Discussion of

"Demography and International Capital Flows"

by David Backus, Thomas Cooley & Espen Henriksen

Dirk Krueger

University of Pennsylvania, CEPR, and NBER

NY/Philadelphia Workshop on Quantitative Macroeconomics
April 29, 2011

Objective of this Paper

- Large and persistent movements in international capital flows.
- Populations are aging around the world (longevity $\uparrow$, fertility $\downarrow$), but at very different pace.
- This paper: quantify the importance of cross-country differences in demographics for international capital flows.

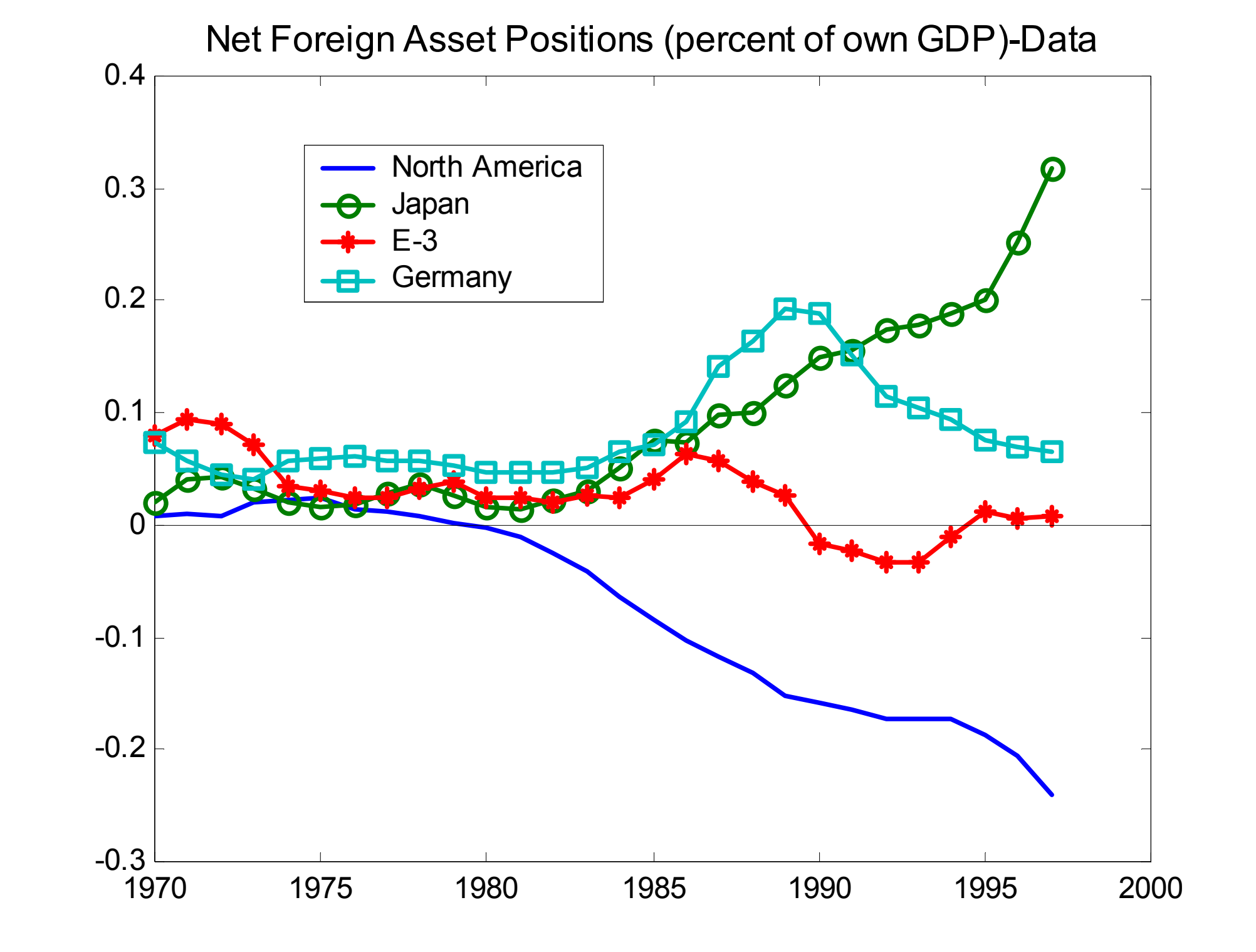
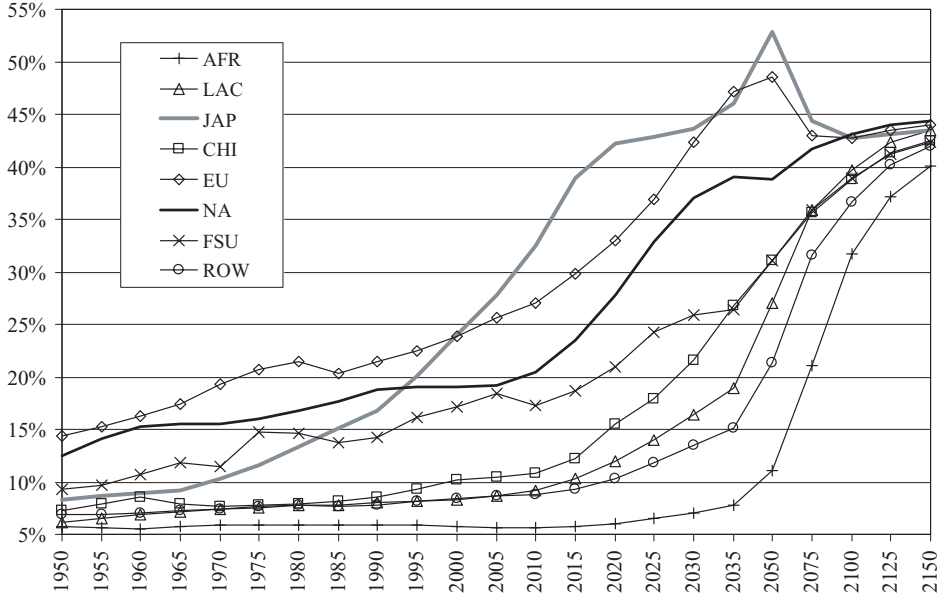

Net Foreign Asset Positions (percent of own GDP)-Data
North America
Japan
E-3
Germany
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
1970
1975
1980
1985
1990
1995
2000

Figure 2. Old-Age Dependency Ratios, 65+/(15–64)



Notes: AFR = Africa; LAC = Latin American countries; JAP = Japan; CHI = People's Republic of China; EU = European Union region; NA = North America; FSU = countries of the former Soviet Union; and ROW = the rest of the world.

Some Basic Accounting

- Net foreign asset position of country i at time t

$$\begin{aligned} F_{i,t} &= A_{i,t} - K_{i,t} \\ \sum_i F_{i,t} &= \sum_i \Big(A_{i,t} - K_{i,t} \Big) = 0 \end{aligned}$$

- Current account

$$\begin{aligned} CA_{i,t} &= F_{t+1,i} - F_{i,t} = \Big(A_{t+1,i} - A_{i,t} \Big) - \Big(K_{t+1,i} - K_{i,t} \Big) \\ &= S_{i,t} - I_{i,t} \\ ca_{i,t} &= s_{i,t} - i_{i,t} \end{aligned}$$

Demand for Capital (Investment)

- Technology

$$\begin{aligned} Y_{i,t} &= \theta_{i,t} K_{i,t}^{\alpha} N_{i,t}^{1-\alpha} \\ r_t &= \alpha \theta_{i,t} \left(\frac{K_{i,t}}{N_{i,t}} \right)^{\alpha - 1} \end{aligned}$$

- Let $g_{i,t+1}^{X} = \log(X_{i,t+1}) - \log(X_{i,t})$. Then

$$g_{i,t+1}^{K} - g_{j,t+1}^{K} = \frac{1}{1-\alpha} \left(g_{i,t+1}^{\theta} - g_{j,t+1}^{\theta} \right) + \left(g_{i,t+1}^{N} - g_{j,t+1}^{N} \right)$$

Demand for Capital (Investment)

$$g^K_{i,t+1} - g^K_{j,t+1} = \frac{1}{1-\alpha}\left(g^\theta_{i,t+1} - g^\theta_{j,t+1}\right) + \left(g^N_{i,t+1} - g^N_{j,t+1}\right)$$

- For a given world capital stock, capital flows to countries with
  - Rapid technological progress (perhaps broadly defined)
  - Fast growth of labor force $\Longrightarrow$ demographics

Supply of Capital (Saving)

- Preferences over life cycle consumption streams $\{c_\tau\}$

$$\sum_{\tau=0}^{\mathcal{T}} \beta^\tau s(\tau) \left(\frac{c_\tau^{1-\sigma}}{1-\sigma} \right)$$

- Endowments: labor efficiency units $\{\varepsilon_j\}_{j=0}^{J}$ and accidental (lump-sum redistributed) bequests h

- Access to risk-free asset (capital), natural borrowing constraint. Budget constraint:

$$a_{\tau+1} - a_\tau = w\varepsilon_\tau + ra_\tau + h - c_\tau$$

Supply of Capital (Saving)

- Individual saving $a_{\tau+1} - a_\tau$ determined by
  - pure life cycle motives (dis-save early, save in middle ages, dis-save in retirement
  - self-insurance against idiosyncratic survival risk

Supply of Capital (Saving)

- Individual saving NOT determined (in the model) by
  - idiosyncratic income or health expenditure risk
  - public policies, especially social security
  - household size and composition
- How well does the model match empirically observed life cycle consumption & saving profiles (see e.g. Attanasio et al. 1999, Gourinchas and Parker)?

Supply of Capital (Saving)

- Aggregate saving of country i

$$S_{i,t} = \sum_{\tau} x_{\tau,i,t} \left(a_{\tau+1,i,t+1} - a_{\tau,i,t} \right)$$

  where $x_{\tau,i,t}$ is number of households of age τ in country i at time t.

- Effect of demographics unclear:
  - Higher longevity increases individual saving in working ages
  - Older populations tend to have larger elderly cohorts with low saving rates (but also less low-savings youngsters).

Summarizing the Effects of Demographics

- Countries with faster aging populations should have lower $I_{i,t}$. Countries with older populations might have lower $S_{i,t}$.

- Capital should flow to slow aging countries (with low savings rates) $CA_{i,t} < 0$ such as the U.S. Capital should flow from fast aging countries (with high savings rates) $CA_{i,t} > 0$ such as Germany, Japan.

- But: not clear (based on demographics) why savings rates in U.S. should be lower in U.S. than in Germany, Japan.

Final Remarks/Questions

- What about the rest of the world?
- What about the future?
- What about the literature (Feroli 2003, Brooks 2003, Domeij and Floden 2005, Attanasio, Kitao and Violante 2007)?

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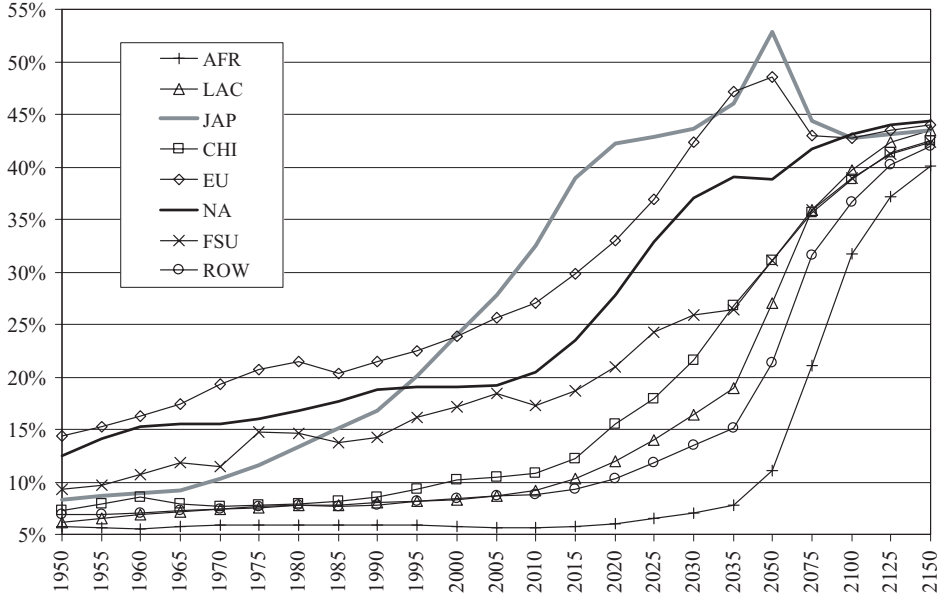

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