Discussion of Rognlie, Shleifer and Simsek Investment Hangover and the Great Recession

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Introduction

The goal of this paper is to show a mechanism through which

over-accumulation of housing can precipitate a recession.

This mechanism is suggested as (part of) what happened during the

Great Recession.

A key feature is a Zero Lower Bound on the **real** interest rate,

the marginal product of capital.
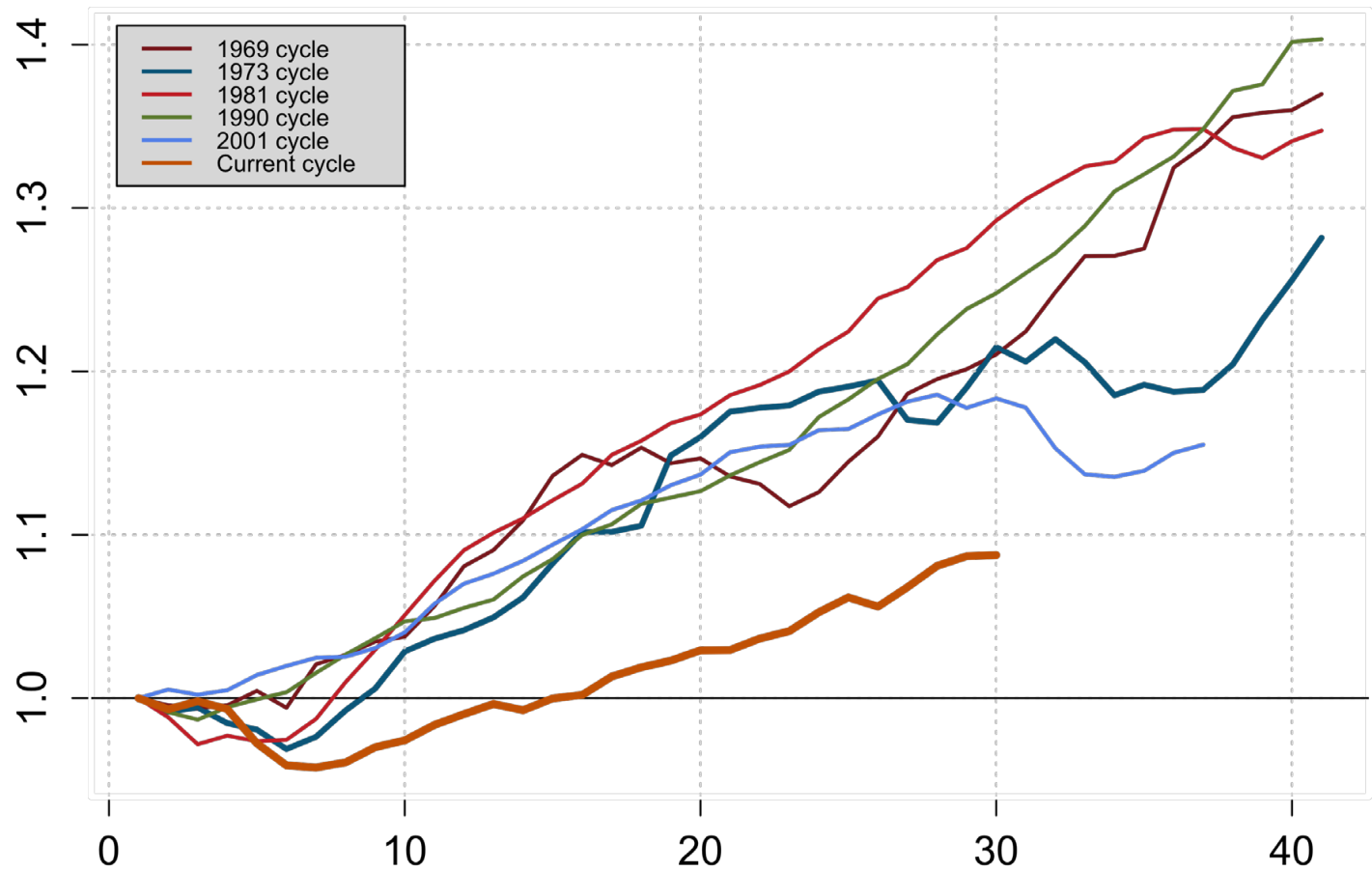
In this discussion, I will:

—ask whether it is plausible that over-investment in housing was an

important factor in the Great Recession;

—describe some features of the model developed here, which uses a

particular specification of preferences over consumption & leisure;

—ask whether a ZLB assumption on the **real** interest rate is plausible.

Overview of the discussion

1. Look at plots of output, investment during post WW II recessions.
2. Comment on the role of housing in this model.
3. Look at transitions in a simplified economy with no housing and no rate of return (RoR) restriction, and with conventional preferences over consumption and leisure.
4. Look at the role of the special preferences used here in that simplified economy.
5. Look at returns on real capital (S&P 500) over 1928-2014.
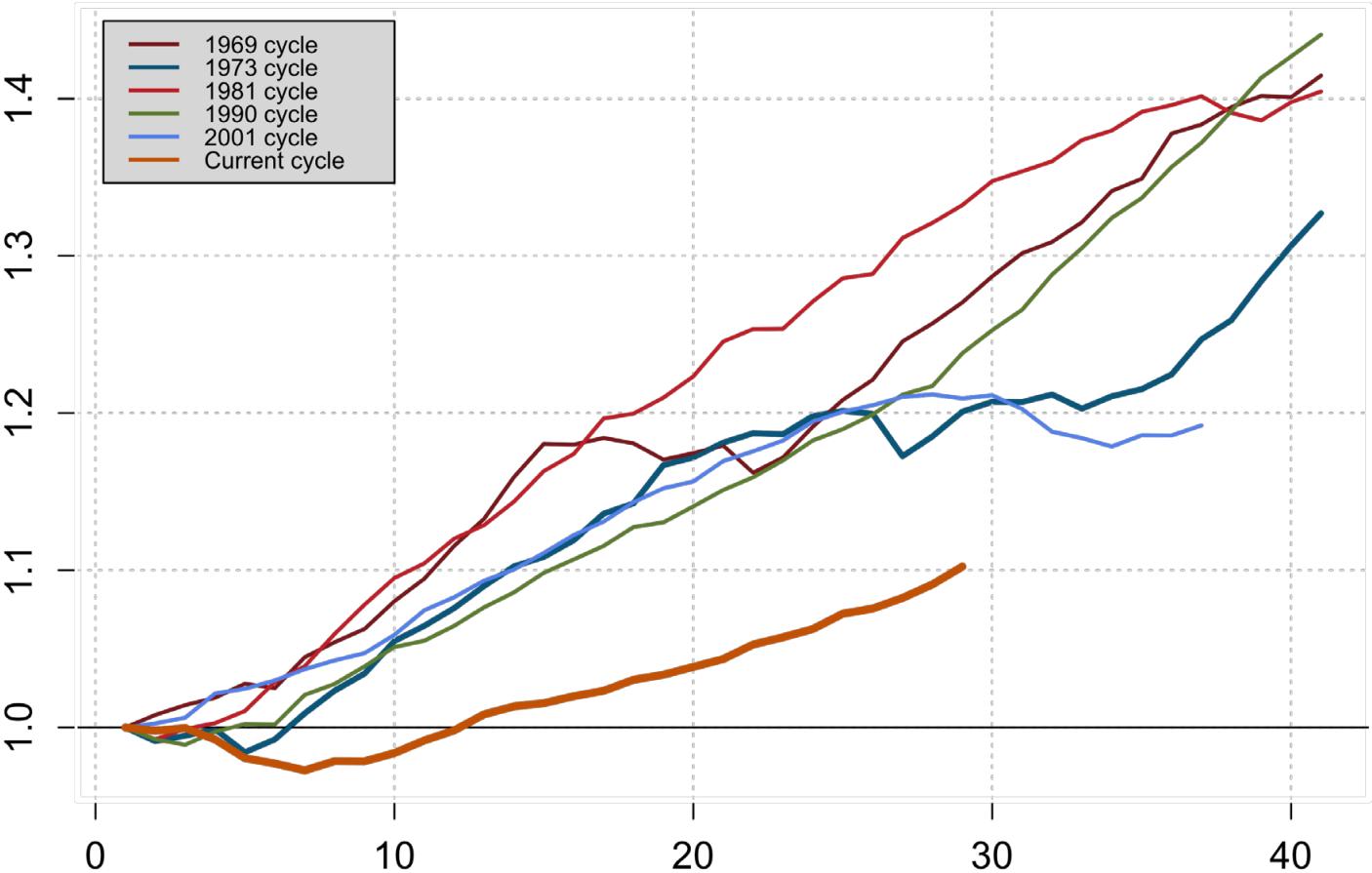6. Concluding comments

Real GDP
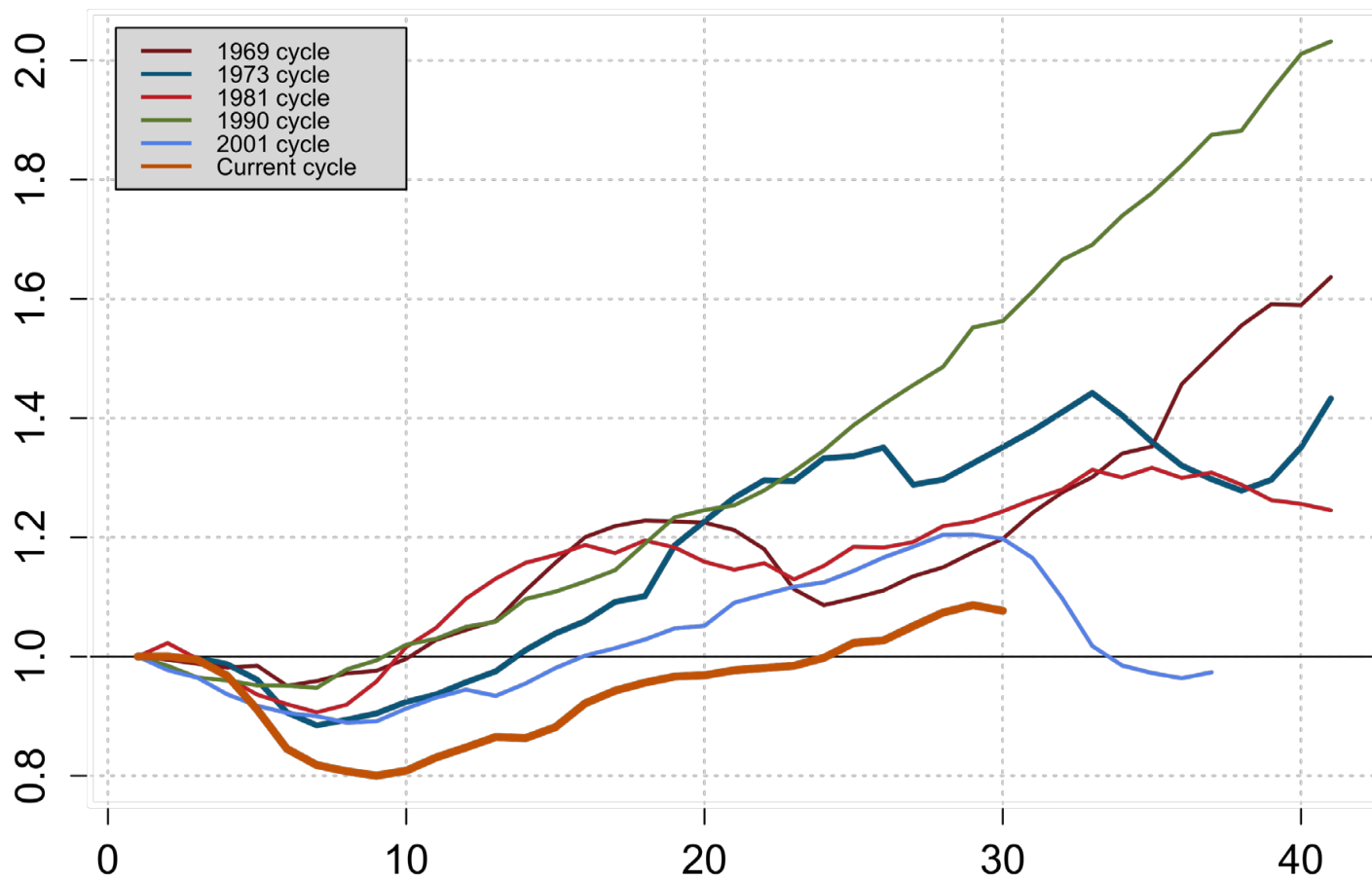
Peak before recession = 1

Legend:
- 1969 cycle
- 1973 cycle
- 1981 cycle
- 1990 cycle
- 2001 cycle
- Current cycle

Econsnapshot.com

Source: BEA

Real Personal Consumption Expenditures

Peak before recession = 1

Legend:
- 1969 cycle
- 1973 cycle
- 1981 cycle
- 1990 cycle
- 2001 cycle
- Current cycle

Econsnapshot.com

Source: BEA

Non-Residential Fixed Investment

Peak before recession = 1

Legend:
- 1969 cycle
- 1973 cycle
- 1981 cycle
- 1990 cycle
- 2001 cycle
- Current cycle

Econsnapshot.com

Source: BEA

rfi-cyc-2015-05-29.png (PNG Image, 3200 × 2400 pixels) - Scaled (29%)

Residential Fixed Investment

Peak before recession = 1

Legend:
- 1969 cycle
- 1973 cycle
- 1981 cycle
- 1990 cycle
- 2001 cycle
- Current cycle

Econsnapshot.com

Source: BEA
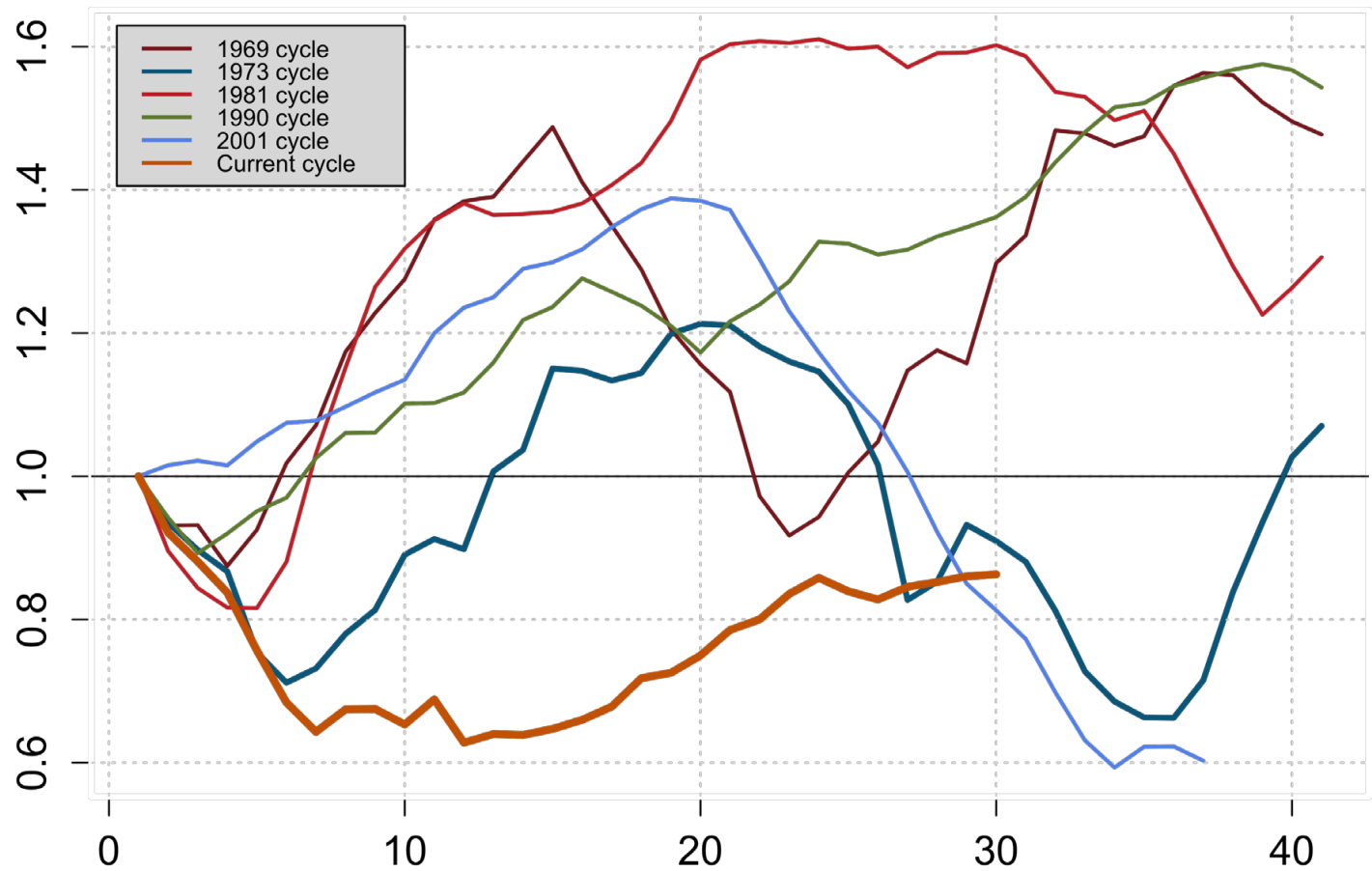
Employment: Construction

Peak before recession = 1

Legend:
- 1969 cycle
- 1973 cycle
- 1981 cycle
- 1990 cycle
- 2001 cycle
- Current cycle

Months since peak

Econsnapshot.com

Source: BLS
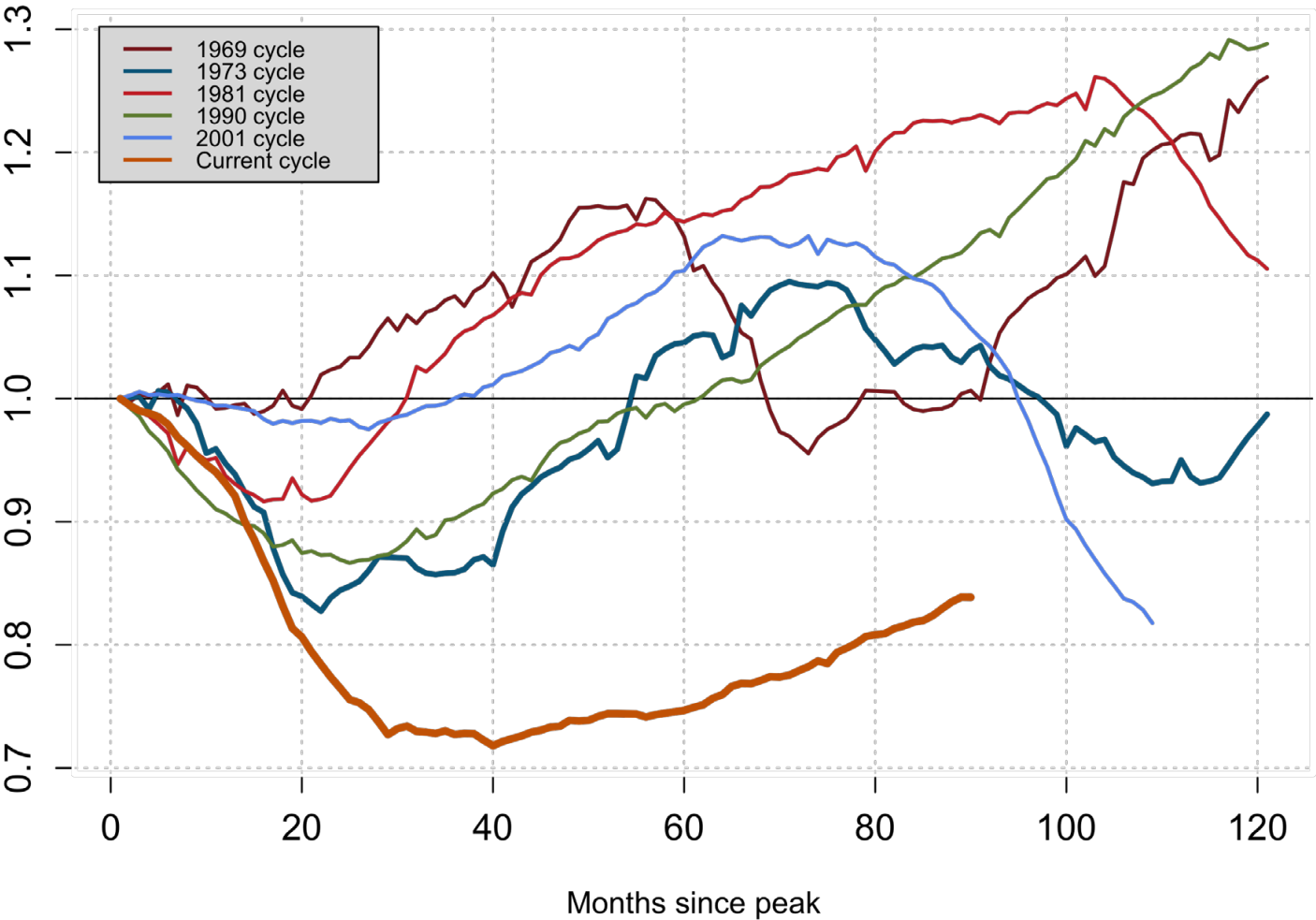
The model

The model is basically the neoclassical growth model, with a couple
of twists.

It is instructive to look at it in a standard form, and then add the twists.

There is a representative household (RH) and a representative firm (RF).

The household owns capital and housing, and can supply labor.

The firm hires capital and labor to produce output.

Output is used for consumption and for investment in the two stocks.

The role of housing

In the RSS model, utility from housing is a 0-1 variable, with threshold h^*.

Hence the consumer does not benefit directly from owning a housing stock $h > h^*$.

Nevertheless, housing has a second role, as a storage technology.

If the consumer anticipates having lower income in the future, she can in essence store goods by building up a housing stock above h^*.

This storage technology is not too bad if the depreciation rate δ^h is not too large.

Since the scenarios here involve negative real interest rates, $r \leq 0$, housing may be an attractive investment option.

A simplified model: no housing and no RoR restriction

Consider the model with no RoR restriction.

In addition, set housing aside.

Suppose the RH operates the firm as a backyard technology.

Then the problem of the RH is to choose $\{c_t, \ell_t, k_{t+1}\}_{t=0}^{\infty}$ to solve

$$\max \sum_{t=0}^{\infty} \beta^t U(c_t, \ell_t)$$

$$
\begin{aligned}
\text{st.} \qquad c_t + i_{kt} &\leq F(k_t, \ell_t), \\
i_{kt} &\geq 0, \qquad \text{all } t,
\end{aligned}
$$

given $k_0 > 0$. The conditions for a maximum are

$$-\frac{U_\ell(c_t, \ell_t)}{U_c(c_t, \ell_t)} = F_\ell(k_t, \ell_t),$$

$$\beta\left[F_k(k_{t+1}, \ell_{t+1}) + (1 - \delta_k)\right] \leq \frac{U_c(c_t, \ell_t)}{U_c(c_{t+1}, \ell_{t+1})}, \qquad \text{w/ eq. if } i_{kt} > 0.$$

A transition for the simplified model

Consider an economy that has over-accumulated capital, so $k_0 > k^{ss}$,

and consider the RoR condition,

$$F_k(k_{t+1}, \ell_{t+1}) \geq \delta_k.$$

If k_0 is not too far above the SS level, the RoR condition never binds.

During the transition to the steady state,

—the capital stock falls;

—consumption declines;

—the transition for leisure is ambiguous, even if it is a normal good,

since the high level for initial capital has both a wealth effect

and a price effect—it raises the MPL;

—the interest rate (MPK) rises.

The rate of decline in consumption is related to the rate of increase

in the MPK.

A transition for the simplified model

A solution of this type always exists, but if k_0 is far enough above k^{ss},

    the real interest rate is initially negative, $F_k - \delta_k < 0$.

If δ_h is small, then investment in housing is like a storage technology.

Goods invested in housing have rate of return $-\delta_h$.

But if the rate of return on productive capital is low enough,

    this may still be an attractive option, even if additional housing has

    zero marginal utility, as assumed here.

A transition with specialized preferences

The specialized preferences used here are

$$U\left(c,\ell\right) = \widetilde{u}\left(c - v\left(\ell\right)\right).$$

Then optimal labor supply ℓ^* satisfies

$$-\frac{U_\ell(c,\ell^*)}{U_c(c,\ell^*)} = v'(\ell^*) = F_\ell(k,\ell^*), \tag{1}$$

so it depends on k but not on c.

The function $\ell^*(k)$ defined by (1) is continuous and increasing in k.

Consider the transition for an economy with $k_0 > k^{ss}$.

Since $\ell^*(k)$ is increasing in k, for these preferences **labor supply declines** as the capital stock declines toward its SS level.

A transition with specialized preferences

In the absence of the RoR constraint, these preferences imply that

an over-supply of capital generates a temporary **boom**: output, hours

and consumption are **high**.

Investment is initially very low and rises, which makes consumption fall

even faster.

The Zero Lower Bound

Many models put a ZLB on the **nominal** interest rate, motivated

by the fact that agents can always hold cash.

Is a ZLB on the **real** interest rate plausible?

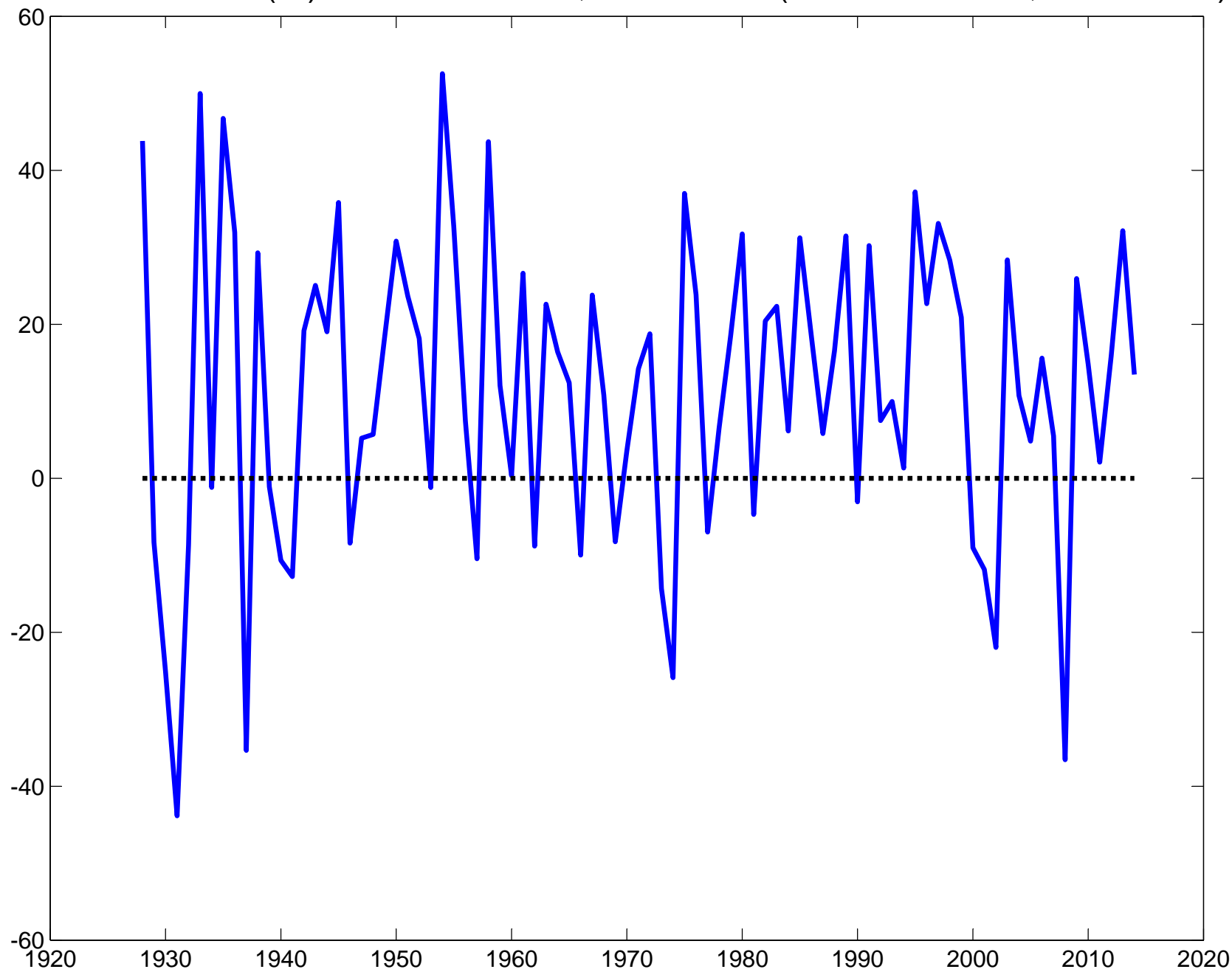For nominal assets, inflation can make real returns negative.

This has happened many times, in many places:

Argentina (many times), Brazil in the 1980's, Israel in the 1980's

the U.S. in the late 1970's, and so on.

For real assets, too, we can just look at the evidence.

Annual returns (%) on the S&P 500, 1928-2014 (A. Damordaran, NYU Stern)

Conclusion

The housing overhang may have played a role in making the Great

Recession so long and deep, but the mechanism here seems unlikely.

Other possibilities include frictions in the labor market, which prevented

workers in construction from moving into other occupations.