

## Final Exam – Economics 260D

Answer all three questions. All questions have equal weight.

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**1) Intertemporal Current Account with Durable Goods:**

Empirically, a significant fraction of consumption spending is devoted to durable goods, long-lived items such as furniture, autos, TVs, etc. Let's consider how the presence of such goods affects our intertemporal theory of the current account. We will assume that all consumption goods deliver utility both in the period they are purchased, and in the subsequent period.

For simplicity assume the following utility function for durable goods:

$$(1) \quad U(C_s, C_{s-1}) = [C_s + C_{s-1}] - \frac{1}{2}[C_s + C_{s-1}]^2$$

Note that this differs from the utility function used on homework #1:

$$(2) \quad U(C_s) = [C_s] - \frac{1}{2}[C_s]^2$$

Consider a representative agent problem for a small open economy. The country receives an exogenous endowment of the single type of good ( $Y$ ), and the country can save only in the form of a real riskless bond paying a fixed return  $r = \frac{1}{\beta} - 1$ .

Investment ( $I$ ) and government purchases ( $G$ ) are exogenous. Assume the usual transversality condition.

$$\begin{aligned} \text{Max } E_t \sum_{s=t}^{\infty} \beta^{s-t} U(C_s, C_{s-1}) \\ \text{s.t. } B_{s+1} - B_s = NO_s + rB_s - C_s \\ \text{where } NO_s \equiv Y_s - I_s - G_s \\ 0 < C_s < 1 \end{aligned}$$

- Derive the first order condition for consumption for the utility function with durable goods (utility 1). Interpret this condition, and how it differs from the more familiar case without durable goods (utility 2).
- Try to solve for the consumption function for the durable goods case (as a function of lagged consumption and the usual arguments) and for the current account (as a function of lagged consumption or lagged current account and the usual arguments).

Hint:  $E_t z_{t+1} = z_{t-1}$  is a solution for a difference equation of the following form:

$$z_{t-1} + \beta z_t = E_t [z_{t+1} + \beta z_{t+2}]$$

- c) What is the effect on the current account in period  $t$  of an unanticipated temporary rise in output by amount  $X$  affecting only output in period  $t$ ? Be as specific as you are able. How does this compare with the effect in the usual case without durable goods? Explain your answer. (Note you can partly answer this question based on the euler equation from part (a) above, even if you had trouble with the math of part (b).)
- d) Now consider the case of a completely permanent rise in output by amount  $X$ , beginning in period  $t$  (unanticipated). What is the effect on the current account in period  $t$ , and how does this differ from the usual case? Again, be as specific as you are able. Explain your answer.
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## 2) Completeness of Asset markets

The topic of completeness of asset markets seemed to come up often in our discussions this year.

- a) Explain each of the empirical observations below, and discuss whether they can be explained in a manner consistent with complete asset markets. Cite specific papers if you can.
- i) portfolio diversification puzzle
  - ii) consumption correlation puzzle
- b) Discuss ways that macroeconomic policy makers could promote more effective risk sharing internationally in the absence of complete asset markets. Under what conditions would the welfare gain tend to be larger?
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## 3) Real Exchange Rates

- a) List the main empirical observations regarding the nominal and real exchange rates.
- b) Discuss in 4-5 sentences the ability of models with sticky prices and monetary shocks to explain these observations.
- c) Contrast the sticky price explanations with explanations based on monetary models with real shocks, both in terms of the nature of the explanation, and the effectiveness at capturing the observations.
- d) Contrast the sticky price explanations with explanations based on monetary models with asset market frictions, both in terms of the nature of the explanation, and the effectiveness at capturing the observations.
- e) Finally, summarize briefly your conclusions about the ability to explain exchange rate behavior in terms of macroeconomic fundamentals.
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