Comments on

Shang-Jin Wei,
Sex Ratios and Exchange Rates

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The Story

The story

- China

- One of the fastest growing economies in the world.

- In 1958-1975 saving rate was low, 5.3% of GDP.

- In early 1990's Chinese personal saving rate was around 30% of gross domestic product.
- Structural shift in demography caused saving rate to increrase.
- Population policy after 1970s to limit the number of chidren resulted a decrease of population under 15 years to working population from 0.96 in the mid-70s to 0.41 at the turn of the century.
- An excess supply of men compared to women (sex ratio).

Comments on
Shang-Jin Wei; Sex Ratios and Exchange Rates

- ## Sex Ratios and Exchange Rates
- Introduction
- The Model
- Calibration of the model and simulation
- Empirical estimation
- Conclusions

- ## Comments
- Related literature
- The model
- Empirics

Literature review

- Literature about
  - determinants of real exchange rate
  - factors behind the deviation from the PPP
- is overhelmingly vast.

- The present study endeavours to bring some new insight into the determination of real exchange, the sex ratio.
  - Du and Wei (2010) A Sexually Unbalanced Model of Current Account Imbalances, NBER, 16000.
  - Wei and Zhang (2009) The Competitive Saving Motive: Evidence from Rising Sex Ratios and Savings Rate in China, NBER, 15093.
  - Wei and Zhang (2011) Sex Ratio, Enrepreneurship, and Economic Growth in the People's Republic of China, Columbia University.

Related literature

- Salim and Block (2010) give a survey about the literature on the effects of saving, capital flows and the real exchange rate; Journal of Economic Surveys,

- Demographics and real exchange rate
  - Higgins (1998) The demographic effect on current account balance exceeds six per cent of GDP for 1970-1990 for number of countries. Given the demographic trends the impact is going to be substantially lager in the future.

- Cantor and Driskill (1999) studied using OLG model the effects of birth rates on real exchange rate;
  - the effect of demographic change on real exchange rate comes through the change in steady-state net foreign indebtness.

Related literature

- Andersson and Österholm (2005) examined the link between Swedish population structure and Swedish real exchange rate.

- Young adults, young retirees and old retirees group, who borrow or dis-save,
    - i) have an appreciating effect on real exchange rate,

- whereas the prime and middle-age group (productive and save) generate capital outflows,
    - ii) have a depreciating effect on real exchange rate.

Related literature

- Aloy and Gente (2009) studied impacts of demographic for Japanese economy aganist the US.

- In case of falling birth rate, the share of the new-born agents determines the aggregate wealth.

- Financial position;
  - if a country is a creditor the fall in population growth will increase financial wealth. In a debtor country financial wealth will decrease.
  - An increase (decrease) in financial wealth followed by fall in population growth leads to increase (decrease) in consumption causing the real exchange rate appreciation (depreciation).

Related literature

- Andersson and Österholm (2006) examined a panel of 25 OECD countries.

- Prime (family rising) and middle-aged (high productivity) groups exert depreciation on real exchange rate.
  - They save for retirement, which casues capital outflow out of the country which depreciates the currency.

- Dissaving behaviour of old retiree has a positive effect on real exchange rate.

Related literature

- Rose et al. (2009) Drop in fertility is associated with lower child-cearing costs, which increases saving.

- Smaller population due to lower fertility causes investments to fall.

- This impoves current account and depreciates real exchange rate.

- 87 countries, 1975-2005 empirical support for the hypothesis.

Related literature

- Age structure could affect on real exchange rate through its effect on capital flows;
  - the area of this research is at its beginning stage.

- Salim and Bloc (2010) indicates some important topics for further research;

  - Extent the reaseach to other countries (than US, Italy, China, India) with demographic change and developed financial market;
    - further correlation could occur through correlated movements in asset prices across countries.
  - Relationship between age structure and real exchange rate is neither theorerically nor empirically well established.
  - Of crucial importance is to develp a model of real exchange rate that incorporates the population age stucture as explanatory variable.

Related literature

- Positive current account and excess savings are related to sex ratio (the share of men with respect to women).

- Positive current acount especially in Asia and Oceania, see Du and Wei (2010).

- What if ?

- Could it be so that, an increasing supply of men in the marriage market is related to the level of GDP. Typical for emerging economies ?

  ◦ Could it be so that the lower the level of GDP, the more importat the sex ratio.

  ◦ Is the impact of sex ratio unanimous across countries ?

The Model

- *This study fullfills some of the shortages in previous studies.*

- Consumer

- The consumer live for two periods; young and old.

- Agents consume part of the labour income in first period and save the rest for the second.

- Final good consumed consists tradeable good and nontardeable good.

- Consumer earn labour income when they are young and retire when they are old.

The Model

- Producer

- Two sectors; tradeable good sector and nontardeable good sector.
- A shock that rises the savings could lower the value of the real exchange rate

- Sex ratios and real exchange rates

- Each cohort has men and women. Once married man and woman pool their first-period savings together and consumer identical amount in the second period.

The Model

- ## The optimization problem for men and women

The optimal savings rate is chosen to maximize the following objective function:

$$V_t^w = \max_{s_t^w} u(C_{1t}^w) + \beta E_t \left[u(C_{2,t+1}^w) + \eta^m \right]$$

- η is the utility from getting married;
- Blanchflower (2008); being married would imply of extra income of € 1.770 per month (it is large, given the mean of income € 1.392).
- "What's love got to do with it"

The Model

- The problem of getting marreid is solved using the Gale-Shapley algorithm (1962);
  - for any equal numer of woman and men it is possible to find a marriages stable equilibrium.
    - How does it work for unequal numebr of man and woman ?

- A shock to sex ratio affects on equilibrium exchange rate due to capital adjustment costs in each sector.

- An increase in number of men generates a decline in real exchange rate.

The Model

- It is proposed that an increasing relative supply of men in the marriage market can simultanenously
  - gernerate decline in real exchange rate and
  - a rise in current account surplus.

- There are two channels: savings channel and an effective labor supply channel.

- Men save more in order to attract wife candidates.

- Wife candidates prefer period two consumption.

- If sex ratio is taken into account the undervalution of Chinese exchange rate gets smaller.

The Model; Simulation

- Calibration

  - Calibration with different parameter values, robustness tests.

- Some results:

  - If the labour supply is endogenous, a rise in sex ratio leads to greater response in the real exchange rate.

  - The aggregate savings ratio always rises with the sex ratio.

  - As sex ratio rises from 1 in period 0 to 1.2 in period 1, the real exchange rate depreciates by more than 10 percent.

Empirics

- Cross section for average values over 2004-2008.

- Determinants for equilibrium real exchange:

  ◦ Incorporates usual suspects (ingluding Balassa-Samuelson, financial system sophistication, fiscal deficit, terms of trade, capital account openess, dependency ratio, exchange rate regime) plus the sex ratio as a new variable.

- Results:

- Countries with high sex ratio (men over woman) tend to have lower real exchange rate.

Empirics

- ## Empirical model:

- (i) Relative short period of time period; cross section 2004-2008.
  - Potential time-depenency of the results

- (ii) Why not a country panel ?
  - Longer estimation period, more robust results.

- (iii) Not all the usual suspects included, omits some variables,
  - like net foreign asset position, which have been of importance for real exchange rate in many studies, see e.g. Lane and Milesi Ferretti (2002).
  - Oil price (although sub-cross section estimation for countries).
  - Fertility rate see e.g. Rose et al. (2009).

Empirics

- (iv) Dependency ratio is included
    - but age profile for demographic change and sex ratio among the age groups would have been informative.

- Now the ratio of older dependents (people older than 64-to the working-age population, those ages 15-64).

    - What would be the impacts of age profile added with sex ratio among the age groups,
        - e.g. children (0-14), young adults (15-24), prime aged (25-49) middle aged (50-64), young retirees, (65-74) and old retirees (75 and above).

Conclusion

- Carefully done paper.

- New and interesting point of view.

- Beautifull model, simulation, even some empirics.

- A panel estimation could be a nice extension.