

ECON 35101 International Macroeconomics and Trade: Comprehension Check 3

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November 14, 2021

1 Matsuyama (1992)

Start from equation (7).

$$C_t^A = \gamma L + \beta p_t C_t^M$$

Use market clearing conditions $C_t^A = X_t^A = AG(1 - n_t)$ and $C_t^M = X_t^M = M_t F(n_t)$ to replace C_t^A and C_t^M .

$$AG(1 - n_t) = \gamma L + \beta p_t M_t F(n_t)$$

Re-arrange terms.

$$G(1 - n_t) - \beta \frac{p_t M_t}{A} F(n_t) = \frac{\gamma L}{A}$$

Finally, use equation (4) $AG'(1 - n_t) = p_t M_t F'(n_t)$ to replace prices by marginal products.

$$\underbrace{G(1 - n_t) - \beta \frac{G'(1 - n_t)}{F'(n_t)} F(n_t)}_{\phi(n_t)} = \frac{\gamma L}{A}$$

2 Buera and Oberfield (2020)

2.1 Re-Exporting

Re-exports and “normal” exports and the associated import flows should play distinct roles in knowledge diffusion. Knowledge diffusion is likely to be more salient when there is positive value added from using imported inputs. In contrast to re-exporting, production with value

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added usually involves mixing (imported) intermediates and labor, which requires workers to learn about the technological content of the inputs. The process of learning generates knowledge spillovers. Hence, knowledge diffusion is expected to be more intensive when integrating imported and local inputs compared with re-exporting with no value added.

2.2 Trade Imbalances

As mentioned in [Lucas \(1990\)](#), trade imbalances can be rationalized by capital market imperfection. For example, sellers in country i would not want to sell to a country j with substantial political risks for fear of the possibility that their contract may not be enforced. Country j in this example faces trade imbalance in which it exports more than it imports, or current account surplus. To balance this, country j needs to maintain a financial account deficit by buying foreign assets. In [Buera and Oberfield \(2020\)](#), exogenous transfers reflect changes in financial account positions.

To illustrate this in a simple case, for a country j , accounting identities imply that

$$\begin{aligned}
 \underbrace{E_j}_{\text{expenditure}} &= \underbrace{Y_j}_{\text{income}} + \underbrace{T_j}_{\text{transfer}} \\
 E_j &= \underbrace{E_{jj}}_{\text{expenditure on domestic goods}} + \underbrace{IM_j}_{\text{expenditure on imported goods}} \\
 Y_j &= \underbrace{E_{jj}}_{\text{revenue from selling to home}} + \underbrace{EX_j}_{\text{revenue from exporting}} \\
 \implies T_j &= IM_j - EX_j
 \end{aligned}$$

If $IM_j < EX_j$, $T_j < 0$ and country j faces negative transfers. Note that trade is balanced at the world level so $\sum_j T_j = \sum_j IM_j - EX_j = 0$. In [Buera and Oberfield \(2020\)](#), transfers are bilateral, meaning

$$T_{ji} = X_{ji} - X_{ij}$$

If $X_{ji} > X_{ij}$, country j exports more to country i than it imports from country i . Hence, country j transfers $T_{ji} > 0$ to country i to finance trade imbalance.

If trade imbalances responded endogenously to trade, counterfactual outcomes are expected to change. In the example above, transfers from j to i may shrink as country j learns from country i through trade.¹ Then, the estimated gains from trade or gains from lowering trade costs could be higher because by balancing trade, country j imports more from more productive country i , and the probability of having high productivity draws increases. This

¹I mainly rely on intuitions here. As country j , presumably poorer, engages in trade with more productive country i , TFP grows via knowledge diffusion, and wage is likely to increase. Country j 's terms of trade are likely to be improved, resulting in faster import growth relative to export growth. Hence, trade surplus shrinks.

implies that estimated TFP would be higher for poor countries if we allow trade imbalances to respond to knowledge diffusion.

2.3 Exogenous Paths for Physical and Human Capital

One possible way for knowledge diffusion to affect investment is that it could alter (increase) the return to investment. Knowledge diffusion could affect return to physical capital investment by increasing the efficiency of capital utilization, and it could affect return to human capital investment by improving worker skills. Moreover, when capital and labor are complements, there is a feedback loop where both returns are further increased.

Endogenizing physical and human capital accumulation is likely to change the quantitative exercise results. Suppose that β increases so that knowledge diffusion intensifies, then capital stocks are under estimated if capital stocks increase in response to knowledge diffusion. Therefore, TFP is overestimated since it is obtained from the Solow residual. We could obtain similar results when β decreases.

References

- Buera, Francisco J. and Ezra Oberfield**, “The Global Diffusion of Ideas,” *Econometrica*, 2020, 88, 83–114.
- Lucas, Robert E.**, “Why Doesn’t Capital Flow from Rich to Poor Countries?,” *The American Economic Review*, 1990, 80, 92–96.
- Matsuyama, Kiminori**, “Agricultural productivity, comparative advantage, and economic growth,” *Journal of Economic Theory*, 12 1992, 58, 317–334.