Demographic Trends and the Real Interest Rate

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Discussion by Sebnem Kalemli-Ozcan
What does the paper do?

- Quantifies the role of demographic change (aging) on the decline in global (advanced country) real interest rates
- Investigate the effect of aging on house prices, household debt
- **Main finding:** demographics can explain a large part of the decline in real rates and rise in house prices and household debt since 1980s.
- **Projection:** trends will persist given the slow moving persistence process of demographics; global imbalances will get worse
I like the paper.

I am very sympathetic to taking demographics seriously as one of the key reasons behind the decline in real rates.

I am going to highlight some modeling and data issues which, upon dealing with, will help to clarify and strengthen the paper.
POINT 1: Savings Rate or Wealth Accumulation?

- I believe the authors want wealth but they have life cycle savings
- What are the issues with a savings focus?
Figure 3.5. Real Interest Rate and Shifts in Demand for and Supply of Funds

Source: IMF staff illustration.

Source: 2014, IMF WEO 5 / 20
General framework for the global decline in real rates

- **Investment Decline:** The decline in relative price of investment—matches the timing of decline starting in 1980s

- **Saving Increase:** Savings of China—post 2000 period
  - \[ S = S_{priv} + S_{pub} \] Low public saving/high public debt depress private saving (OLG with no RE)—role of FP
  - No role for aging since aging decreases saving in standard PIH/life cycle model so real rates rise

- **Monetary Policy Easing:** Important role since 1980s both for short and long term rates

- **Portfolio Shifts:** Important role since 2000s given demand for safe US assets
Figure 3.6. Investment-to-GDP Ratios  
(Percent of GDP)

- Global nominal investment (saving)-to-GDP ratio
- Advanced economy nominal investment-to-GDP ratio
- Emerging market economy nominal investment-to-GDP ratio

Sources: Haver Analytics; Organization for Economic Cooperation and Development; and IMF staff calculations.
Figure 3.8. Saving Shifts in Emerging Markets

1. Nominal Saving-to-GDP Ratios (percent of GDP)
   - Advanced economies
   - EMEs

   - EMEs
   - China
   - Oil exporters
   - Other EMEs

Sources: Organization for Economic Cooperation and Development; World Bank, World Development Indicators database; and IMF staff calculations.

Note: EMEs = emerging market economies; Actual = actual saving-to-GDP ratio; Predicted = predicted saving-to-GDP ratio obtained by regressing the EME saving rate on its lagged value and EME real GDP growth; Counterfactual = conditional forecast of the saving rate assuming real GDP growth is constant at the average value of the late 1990s.
Savings: No Role for EM Private Saving
Alfaro et al. 2014 JEEA

Legend:
Red dash line – Developing Countries excluding China
Red letters – Developing Countries in Asia
Green letters – Developing Countries in Africa
Figure 3.12. Portfolio Shifts and Relative Demand for Bonds versus Equity

1. Percent of Global GDP
   - Change in foreign exchange reserves (left scale)
   - Gross saving (right scale)

2. Foreign Holdings of U.S. Government Securities (trillions of U.S. dollars)
   - China
   - Other EMEs
   - Total

   - Official
   - Total

4. Foreign Official Holdings of U.S. Securities (trillions of U.S. dollars)
   - Government securities
   - Private securities
   - Total

Sources: Beltran and others (2013); and IMF staff calculations.
Note: EMEs = emerging market economies.

Source: 2014, IMF WEO
K/Y Ratio rather than Savings

- In a life cycle model, easy to get a rise in K/Y ratio with demographics and get an associated decline in real rates

- Can we add to the model to make wealth accumulation central given increases in longevity?
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Better with retirees and uncertain survival (Carvalho, Ferrero, Nechio, 2016)
Wealth accumulation in a model of retirement

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- Then the role of pensions, annuities become important together with the role of baby-boomers: not every country has pay-as-you-go systems
  - Abel and Blanchard (1983); Cutler et al. (1990); Auerbach and Kotlikoff (1987); Lim and Weil (2003)
POINT 2: Evaluating Model’s Success

- Authors are upfront on being not the only explanation but claim a large fraction of the decline explained.
Calibration
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- Nothing is NOT targeted it seems–distributions of targeted and non-targeted variables will help

Open economy dimension is important, maybe calibration should focus on that extension, instead of closed economy. Recent data shows global imbalances are narrowing, the model implies they will get worse via demographics, important to quantify this effect on real rates.
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POINT 3: Measurement—What are the real rates?
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- King and Low (2014) for real rates or Rachel and Smith (2015) for natural interest rate? (not equal unless monetary policy is neutral)

- Directly observable real rates: yields on inflation-indexed bonds, only available for a handful of countries (countries here are ok probably)

- Approximate real rates: Difference between nominal rates and inflation expectations

- At the end what we want is cost of capital
Figure 3.3. Real Interest Rates, Real Returns on Equity, and Cost of Capital
(Percent a year)

1. Short- and Long-Term Global Real Interest Rates

2. Expected Real Returns on Equity

3. Global Real Interest Rates and Cost of Capital

Sources: Bloomberg, L.P.; Haver Analytics; IMF, International Financial Statistics database; Organization for Economic Cooperation and Development; World Bank, World Development Indicators database; and IMF staff calculations.

Note: Term spread is defined as the difference between short- and long-term real rates.
Conclusion

- This is a great paper!
- It made me really think about these issues, a must read for those who work on these questions

For the next draft, it will help to make the point sharper if authors can clarify these points:

- Endogenous retirement: fixed retirement age not very reasonable when aging is due to longevity
- Maybe adding endogenous fertility if the aim is to explain the decline in real rates via wealth accumulation which goes via declining births (more important than housing)
- Improve the calibration on non targeted moments
- Clarify measurement issues
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- Improve the **calibration** on non targeted moments.

- Clarify **measurement** issues.