A simple model of the world economy

When all economies are aggregated into a world economy, all the current accounts cancel out, as every current account deficit is offset by some current account surplus. This implies that, <u>for the world economy, there is no foreign sector</u>. Therefore, for the world economy, $\mathbf{S} - \mathbf{I} \equiv \mathbf{G} + \mathbf{TR} - \mathbf{T}$; that is,

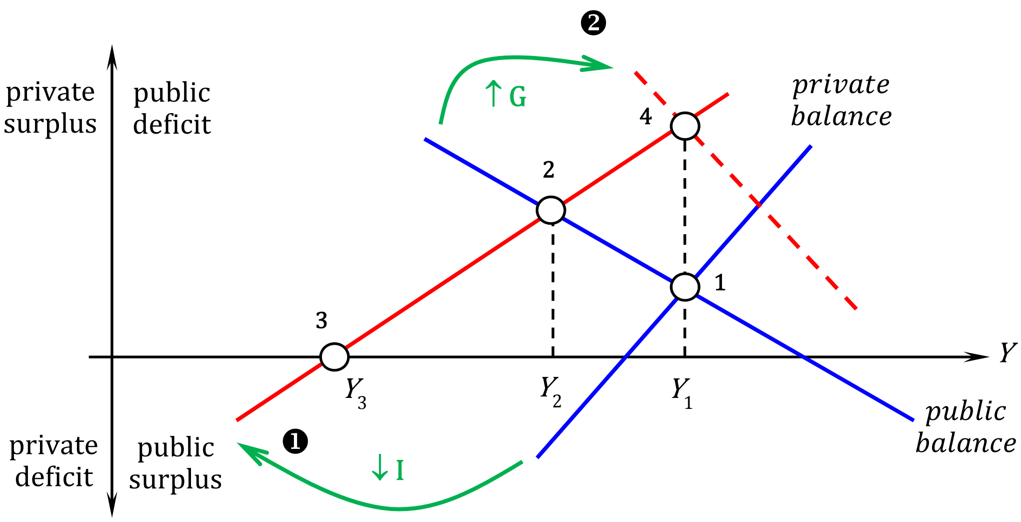
$$\begin{array}{ccc} \mathbf{S} - \mathbf{I} & \equiv & \mathbf{G} + \mathbf{TR} - \mathbf{T} \\ \text{private surplus} & \equiv & \text{public deficit.} \end{array}$$

[The general relationship is

$$\begin{array}{ccccc} \mathbf{S} - \mathbf{I} & \equiv & (\mathbf{G} + \mathbf{TR} - \mathbf{T}) & + & \mathbf{NX} \\ \text{private surplus} & \equiv & \text{public deficit} & + & \text{trade surplus.]} \end{array}$$

• **Savings a function of GDP.** Suppose $\mathbf{I}$ is constant (with value $\bar{\mathbf{I}}$) and that $\mathbf{S} = s \cdot \mathbf{Y}$ is proportional to GDP $\mathbf{Y}$, where the <u>saving rate</u> s is a number between zero and one. Hence, the private balance $\mathbf{S} - \mathbf{I} = s \cdot \mathbf{Y} - \bar{\mathbf{I}}$ is an increasing function of GDP; see the figure below.

• **Taxes a function of GDP.** Suppose $\mathbf{G} + \mathbf{TR}$ is constant (with value $\bar{\mathbf{G}} + \overline{\mathbf{TR}}$) and that $\mathbf{T} = t \cdot \mathbf{Y}$ is proportional to GDP, where the <u>tax rate</u> t is a number between zero and one. This makes the public balance $\mathbf{G} + \mathbf{TR} - \mathbf{T} = \bar{\mathbf{G}} + \overline{\mathbf{TR}} - t \cdot \mathbf{Y}$ a decreasing function of GDP; see the figure below.



• **Analysis.** It follows from $\mathbf{S} - \mathbf{I} \equiv \mathbf{G} + \mathbf{TR} - \mathbf{T}$ that $s \cdot \mathbf{Y} - \bar{\mathbf{I}} = \bar{\mathbf{G}} + \overline{\mathbf{TR}} - t \cdot \mathbf{Y}$. Solving for $\mathbf{Y}$, GDP is

$$\mathbf{Y} = (\bar{\mathbf{G}} + \overline{\mathbf{TR}} + \bar{\mathbf{I}})/(s + t).$$

This shows that <u>GDP depends positively on investment, transfers and public spending, and negatively on the saving and tax rates</u>.

• **Responses to negative shocks.** The initial state of the economy is given by point **1**. The economy experiences a reduction in investment $\mathbf{I}$, which shifts the private balance line to the left. The new state of the economy corresponds to point **2**, where GDP Y_2 is smaller than the initial value Y_1.

(i) The <u>orthodox response</u> to the shock is to adopt <u>austerity measures</u> that aim at attaining a balanced government budget, which, by the savings identity, is equivalent to a balanced private sector. Consequently, the orthodox recommendation leads the economy to point **3** (the austerity measures must shift the public balance line down to the left to reach point **3**).

(ii) The <u>heterodox response</u> is to neutralize the negative effect on GDP of the reduction in $\mathbf{I}$ by increasing $\mathbf{G}$ (and/or $\mathbf{TR}$). This prescription shifts the public balance line up to the right, moving the economy to point **4**, whose associated GDP is the same as the initial value Y_1.