Macroeconomics, Part IIB
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Supervision 4: Fiscal Policy

Short review questions

1. In the Alesina-Tabellini model, a government budget deficit bias arises because the government aims to stimulate output above the natural rate of output. True or false? Explain.

2. Summarize the main features of the current UK fiscal policy framework and provide a key drawback of its fiscal mandate.

Problems

3. Suppose a government minimizes the following deadweight losses of distortionary taxes:

$$L = \frac{1}{2}\tau_1^2 Y_1 + \delta\frac{1}{2}\tau_2^2 Y_2$$

where τ_t is the income tax rate in period t, Y_t is national income in period t, and δ is the government's intertemporal discount factor. The government's intertemporal budget constraint is given by

$$G_1 + \frac{1}{1+r}G_2 \leq \tau_1 Y_1 + \frac{1}{1+r}\tau_2 Y_2$$

where G_t denotes government purchases in period t, and r is the real interest rate. Assume that $\delta = 1/(1+r)$.

   (a) Set up the government's optimization problem and derive the first-order conditions. Give an intuitive interpretation of the results.

   (b) Solve for the tax rates τ_1 and τ_2. Give an intuitive explanation of the results.

   (c) Explain the effect on the tax rates τ_1 and τ_2, and the primary budget deficit in each period in case of:

      i. A temporary increase in government purchases G_1.

      ii. An anticipated future increase in output Y_2.

4. The relationship describing the evolution over time of the debt to income ratio can be written approximately as:

$$\Delta b = d + (r - g)b$$

where b is the stock of national debt expressed as a proportion of nominal income, d is the primary deficit as a proportion of nominal income, r is the real interest rate, and g is the growth rate of real income. [Tripos 2009]

   (a) Explain the economic intuition behind this relationship and derive it from the budget identity of the government.

   (b) Suppose the initial stock of debt is positive and the real interest rate is smaller than the growth rate of the economy ($r < g$). Explain and show in a diagram how the debt-income ratio evolves over time if

      i. the government runs a primary deficit.

      ii. the government runs a primary surplus.

   (c) Suppose now that the existence of risk premia causes the real interest rate to be increasing in the debt ratio such that $r = \bar{r} + \rho b$, where $\bar{r}$ is the real interest rate in the absence of risk premia, $\bar{r} < g$ and $\rho > 0$. Explain carefully how this affects the evolution of the debt ratio when the government runs a primary deficit.

Main readings

- Carlin & Soskice (2015), *Macroeconomics: Institutions, Instability and the Financial System*, chapter 14, including web appendix
- Carlin & Soskice (2006), *Macroeconomics: Imperfections, Institutions and Policies*, chapter 16, section 4.2, pp. 678-682
- Heijdra & Van Der Ploeg (2002), *Foundations of Modern Macroeconomics*, section 6.2, pp. 152-156
- Olsson (2012), *Essentials of Advanced Macroeconomic Theory*, chapter 12.4, pp. 118-121

Supplementary references[1]

- Alesina and Perotti (1995), "The Political Economy of Budget Deficits", *IMF Staff Papers* 42(1), pp. 1-31.
- Alesina, Roubini and Cohen (1997), *Political Cycles and the Macroeconomy*, chapters 2-4.
- Eijffinger and De Haan (2000), *European Monetary and Fiscal Policy*, chapter 4, pp. 80-95.
- HM Treasury (2017), *Charter for Budget Responsibility: Autumn 2016 update*, January 2017
- Office for Budget Responsibility (2019), *Fiscal Risks Report*, chapter 7, pp. 206-218
- Office for Budget Responsibility (2019), *Economic and Fiscal Outlook*, March, chapter 1, pp. 5-18
- Office for Budget Responsibility (2018), *Fiscal Sustainability Report*, July 2018, pp. 3-15 (executive summary), 17-24, 98-100 and 109-116 (chapter 4).
- Pinho (2004), "Political Models of Budget Deficits: A Literature Review", Faculdade de Economia do Porto Working Paper 138.

[1]Supplementary references are optional readings for students who wish to gain a deeper understanding of the material and go (a bit) beyond the level of the course.