Economics II

Lecture10

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ECONOMICS II

Lecture 10

Summary:

5. Government and Public Finance

   5.3. Budget and Public Saving

   5.4. Public Debt

Bibliography:

Frank and Bernanke (2011), Chapter 11

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After this session the student should be able to:

- Understand the relation among budget surplus/deficit, public saving and public debt.
- Understand and apply the behavior functions assumed to the Government behavior

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Exercises for next seminar:

Exercises 3.5-3.7, 4.1.-4.19., 4.21., 4.23. and 4.25.

5.3. Budget balance and public saving

- Public Budget Balance *(SO=Saldo Orçamental)*
  - (*SO*) = Revenues – Expenditures
    - If *SO* > 0 surplus
    - If *SO* < 0 deficit

Different concepts of budget balance:

- Current = Current revenues - Current expenditures
- Global (or conventional) = Total revenues (without debt emission) – Total expenditures (without debt payment)
- Primary = Global Balance + Public debt interests

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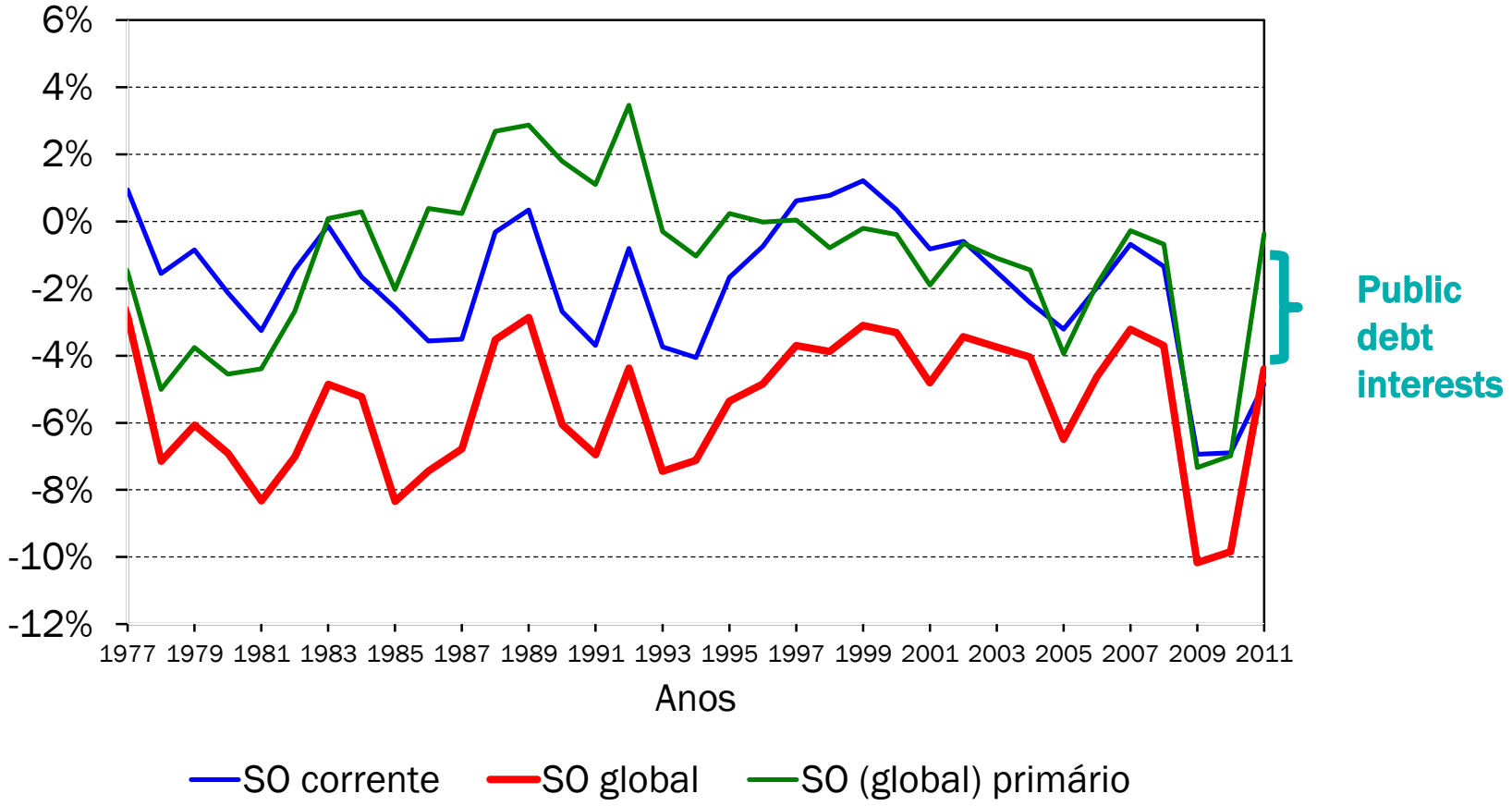
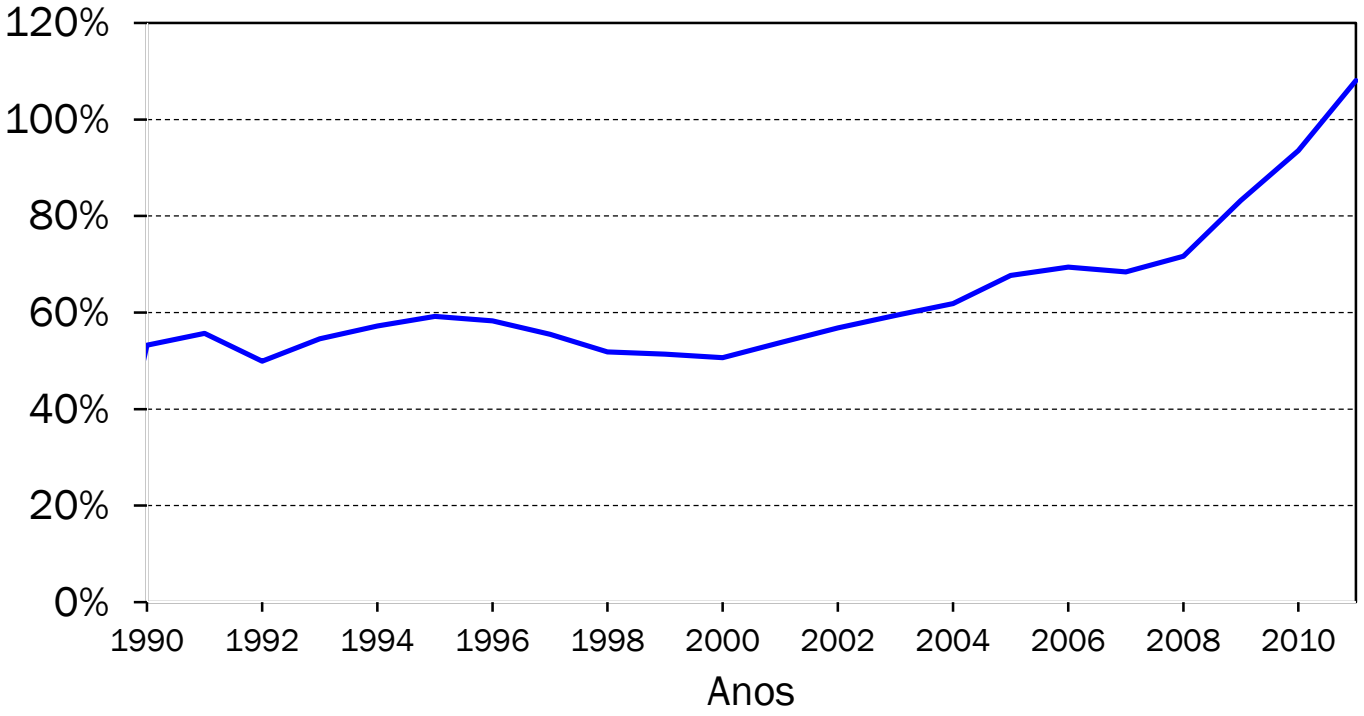
Budget Balances as a % of GDP in Portugal (current prices): 1977-2011



Source: European Commission (2012) **SO Current** **SO Global** **SO (global) primary**

Public Debt as a % of GDP in Portugal (current prices): 1990-2011



- Assuming that there are only 3 types of public expenditures :
  - Public Consumption (nominal): $P_t.G_t$
  - Transfer from Government to households (nominal) $P_t.TR_t$
  - Public debt interests: $i_t.B_{t-1}$
- Also assuming only 1 type of public revenues: Taxes (nominal): $P_t.T_t$
- The change of public debt (B_t-B_{t-1})can be represented as:

$$B_t - B_{t-1} = P_t.G_t + P_t.TR_t + i_t.B_{t-1} - P_t.T_t \Leftrightarrow$$

$$\Leftrightarrow \frac{B_t - B_{t-1}}{P_t} = G_t + TR_t - T_t + i_t.\frac{B_{t-1}}{P_t}$$

- Frequently the previous variables are related with GDP:
  - Stability and Growth Pact
    - $(SO_t/Y_t=(SO^N_t/P_t)/Y_t > -0.03)$
  - EMU limit for the public debt
    - $((B_t/P_t)/Y_t < 0.60)$

- (after some mathematical transformations):

Weight of primary budget on GDP

$$\Delta b_t \equiv b_t - b_{t-1} = \gamma_t - \tau_t + \frac{r_t - g_{Yt}}{1+g_{Yt}} . b_{t-1}$$

$b_t = (B_t)/(P^t Y_t)$ – ratio of real public debt at the end of period t over the GDP of period t, or **debt coefficient**;

$\gamma = G_t/Y_t$ – public consumption in GDP of period t.

$\tau = (T_t\text{-}TR_t)/Y_t$ – net taxes (=taxes minus private transfers) over GDP of period t

$r_t = (i_t\text{-}p_t)/(1+p_t)$– real interest rate (*ex post*) on period t ; ***pt is inflation rate***

$g_{Yt} = Y_t/Y_{t\text{-}1}\text{-}1$– GDP growth rate on period t

In a given period *t*, the **changes of public debt ratio depends on :**

- The weight of primary deficit over GDP.
- The difference between the real interest rate and the growth rate of the GDP
- The public debt ratio at the end of previous period (*t-1*).

But there are operations on debt that are not counted in deficit

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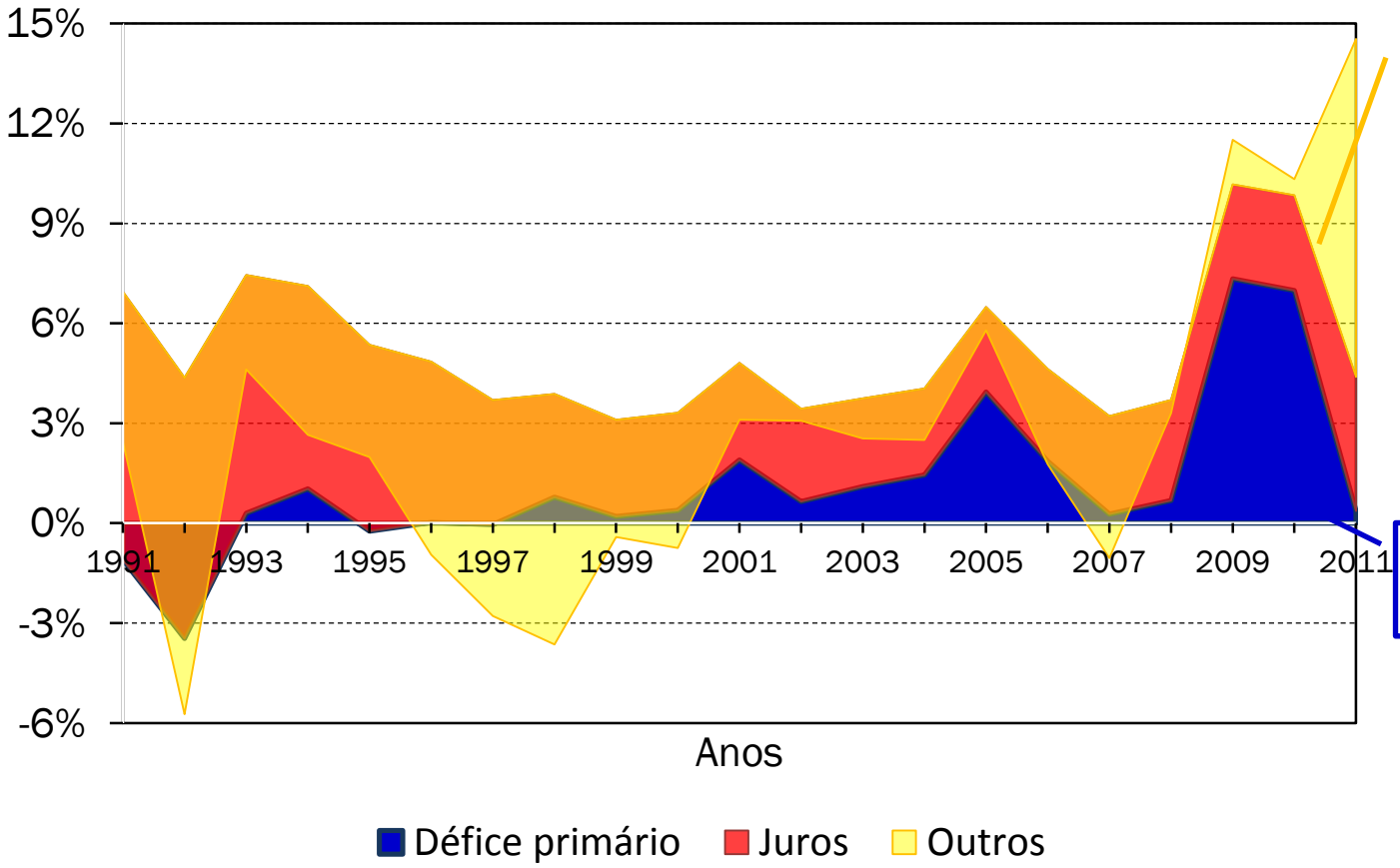
Decomposition of the Gross Public Debt as a % of GDP in Portugal (current prices): 1991-2011



Privatizations, Re-evaluations, etc.

$$\frac{r_t^v - g_{Yt}}{1+g_{Yt}}.b_{t-1}$$

$$\gamma_t - \tau_t$$

Source: European Commission (2012)

Primary Deficit Interests Other

- How is the household disposable income affected by the public transfers and taxes? (Government affects the disposable income (Yd) of families /households) .
- Assumptions:
  - Only direct taxes
  - There are no current transfers from abroad and there are no transfer to abroad
  - All the profits of the firms are distributed to the households.

$$Y_d = Y - T + TR$$

- The behavior of the Government about the revenues collect is :
- The planned tax receipts (constant prices)
- Assumption: the tax receipts are a linear function of the primary income of the economy.

$$T = \bar{T} + t.Y$$

$$0 \leq t < 1 \qquad \bar{T} \geq 0$$

- The behavior of the Government about the expenditures is :
  - Expenditure intentions of public consumption (at constant prices)
  - Assumption: those expenditures are decided exogenously , it means do not depend on none of the other economic variables studied.

$$G = \bar{G} \geq 0$$

  - The same happens with the intentions of transfers to the households (constant prices)

$$TR = \overline{TR} \geq 0$$