  - Debt far from its target and government runs deficits (56% debt/GDP, 2.5% deficit/GDP)
  - Poor EU and SK economy performance, zero inflation, low rates
- choice of the fiscal variable to consolidate: **transfers** or **labour tax**

Figure 1: Fiscal Consolidation Scenarios

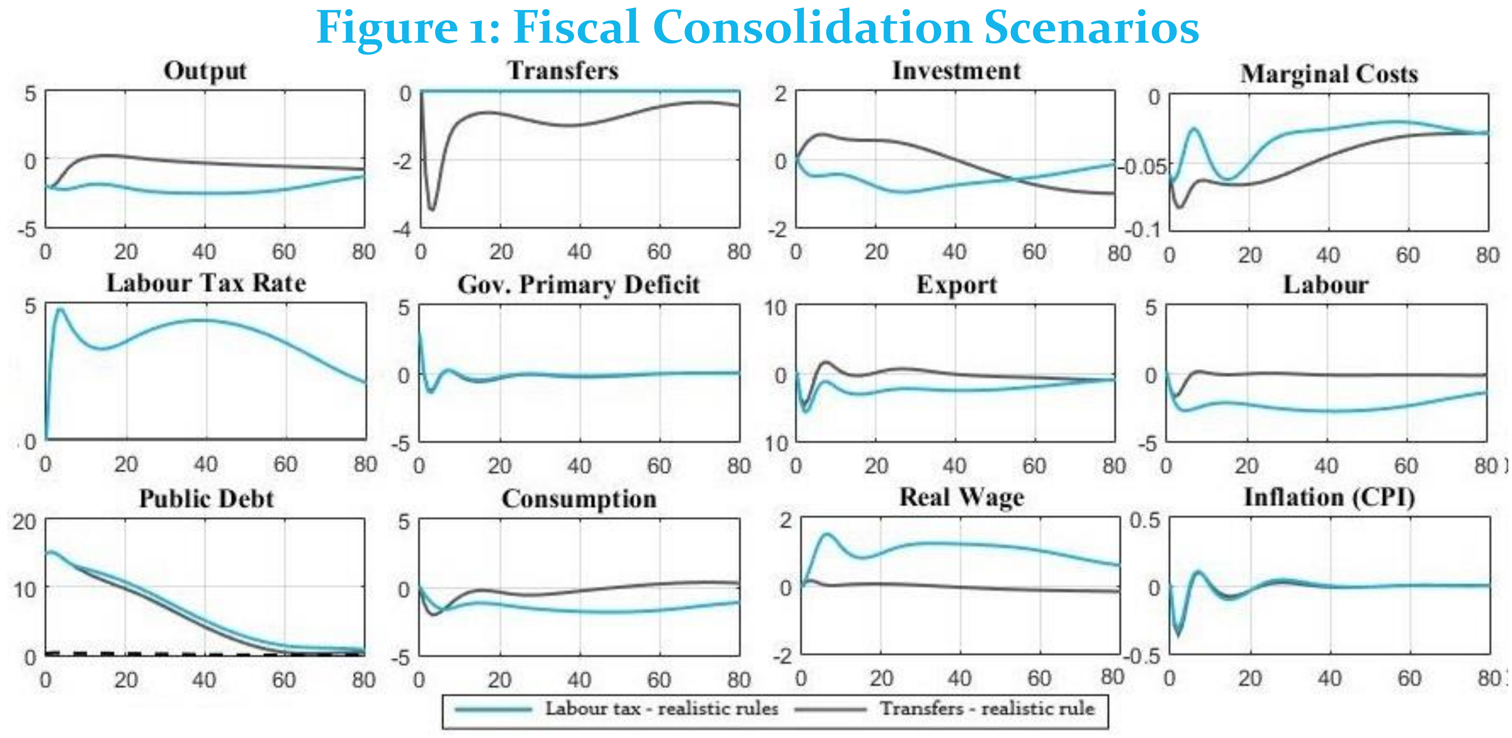


Table 2: Implied Fiscal Multipliers

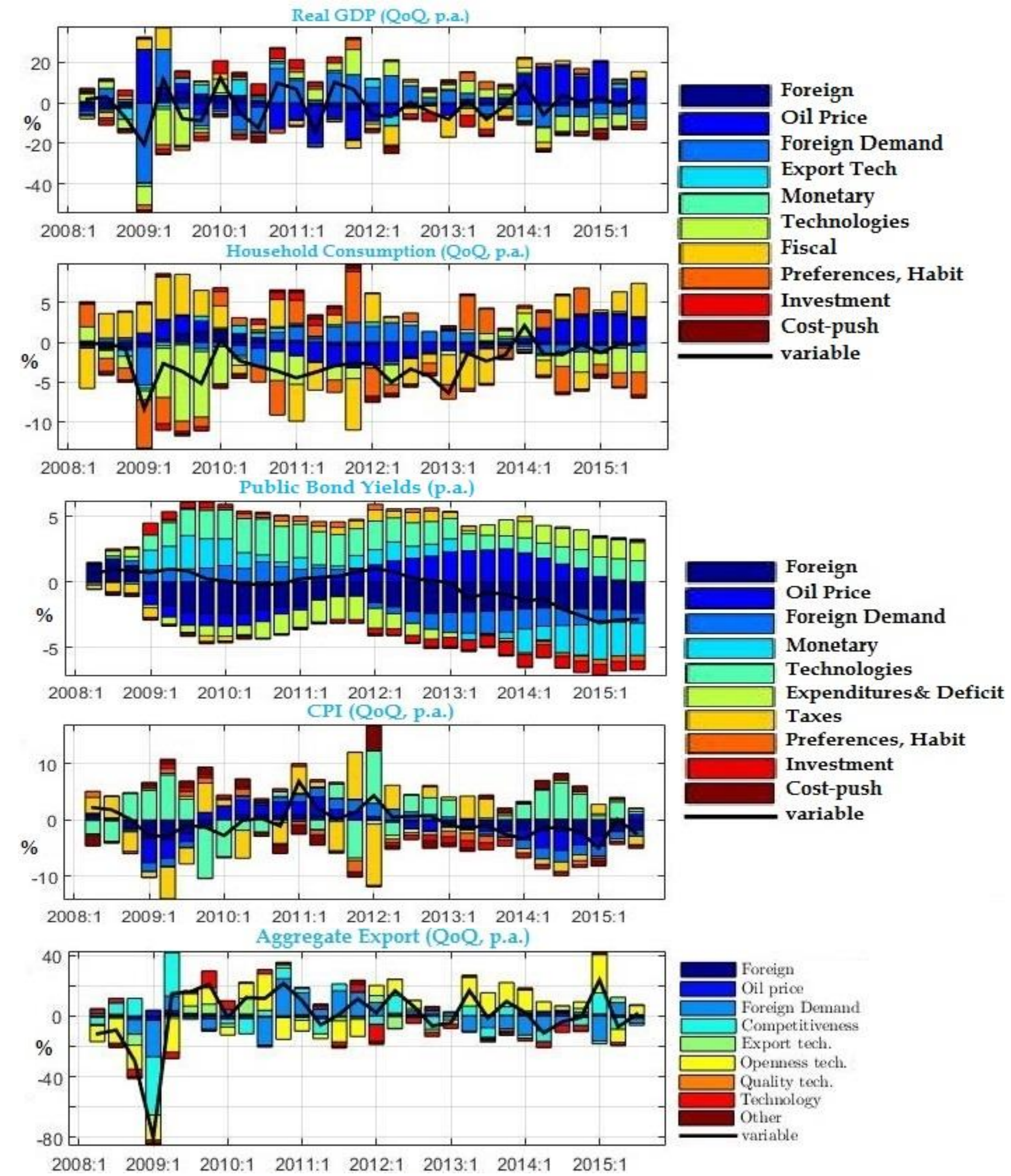
Activity	Equilibrium 1	4	12	16	20	Recession 1	4	12	16	20
transfers	0.62	0.68	0.51	0.51	0.50	0.51	0.84	1.00	0.90	0.81
public wage bill	0.77	0.71	0.59	0.60	0.61	0.60	0.84	0.81	0.74	0.65
public investment	0.35	0.52	0.78	0.82	0.84	0.54	0.85	1.02	0.92	0.82
unprod. consumption	0.55	0.50	0.42	0.43	0.43	0.44	0.73	0.90	0.82	0.73
subsidies (private sector)	0.50	0.42	0.32	0.33	0.33	0.45	0.75	0.90	0.78	0.66
social transfers in kind	0.56	0.51	0.42	0.43	0.44	0.52	0.83	0.97	0.86	0.75
consumption tax	-0.32	-0.39	-0.37	-0.36	-0.35	-0.45	-0.84	-1.11	-0.98	-0.87
capital tax	-0.65	-0.93	-1.28	-1.28	-1.29	-0.52	-0.92	-1.23	-1.12	-1.02
labour tax	-0.71	-0.96	-1.18	-1.18	-1.18	-0.74	-1.27	-1.67	-1.50	-1.37

Fiscal Consolidation Findings

- **Labour tax increase** essentially **more harmful** for the real economy than transfers cut especially in the long-run
- Short-run consumption & **welfare reduction** in case of transfers cuts
- **Expenditures Cuts:**
  - Investment and Wage Bill: largest impact in the long run
  - Strong effect of transfers in case of the recession
- **Tax Rate Hikes:**
  - Consumption tax is the least harmful in the short run, labour tax is the most detrimental in the long-run
  - Capital tax is more damaging than consumption tax in the long term

Empirical Analysis

Figure 2: Shocks Contribution to Domestic Economy



Empirical Analysis Findings

- **Highly important fluctuations in foreign economy,** increasing trade openness and demand
- **Gains from EA membership**, gradual increase in quality of goods
- Mixed **influence of fiscal policy** on domestic demand

Literature

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