VANDERBILT UNIVERSITY
Department of Economics
Field Exam in International Economics

August 22, 2016

This exam consists of 3 pages. Please make sure that you have all pages before beginning.
INTERNATIONAL FIELD EXAMINATION
August 2016
(9:00 AM - 1:00 PM)

INSTRUCTIONS

This examination is closed book (that includes notes of any kind). You have the choice of answering 3 of the 4 questions that follow. If you get stuck on one problem, put it aside and return to it later.

GOOD LUCK!

1. This question deals with the standard small open economy model. Preferences of the representative agent are time-separable and quadratic:
\[
\sum_{t=0}^{\infty} \beta^t (C_t - \frac{w}{2} C^2_t),
\]
the interest rate is assumed to be constant, \((1+r) = \beta^{-1}\). The intertemporal budget constraint is: \(B_t = (1 + r)(B_{t-1} + Y_{t-1} - C_{t-1})\). Let total income \((Y_t)\) be the sum of a random walk and a transitory, but persistent AR(1) process \((Y^T_t)\), \(Y_t = Y^P_t + Y^T_t\), where \(Y^P_t = Y^P_{t-1} + \epsilon^P_t\) and \(Y^T_t = \rho Y^T_{t-1} + \epsilon^T_t\).

(a) Set up the consumer’s intertemporal maximization problem and derive the first-order conditions for consumption at dates \(t\) and \(t+1\). How does your result relate to Robert Hall’s famous random walk theory of consumption?

(b) Solve for the change in consumption \(\Delta C_t\) as a function of the change in expectations of discounted present value of income into the indefinite future: \(E_t Y_{t+j} - E_{t-1} Y_{t+j}\). Next, simplify this expression to be a function of the news about the random walk and transitory shocks to income:
\[
\Delta C_t = \psi^P \epsilon^P_t + \psi^T \epsilon^T_t.
\]
That is, solve for the coefficients on the shocks as a function of \(\beta\) and \(\rho\).

(c) Suppose \(\beta = \rho = 0.9\). Approximately how much smaller is the consumption change in response to the transitory shock relative to the permanent shock? Does this seem empirically plausible? What remedies have been sought to make the model more consistent with the joint behavior of consumption and income?
(d) Consider a foreign country with the same preferences and income process. Derive the implications of this model for the correlation of consumption changes across countries? How would the analysis change if individuals pooled their income?

2. Consider the standard Armington aggregator model of consumer preferences, $C_t$, over a home ($H_t$) and foreign good ($F_t$):

$$C_t = (\omega^\frac{1}{p} H_t + \omega^\frac{1}{\rho} F_t )^{\frac{p}{p-1}}$$

(a) Let the prices of the home and foreign good be $P^H_t$ and $P^F_t$ and assume consumption equals income, $C_t = Y_t$. Derive the demand functions for the home and foreign good as a function their prices and the level of income.

(b) Define the terms of trade as $Q_t = P^H_t / P^F_t$. Derive the standard deviation of the logarithm of the terms of trade as an affine function of the logarithm of the ratio of imports to exports.

(c) Backus, Kehoe and Kydland (1994) argue that the terms of trade is excessively volatile relative to the predictions of a standard two-country, two-good real business cycle model which embodies the assumptions above. Use the result from part b. to help explain what they meant by this?

(d) Backus and Crucini (2000) extend the BKK (1994) model to a third region that specializes in the production of oil. They find that this improves the BBK model’s ability to account for terms of trade volatility and international business cycle comovement. Explain why this is so (Hint: consider a shock to the final output sector in constrast to a shock oil supplies (an intermediate input)).

3. Summarize the equilibrium conditions in the Melitz heterogeneous firms model of trade and discuss the effects of reductions in trade costs on income distribution in that model.

(a) What parameters determine the magnitude of the impact of reductions in trade costs on trade flows?

(b) It is observed that the wage of skilled workers has increased relative to that of unskilled workers in the US over the past several decades as trade costs have declined. How might the Melitz model be modified to be consistent with that observation?
4. Suppose that you want to explain why countries sign preferential trade agreements. To answer this question, you have data on all preferential trade agreements that are in effect between countries at a point in time.

(a) Write down an empirical model that has been used to predict whether or not a pair of countries will have a preferential trade relationship, and explain what type of theoretical trade model can be used to justify the independent variables included in the model.

(b) Discuss the econometric issues associated with the estimation of the model that you have chosen in a.

(c) What do you think are the main weaknesses of the model in a?