Capital Inflows: A Threat to Growth?

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Restoring Growth in Advanced Economies
NCAER, World Bank, & NYU | October 7, 2010

This version: October 9, 2010

NYU STERN

Capital inflows: sign of success?

Larry Summmers, IMF, October 3, 2004:

> *There is a standard set of things that finance ministers of countries with significant current account deficits say. Perhaps the sharpest formulation is: "We live in a country that capital is trying to get into. Would you rather live in a country that capital is trying to get out of?"*

Capital inflows: portent of peril?

Daniel Gross, *New York Times*, May 8, 2005:

> *[US] imbalances are eerily reminiscent of recent economic crises. Could we see a perfect storm [for the US economy]? If so, what would it look like?*
>
> - ⋆ *Nouriel Roubini estimates that long-term interest rates in the US could rise by 200 basis points over a few months and the value of the dollar would fall.*
> - ⋆ *Said Barry Eichengreen: "The result would not be a full-blown financial crisis most likely, but it would still be a major recession."*
> - ⋆ *Adds Jeffrey Frankel, "some of us have been warning of this hard-landing scenario for more than 20 years."*

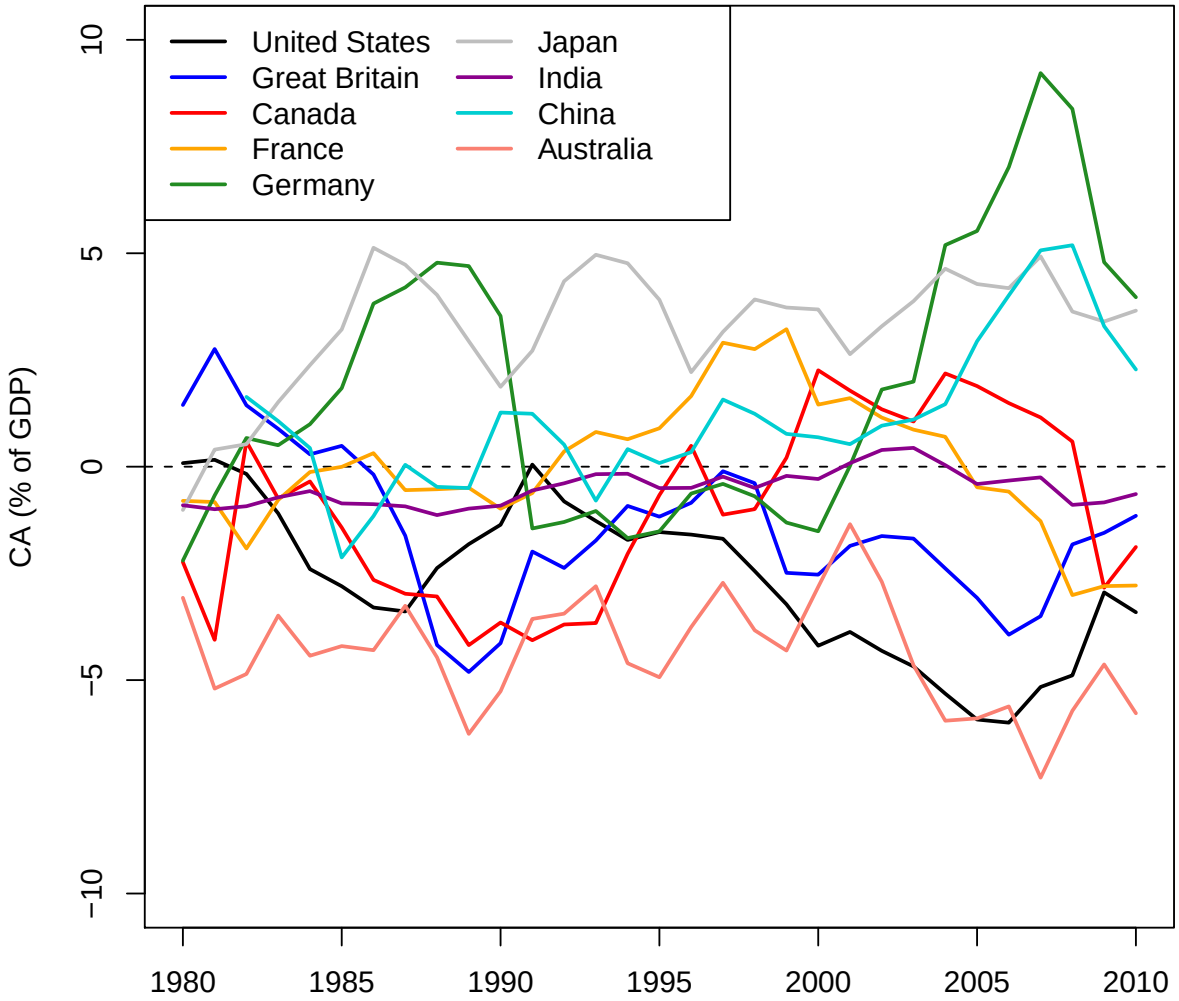
Facts about capital flows

What drives them?

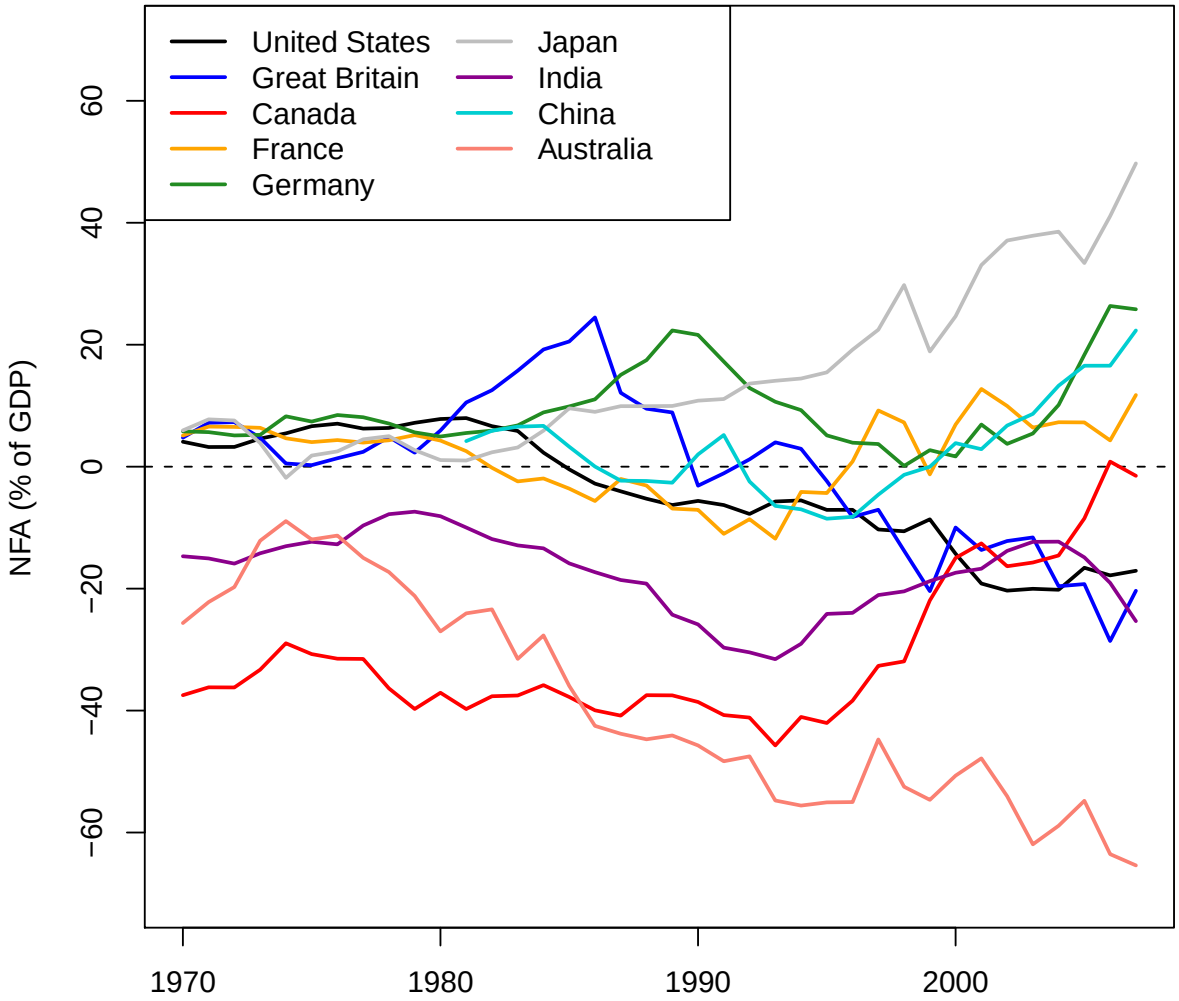
- Business cycles
- Institutions
- Taxes and legal restrictions
- Commodity prices (oil)
- Political risk
- Exchange rates
- Anything that affects saving or investment

Some data to get us thinking...

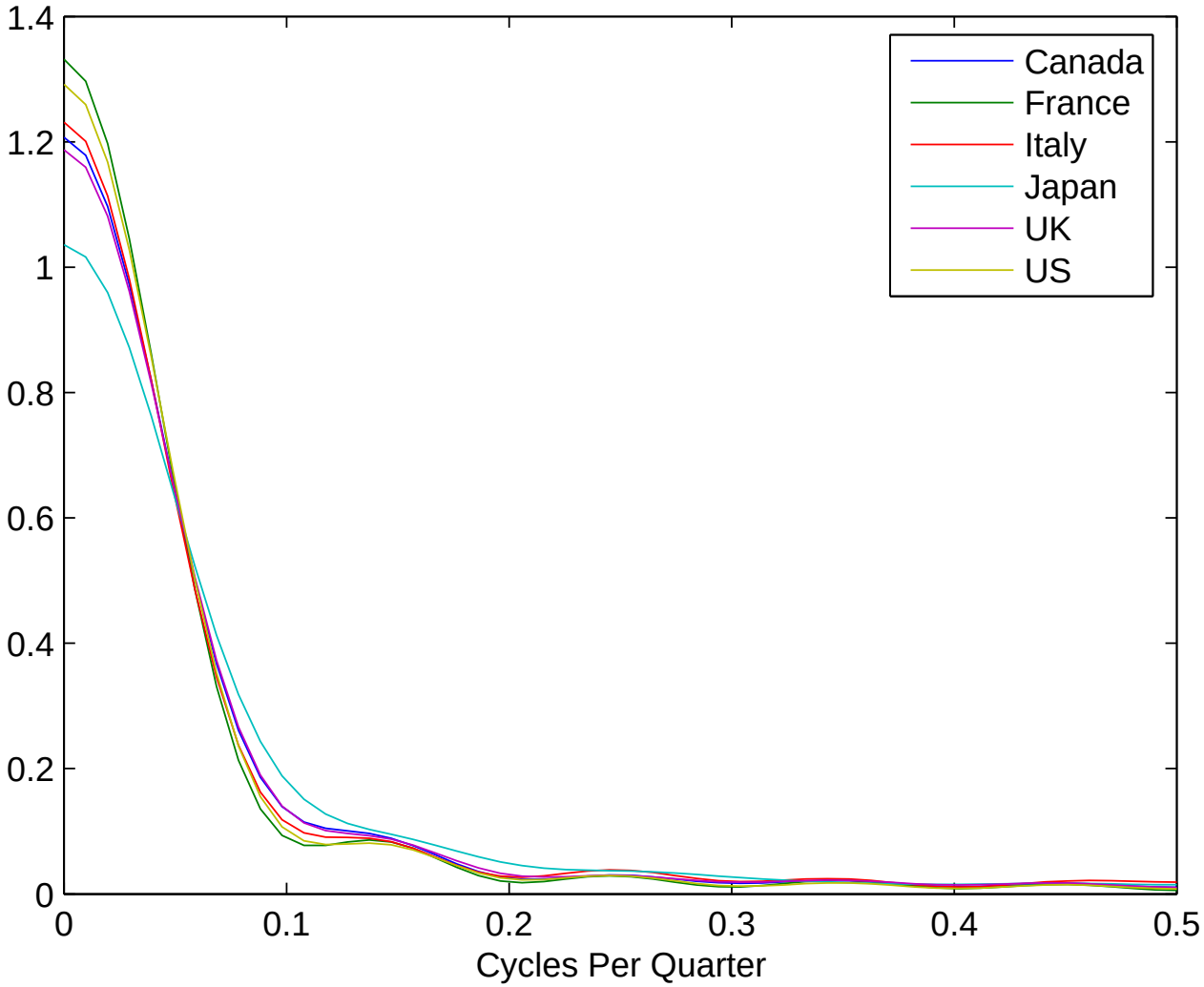
Facts: current accounts



Facts: net foreign assets



Facts: current account spectrum



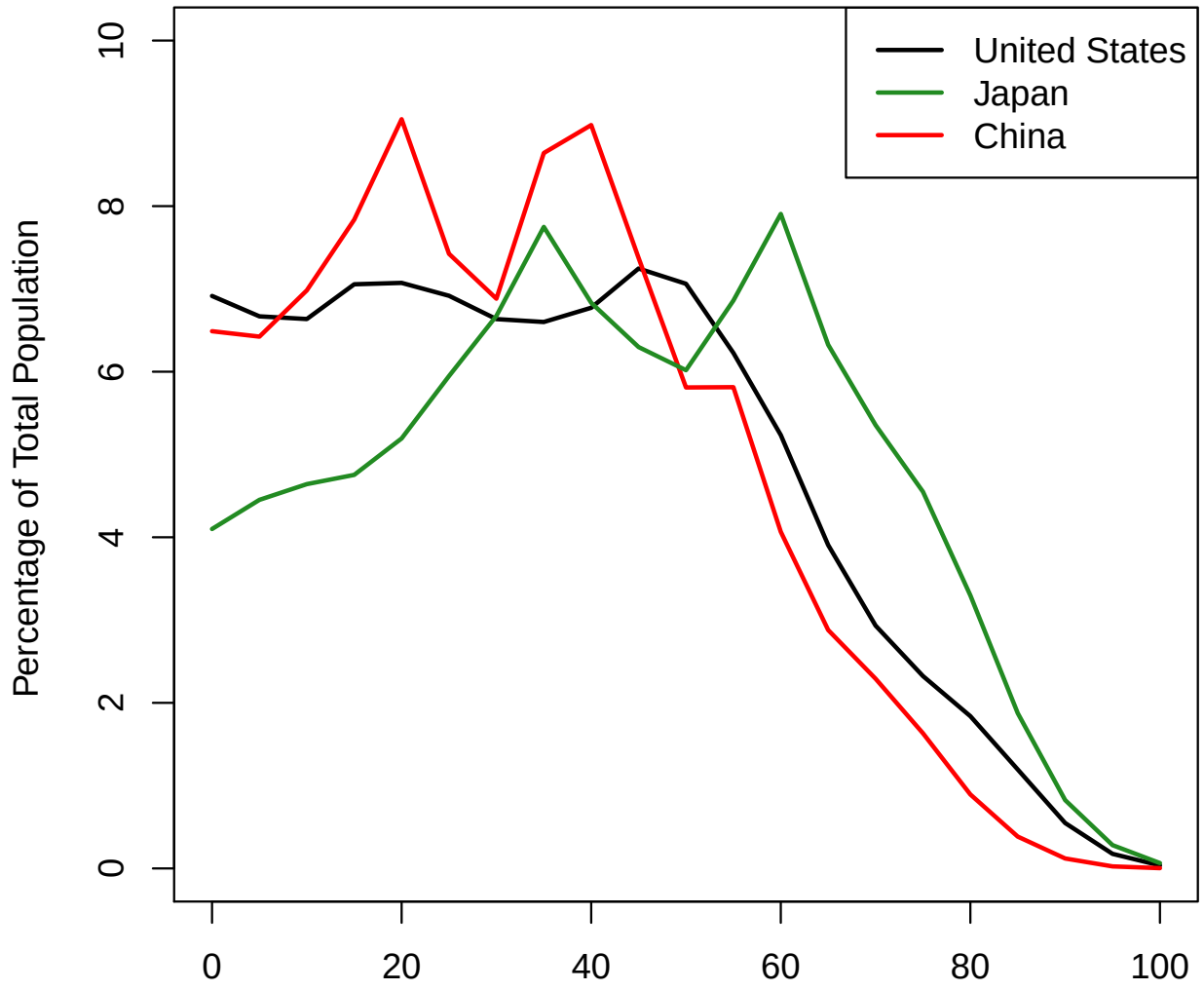
Facts: summary

Capital flows are persistent

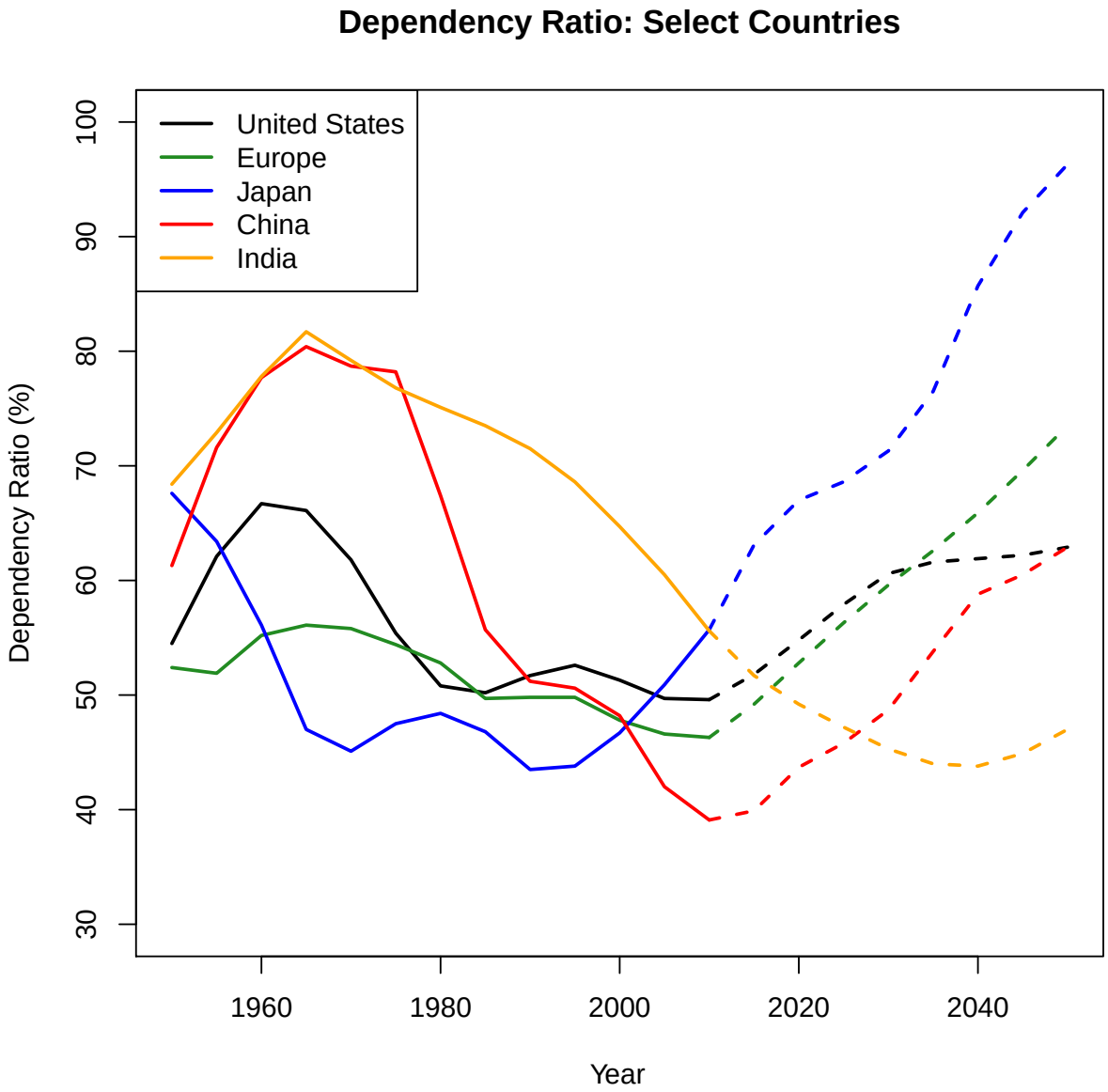
Demography inherently persistent, too

$\Rightarrow$ Could it play a role in capital flows?

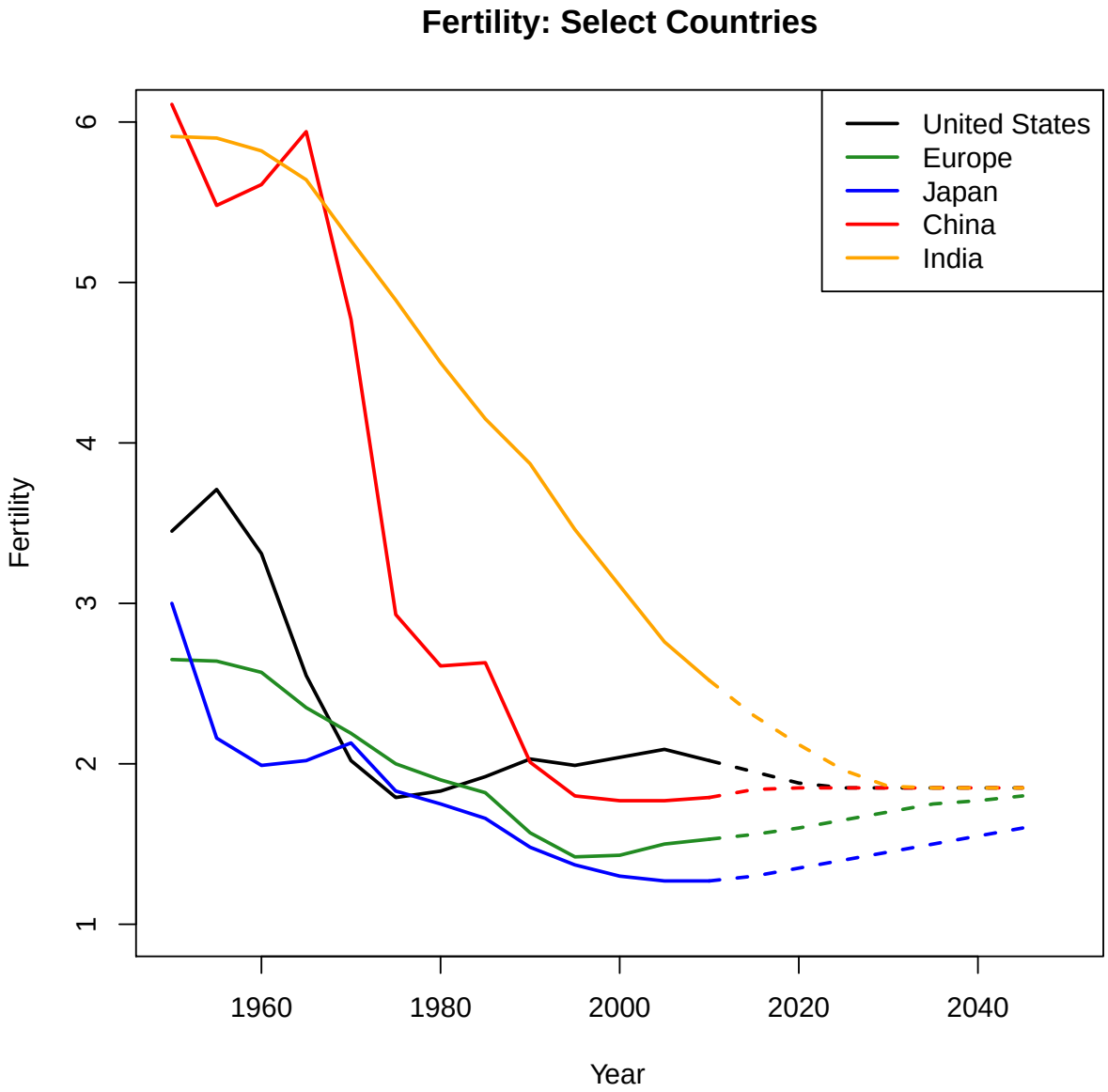
Facts: age distributions



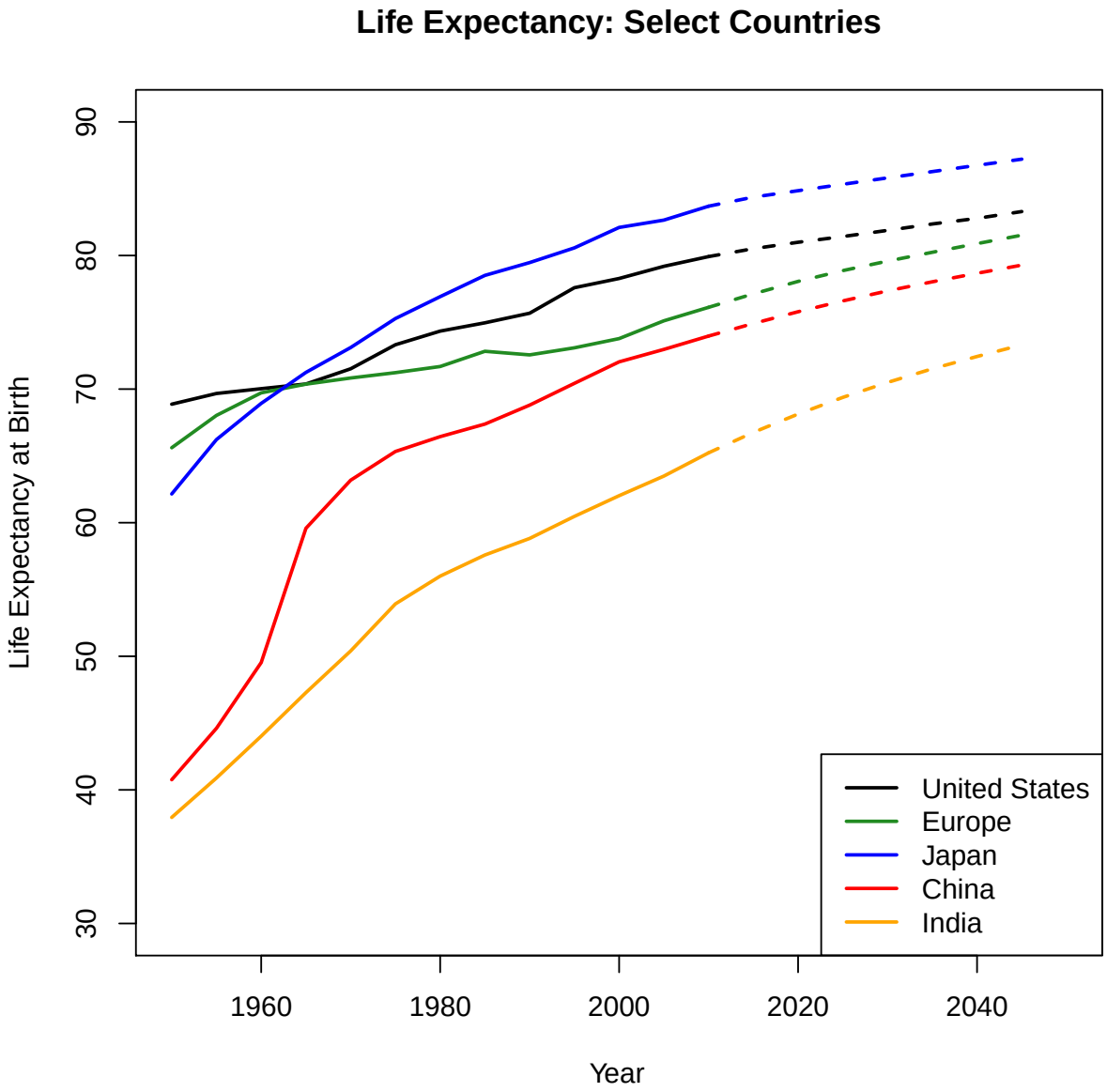
Facts: dependency ratios



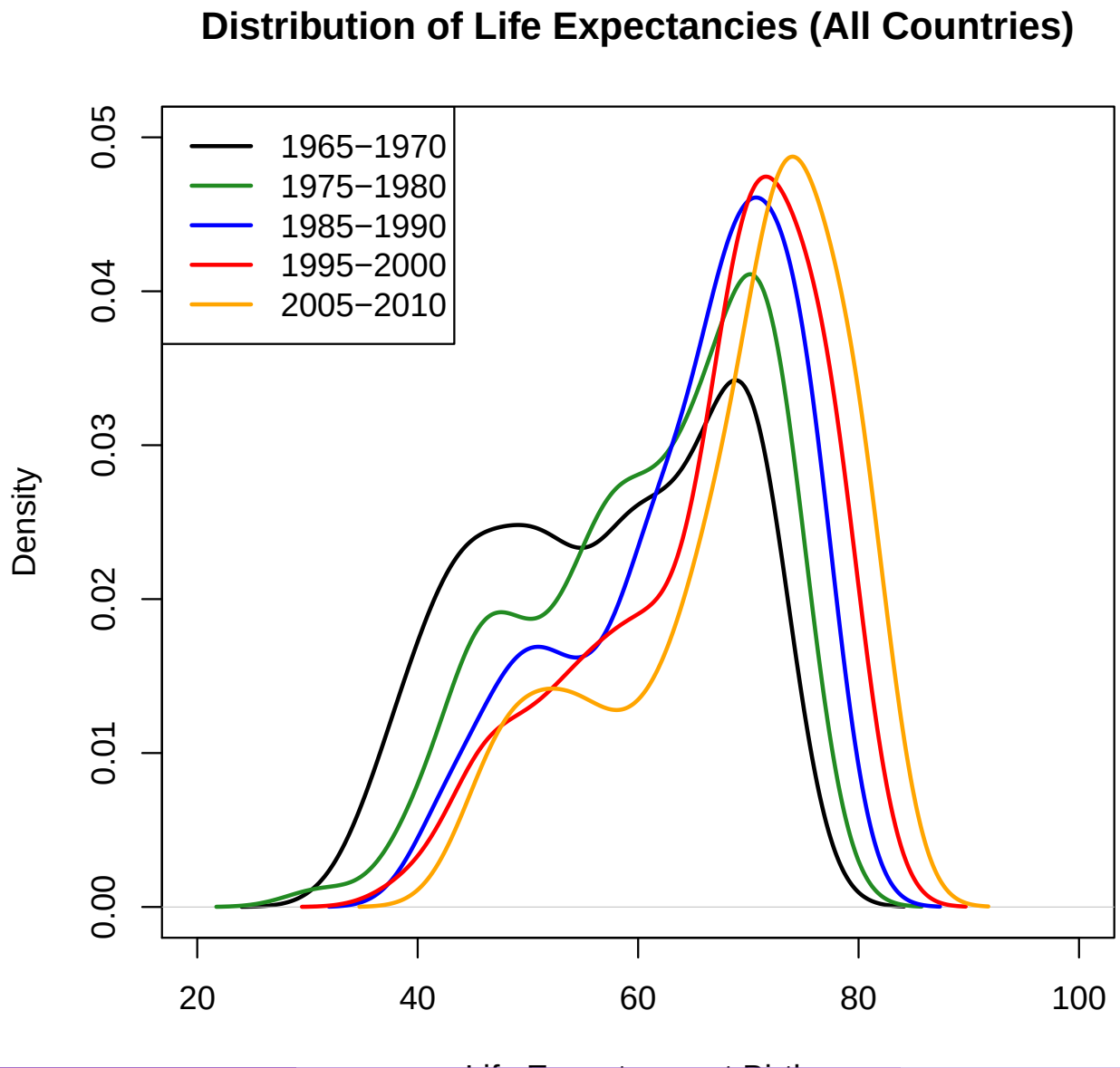
Facts: fertility



Facts: life expectancy



Facts: life expectancy



Theory: economic structure

One-good world

National production functions

Unrestricted international capital flows

Overlapping generations

- Fertility, mortality, immigration tied to data
- Fixed retirement age (65)

Result: demographic differences generate capital flows

Theory: capital flows implied by demography

[Coming soon!!]

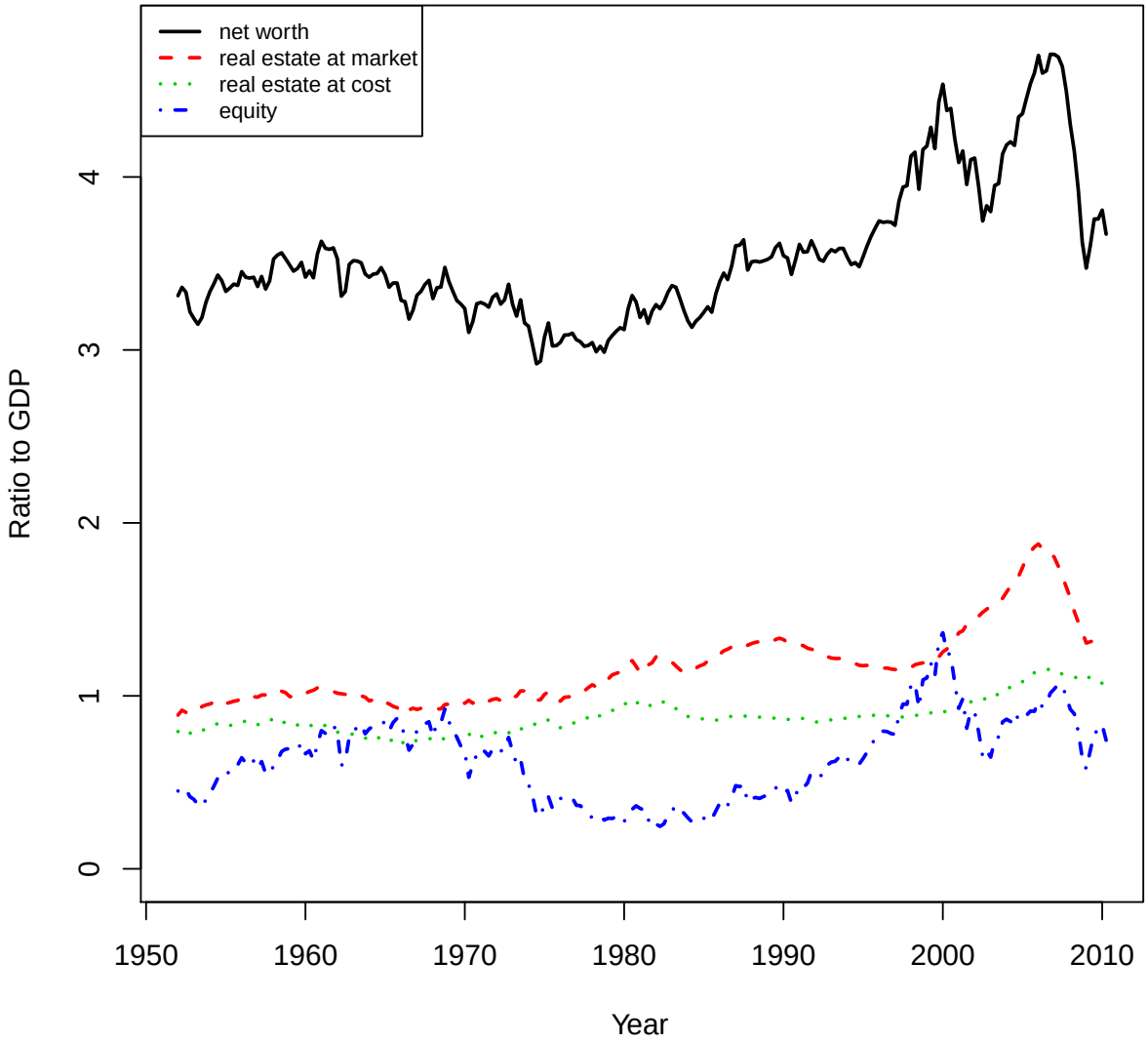
Capital flows revisited

An "imbalance" to be managed?

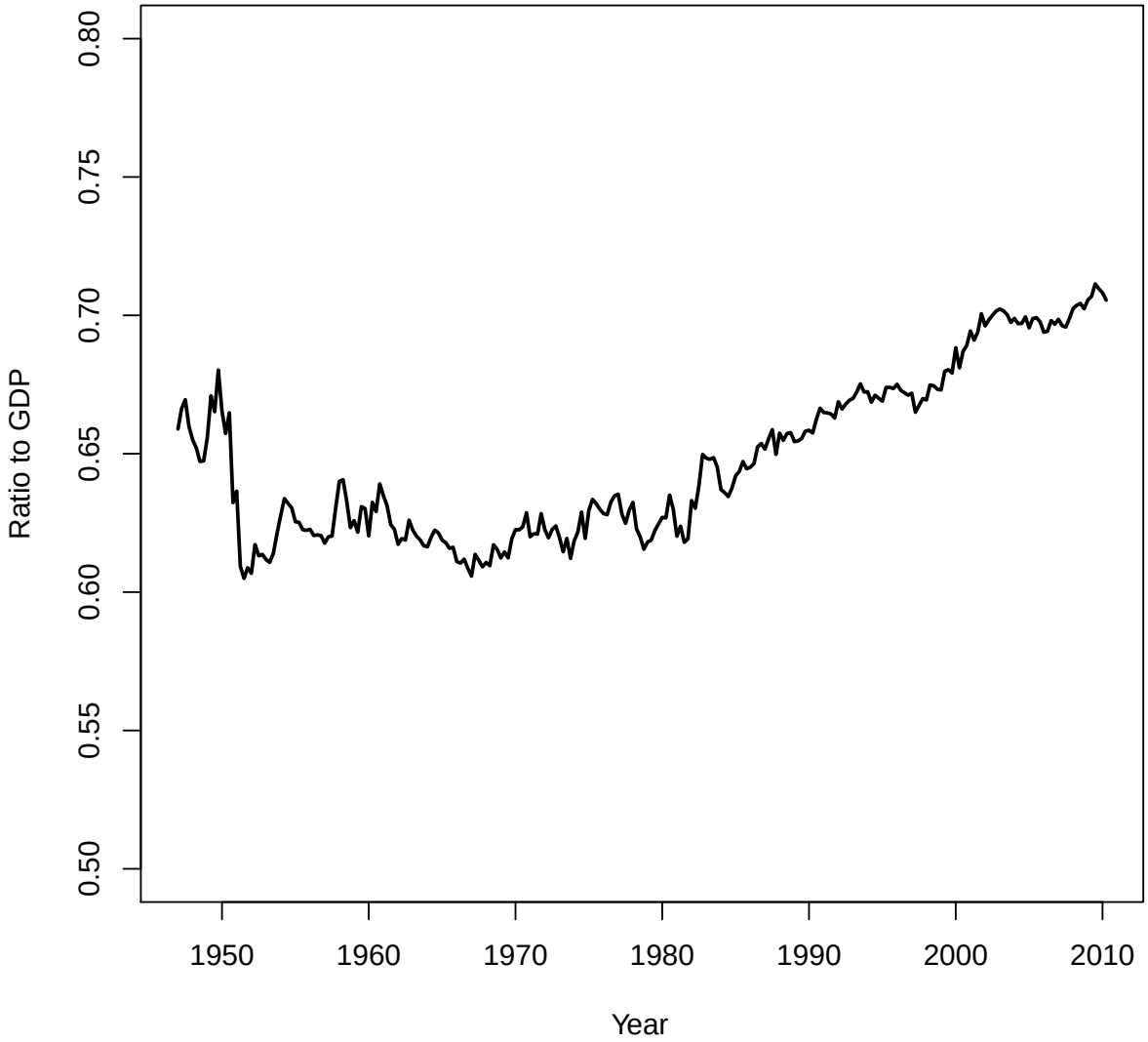
A reflection of demography and life-cycle saving?

Or something completely different?

US household net worth



US personal consumption



Model...

The economy consists of overlapping generations of ex ante identical agents who live up to I periods, with ages denoted by $i \in I \equiv \{1, \ldots, I\}$.

At every point in time, there are I different cohorts alive. Individuals remain children for I_0 periods. As children they neither consume, accumulate capital nor supply labor. After I_0 periods the agents enter the economy as autonomous decision makers.

Demographics

The survival probability between age i and $i+1$ is denoted $s_{i,t}$ and varies with ages i and time. The unconditional probability of reaching age i is denoted s^i and is the product of conditional survival probability rates; $s^i = \prod_{j=1}^{i-1} s_j$.

Let $x_t \in \mathbb{R}^I$ be the vector of number of members in each cohort in period t.

The demographic structure of the population changes through changes in fertility, mortality and immigration.

Let $m_t \in \mathbb{R}^I$ be a vector with each element representing the cohort specific number of net immigrants at time t. Denoting $\hat{\Gamma}_t$ the matrix of deterministic fertility and mortality rates at time t, the law of motion for the population may be written

$$x_{t+1} = \hat{\Gamma}_t x_t + m_t.$$

Preferences and technology

Preferences of an agent born in period t may be summarized by a standard time-separable utility function with age specific weight β^i

$$\mathrm{E}_{t+I_0}\left\{\sum_{i=I_0+1}^{I}\beta^i s^i u_i\left(c_{i,t}\right)\right\}, \tag{1}$$

where u_i is the instantaneous utility function, and $c_{i,t}$ is consumption and leisure of an agent of age i in period t.
The instantaneous utility function has the standard isoelastic specification

$$u\left(c_{i,t}\right)=\frac{\left(c_{i,t}\right)^{1-\sigma}-1}{1-\sigma},$$

Labor Supply

Each individual supplies labor inelastically to the market. The productivity and the rate of return on labor supplied changes with age according to a deterministic pattern. The vector of age specific efficiency units of labor is denoted $\{\epsilon_i\}_{i=1}^{I}$. An easy way to exogenously capture childhood inactivity and old age retirement is to set labor efficiency for those cohorts equal to zero.

Production

Country j time t

$$y_{j,t} = \theta_{j,t} K_{j,t}^{\alpha} N_{j,t}^{1-\alpha}.$$

Equilibrium

Individuals in each country choose optimal quantities of capital supplied (saved) given prices.
Combining the individuals' intratemporal optimality condition with the period-by-period budget constraint gives the following second-order difference equation

$$a_{i+1,t+1} = a_{i,t}R_t + \epsilon_i w_t + h_t - \left(\frac{1}{\beta s_{i-1,t-1} R_t}\right)^{-\frac{1}{\sigma}} \left(a_{i-1,t-1}R_{t-1} + \epsilon_{i-1} w_{t-1} + h_{t-1} - a_{i,t}\right).$$

Combined with the initial and terminal conditions, eq. (**??**), this uniquely defines the life-cycle savings (and consumption) sequence for given prices.
Firms in each country choose optimal quantities of capital demanded given prices

$$K^d_{j,t} = \left(\frac{r_{j,t}}{\alpha\theta_{j,t}}\right)^{\frac{1}{\alpha-1}} N_{j,t}.$$