

Discussion on “Demographic Aging, Industrial Policy, and Chinese Economic Growth” by Dotsey, Li, and Yang

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¹The views expressed in this paper are those of the author and do not necessarily reflect the views of the IMF.

Summary

- Past 40 years, China has undergone: rapid output growth, changing industrial policies (and associated structural changes), rising HH saving rate, and dramatic demographic changes (declining fertility rate due to OCP and increasing life expectancy)
- Big question: Are they **linked**?
- This paper's answer: Yes! Demographic changes and changing industrial policies contributed to rapid rise in HH savings and per capita output growth

Why?

- Demographic changes affect saving rate, in turn affect output growth via their impact on capital accumulation
 - Reducing fertility rate (OCP) raises HH saving rate through two channels: 1) less expenditures due to less number of children; 2) less free rider problem in transfers from children to elderly parents, hence parents are more willing to invest in children's human capital (Choukhmane, Coeurdacier, and Jin 2017)
 - Increasing life expectancy implies higher need for old age consumption, and hence also leads to higher HH savings (He, Ning, and Zhu 2019)
 - Declining pension replacement ratio also encourages higher HH saving rate, expecting less support during retirement period (He, Ning, and Zhu 2019)

Why?

- Changing industrial policies alternate capital demand on firm side, and in turn affect output growth
 - Tax to POEs in L-intensive sector was initially cut, which raises wages and reduces HH savings
 - Subsidy to SOEs in K-intensive sector was later imposed (since mid-1990s), which increases capital demand and hence raises interest rate, and leads to higher HH savings

Contribution

- The impact of demographic change on HH savings has been well studied
- The contribution is bringing **industrial policies** and firm side into the picture to provide a **unified** framework
- The focus on output growth is another contribution (most of literature is on saving side)

One-Child Policy

- Literature argues that OCP is important in accounting for rising HH saving rate (Curtis, Lugauer, and Mark 2015, Choukhmane, Coeurdacier, and Jin 2017). Yet OCP is nothing in explaining HH saving rate in the current paper. Why?
- One possible reason: the current paper does not have **number of children** in utility function. Why not?

Industrial Policies

- Why industrial policies (reducing tax to POEs and increasing subsidies to SOEs in K-intensive sector) have very limited impact on output growth, compared to demographic changes?
- This is especially puzzling given their impact on HH savings is on par with the impact of demographic changes on savings
- And industrial policies are supposed to work on the firm side

Computation Issue?

- Why model simulated output growth path is so zigzag especially with smooth exogenous process in long-run?

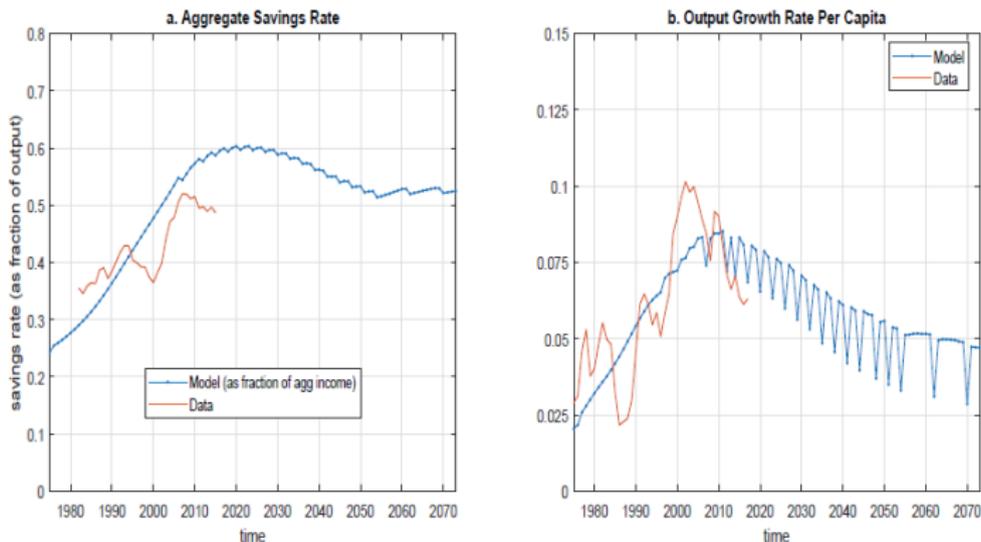


Figure 8: Savings Rate and Per Capita Output Growth: Model versus Data

L-intensive Firms' Problem

- The L-intensive intermediate goods firms choose $K_{l,i,j,t}$ and $L_{l,i,j,t}$ to

$$\max \{ P_{l,t} (K_{l,i,j,t})^{\alpha_l} (A_{l,i,t} L_{l,i,j,t})^{\gamma_l} (K_{l,t})^{1-\alpha_l-\gamma_l} - (r_{f,t} + \delta)(1 - S_{l,i,t}) K_{l,i,j,t} - w_t L_{l,i,j,t} - w_t f_{l,i}(N_{l,i,t})^{\xi} L_{l,i,t} \}$$

- The paper claims that the FOC w.r.t. $L_{l,i,j,t}$ is

$$w_t = \gamma_l P_{l,t} (K_{l,i,j,t})^{\alpha_l} (A_{l,i,t} L_{l,i,j,t})^{\gamma_l-1} (K_{l,t})^{1-\alpha_l-\gamma_l}$$

- But notice that $L_{l,i,t} = L_{l,i,j,t} N_{l,i,t}$, therefore FOC should be

$$w_t = \gamma_l P_{l,t} (K_{l,i,j,t})^{\alpha_l} (A_{l,i,t} L_{l,i,j,t})^{\gamma_l-1} (K_{l,t})^{1-\alpha_l-\gamma_l} - w_t f_{l,i}(N_{l,i,t})^{1+\xi}$$

Calibration

- Max life span in the initial SS (1975) is set to be 57. Cannot not be that low! My reading in Chinese data (from National Family Planning Committee) is the life expectancy was 61.74 in 1970 and 66.74 in 1980.

Conclusion

- A nice contribution to the literature by unifying the firm and HH sides on understanding rising saving rate and rapid output growth over the past 40 years in China
- Paper can be improved by further
 - Understand why some main results are different from literature
 - Strengthen modeling and calibration