

Referee Report on “The Demand for Currency Substitution” (Manuscript dp2008-2) –Economics

The paper proposes a two-good, two-currency model with a cash-in-advance constraint (i.e. currency is needed to purchase the goods). This transaction model of money use adds a second currency to a Baumol-Tobin model of money demand where the household chooses not only the number of “conversion” trips (trips to the bank to withdraw currencies) but also the number of trips to purchase each good with each currency and the amount of each good to be purchased with each currency. Currency substitution (CS) is defined within the model as the adoption of both currencies in the purchasing of goods (as opposed to the use of one currency for all purchases). The studied determinants of CS are real returns of the currencies (interpreted as their inflation and convenience rates), conversion costs and fixed costs of holding assets, household income, and expenditure composition. The extensive margin (EM) of a currency is defined as the number of goods purchased with the currency (one or both goods), whereas the intensive margin (IM) is the (average?) amount of currency held for purchases.

The paper presents the following results from the model:

- 1) An increase in the **inflation rate of currency one** (a decrease in its return) increases incentives for CS when initial inflation is assumed to be “low”. Otherwise it has an ambiguous effect on CS because:
 - it decreases incentives to purchase with currency two instead of currency one (changing the EM). Lower incentive to CS.
 - it decreases the desired average holdings of currency one (changing the IM). Higher incentive to CS.

In the remainder of the paper, initial inflation is assumed to be “low”, leading to the remaining results:

- 2) Results for the impact on CS of changes in **conversion costs and fixed costs of holding assets** are as expected.
- 3) Assuming no savings in the model, when the **inflation rate of currency one increases, lower income households** have less incentives than higher income ones to do CS towards currency two (for given returns, conversion costs and fixed costs of holding assets). If savings are allowed, the results for low/high income households and CS depend on expenditure shares and income elasticities in a complex manner.
- 4) **Relative expenditures** matter for the response of CS to changes in the **inflation rate of a currency**, again in a complex manner.

Lastly, empirical evidence from other papers is discussed in support to the studied model.

Comments:

A rich theoretical study of determinants of currency substitution is a valuable endeavor. In order to gain clear understanding of this phenomenon this paper needs to improve its presentation by adding deeper intuition of its mechanisms and results. Moreover the model needs further polishing and streamlining to allow the derivation of empirical implications.

Section II.A could be simplified by using the Fisher equation for (3) and (4) (i.e. removing the last terms which are generally dropped because they are second-order). Moreover it is not clear that the whole section is necessary for the development of the model in the paper (for example the discussion pertaining to empirical analysis seems too long; also the model does not use the variable “e” or its change).

FOC (15) and (16) should be included in an appendix.

Stronger intuition for why the model delivers corner solutions should be offered, as the results use these solutions. What feature of the model exactly delivers this result?

The author suggests in the introduction that this model explains which goods are bought with which currency. This point needs to be clarified as there is no discussion on the difference between the two goods in the model. Given that the returns to both goods are assumed to be zero in the paper, the only difference seems to be their proportion in the total income (i.e. relatively abundant or scarce good). Is this proportion the one factor that determines, within the model, which currency should be used to buy each good?

The significance of the difference between both goods is also important for the interpretation of the defined extensive and intensive margin. Extensive margin will not have a substantial meaning if both goods in the model have the same properties.

The number of goods produced and consumed, assumed to be constant (2) in the model, is likely endogenous to the inflation rate in the economy. A discussion of endogenous number of goods should be added to qualify the current theoretical results.

In Section C, when discussing the importance of income for patterns of CS, a discussion of the potential effect of income on conversion costs and convenience yields from money should be added.

The derivation of empirical implications from this model seems hard to accomplish in its current state. For example, many of the implications considered are derived from a version of the model where savings are not used, and including savings in the model complicates results (and its potential testing) significantly.

The empirical evidence mentioned by the author needs to be more specific in order to offer support to this model. For example the author should explain if the works by Dotsey (1988) and Stix (2007) mentioned in page 21 control for interest rates, conversion costs, and fixed costs. This model predicts that absence of such controls invalidates empirical findings. (Also, footnote 15 should be corrected as Colacelli (2005) does not find significant effects of income on CS.) The discussion of empirical implications at a country level needs to be done with a complete model where income and cost distributions play a role.

It is a weakness of the model that the more realistic implications (those where savings are used) are cumbersome and hard to take to the data.

Additional Comments:

The concept of “Currency Substitution” in the context of the model should be introduced earlier in the paper (currently done in page 18).

A figure (similar to Figure 1) that incorporates two currencies should be presented to clarify the structure of the model in the paper.

The writing needs to be polished. Typos: extra “several” in line 11, paragraph one, page 3; extra “E” in equation (2); should say good “2” (not “1”) in the last line of the note in page 30; use “i” (instead of “I”) along the paper; footnote 8 needs editing; Bs instead of betas in equation (20).