

CHAPTER 11 OPENNESS AND GROWTH

11.1 Wages of a United States citizen, earned in France, will be counted towards U.S. GNP but not in U.S. GDP. However, the wages will be counted towards France GDP and not in France GNP.

11.2 With perfect capital mobility, the additional savings in country A can be invested in country B only. The domestic output of country A is thus not affected. In a closed economy, any additional savings in A must be invested in A, thus increasing its domestic output. This does not mean that saving more is better for its citizens when the economy is closed. Indeed, if the investment in country B yields a much higher return than in country A, the savers of country A can benefit highly from this through higher income. This benefit may be higher than the loss from a lower domestic investment level.

11.3 From the model of section 11.3, we see that an increase in population growth does not affect the stock of capital per capita. What happens is that as the population size increases, the marginal product of capital tends to increase, thus making it higher than the world interest rate. Attracted by this higher return, foreign investment flows into the country until the equality of the marginal product of capital equal and the world interest rate is re-established. The constant stock of capital per worker implies that GDP per capita is not affected by population growth when capital is perfectly mobile, contrary to the basic Solow model which assumes a closed economy. In a way, foreign investment compensates fully for the capital dilution effect of population growth (we assumed that the savings rate did not change).

It is actually difficult to make predictions about GNP per capita in this open-economy version of the Solow model.

11.4 We have

$$y^{ss} = A^{\frac{1}{1-\alpha}} \left(\frac{\alpha}{r_W} \right)^{\frac{\alpha}{1-\alpha}}.$$

If r_W doubles, we have

$$\begin{aligned} y^{ss'} &= A^{\frac{1}{1-\alpha}} \left(\frac{\alpha}{2r_W} \right)^{\frac{\alpha}{1-\alpha}} \\ &= A^{\frac{1}{1-\alpha}} \left(\frac{\alpha}{r_W} \right)^{\frac{\alpha}{1-\alpha}} \left(\frac{1}{2} \right)^{\frac{\alpha}{1-\alpha}} \\ &= y^{ss} \left(\frac{1}{2} \right) \text{ if } \alpha = 1/2. \end{aligned}$$

That is, *output* per capita falls by half. This is because the higher returns in foreign capital markets makes domestic investments less attractive. Consequently, as investors withdraw their investment from the domestic economy, the drop in the capital stock raises the domestic return to capital since there are diminishing returns to capital. The outflow of capital stops when the domestic return to capital is again equalized with the higher return on foreign markets. Note that this does not mean that *income* per capita falls domestically since the higher returns from foreign investments could more than compensate for the lower output at home.

11.7 Seen from the *partial* perspective of one sector only, it can effectively be the case that protecting that sector benefits its workers by granting them a sort of monopoly over the domestic market. Those workers could be made better off as a result. But this logic does not extend to the whole economy for the following reasons.

First, the prices of the goods sold by that sector will increase so that real wages in the rest of the economy will go down; that is, all the consumers will lose.

Second, those employed in the export sectors will lose directly.

Third, protecting all the sectors from outside competition means that the prices of many goods and services will increase because the economy will not be able to benefit from specialization in what it is better at producing. Consumers will lose in general.

Fourth, production will become less efficient over time because of lower incentives to innovate and cut costs as well as lower ability to import new technologies from outside.

Finally, it will not be able to attract foreign investment and its savers will not be able to benefit from better returns in the rest of the world nor be able to diversify its risk.