Capital flows

Background

In Caselli and Feyrer (2007), the authors calculate the marginal product of capital within individual countries, and then compare them across countries.

TABLE III
AVERAGE RETURN TO CAPITAL IN POOR AND RICH COUNTRIES

	Rich countries	Poor countries
MPK*N*	11.4 (2.7)	27.2 (9.0)
MPK*L*	7.5 (1.7)	11.9 (6.9)
*P*MPK*N*	12.6 (2.5)	15.7 (5.5)
*P*MPK*L*	8.4 (1.9)	6.9 (3.7)

MPK*N*, naive estimate; MPK*L*, after correction for natural-capital; *P*MPK*N*, after correction for price differences; *P*MPK*L*, after both corrections; Rich (Poor), GDP at least as large (smaller than) Portugal. Standard deviations in parentheses.

Source: Authors' calculations.

Figure 1: MPK's across countries

The table is from their paper, and shows the average marginal product of capital (in percents) for a sample of rich and poor countries, under found different sets of assumptions. The top row shows a naive estimate of the MPK, and there is a wide gap in the MPK between rich and poor in this case. The bottom row shows the MPK's after Caselli and Feyrer adjust the MPK's for price differentials between countries, and for differences in the share that natural capital (e.g. resources) take out of GDP. After these adjustments, the MPK's between rich and poor are very similar, and statistically there is no significant difference.
With the similarity in MPK's, the authors argue that this is consistent with a world in which capital flows between countries freely enough that the returns are equalized. By capital "flows", think either the trade in ownership of capital (e.g. a Japanese pension fund buying shares in Ford Motors) or the physical movement of capital (e.g. a textile firm importing sewing machines into Vietnam).

Project

Write down a model in which:

1. There are two countries
2. Each country can be described by an OLG model

3. Capital can move freely between the countries

and solve for the equilibrium return to capital, the level of output per capita in each country, and the size of capital per worker in each country.
Using that, you should be able to explain how the equalization of the marginal product of capital across countries found by Caselli and Feyrer is consistent with observed differences in output per worker across countries.

Rules

You can work on this project in groups of 2-3. I'll grade and assist each group as a whole.