

Discussion of:
"Optimal Policy in an Operational
Medium-Sized DSGE Model"

Lee E. Ohanian

UCLA & FRB Minneapolis

Policy Analysis in Monetary Models

Riksbank has long been at the forefront of this work

Ramses: Quadratic loss over inflation, output, and int rate deviations

Many analyses along these lines, and this is one of the best

Interesting result: Policy under committment dominates simple instrument rule

Time Dependent Pricing?

Liquidity and Leverage?

Interaction of monetary policy with fiscal policy/gov debt?

Borrowing to finance entire wage bill - corporate sector is largely self-financing

I will focus on a broader discussion

Structure discussion around certain features of Swedish economy

Features are interesting in own right, have implications for Ramses and for policy-making

Warm-up: Swedish Economy is Challenging to Model

Interesting features difficult to capture in a stationary model

(1) Trade share was 40 percent, now 100 percent of GDP

Larger trade share means more competitive marketplace, greater variety, more substitutes

Suggests non-competitive aspects of economy should diminish over time

Lower average wage and price mark-ups, more frequent wage and price changes...

(2) Productivity growth higher today - permanent? temporary? Does it have to do with trade?

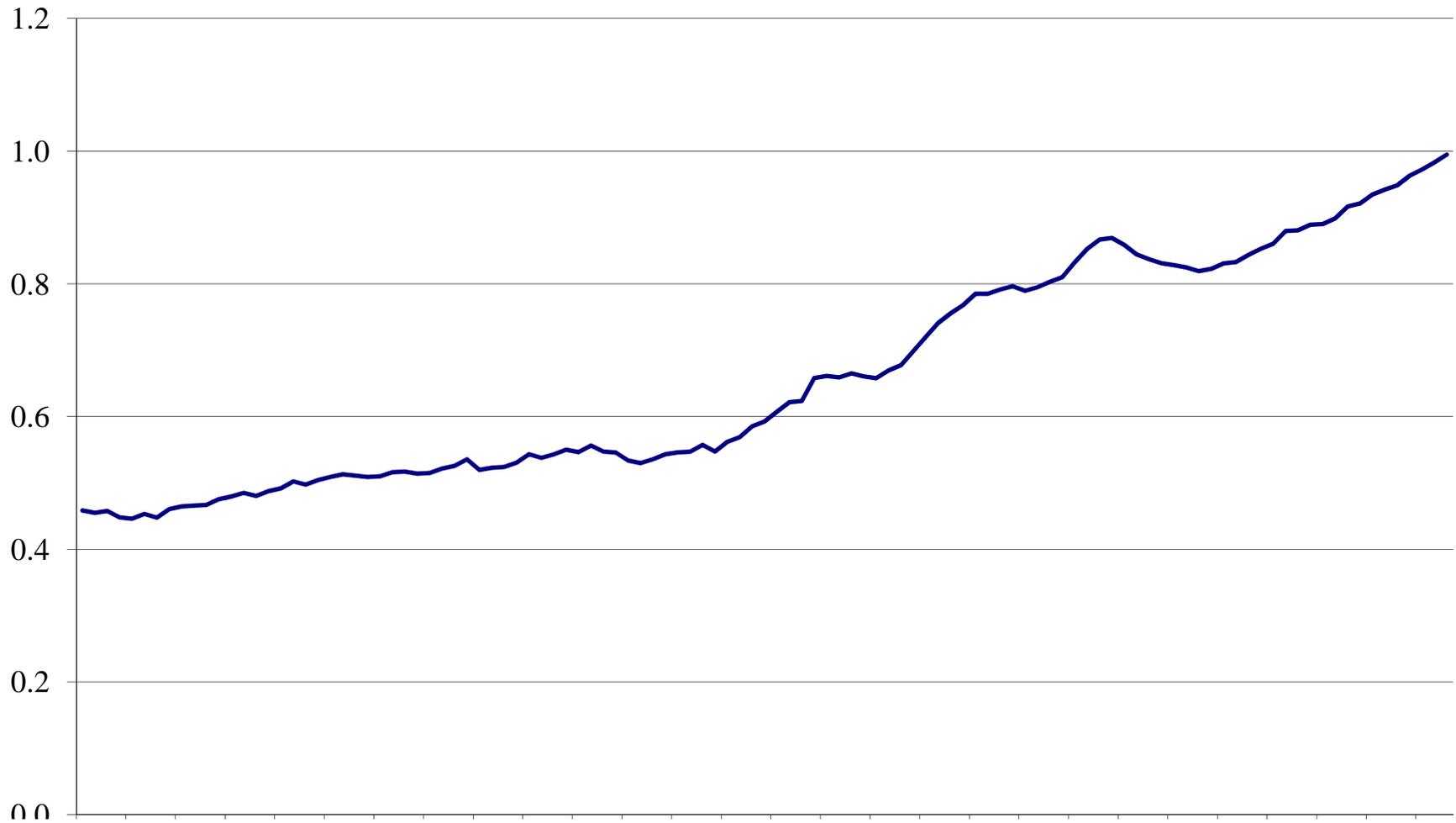
(3) Hours worked

Taxes rise substantially over time, and hours fall but...

Swedish hours appear to be too high relative to theory...

I will return to issues about productivity and labor in a few slides

Figure 4: Trade Share in Real GDP



Sweden



Output & Potential Output

Paper focuses on different definitions of potential output

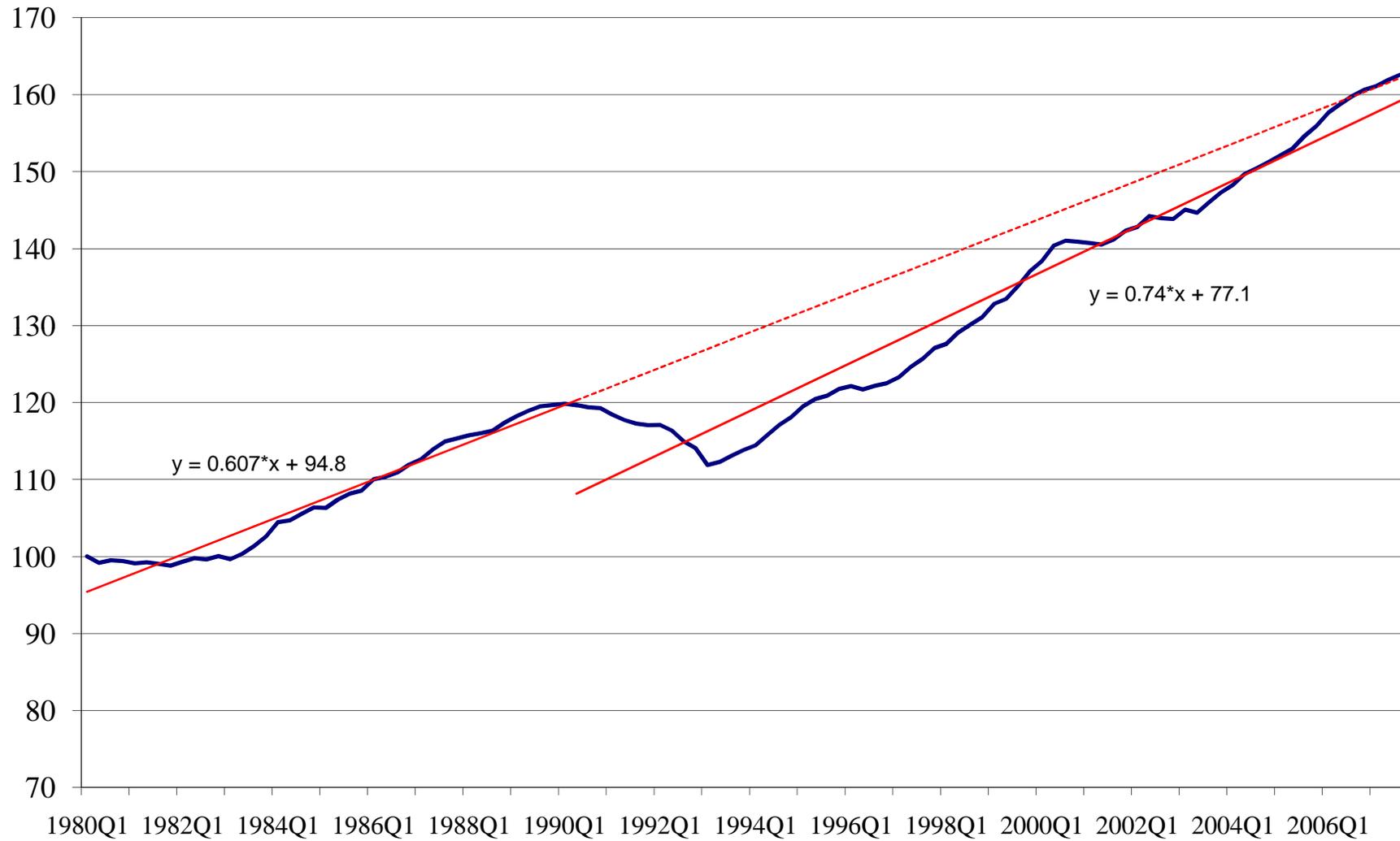
Take a look at output/potential output

First, examine trends before and after the banking crisis

Output slowly returns to its initial trend growth path

Put in perspective by comparing to peer countries

Figure 5: Output per Working Age Population
(1980Q1 = 100)



Swedish Output, Potential Output & Output in Peer Group

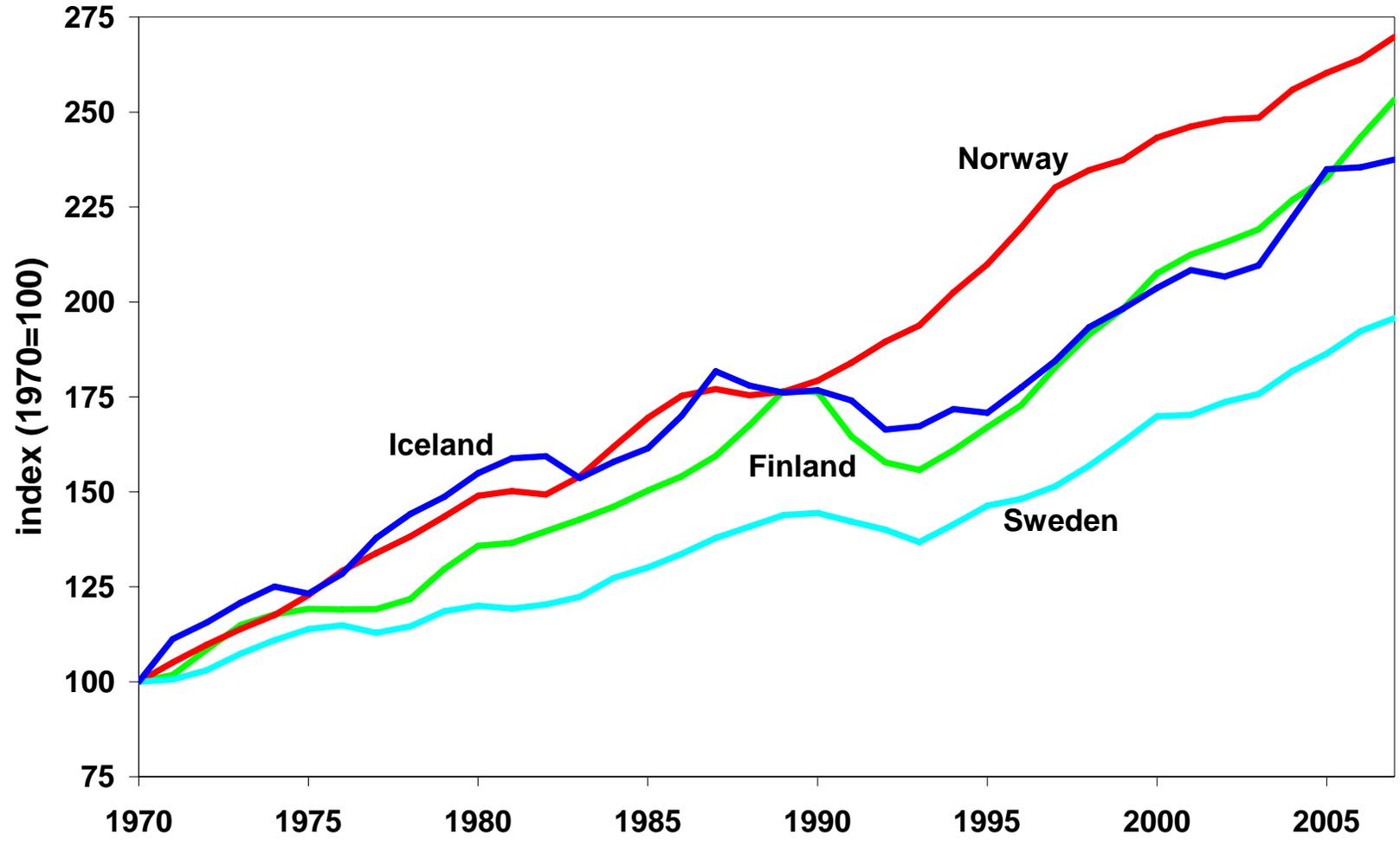
Compare Swedish output to peer (Scandinavian) countries

Interpretations of 1.7% growth relative to peer growth:

Output below potential, potential output growing more slowly.

Why has Sweden lagged peer countries?

Real GDP per Working Age Person



A Closer Look at Output

Decompose output change into productivity, capital, and labor

$$\frac{Y_t}{L_t} = A_t^{\frac{1}{1-\theta}} \left(\frac{K_t}{Y_t} \right)^{\frac{\alpha}{1-\alpha}} \frac{H_t}{L_t}$$

Steady state growth path means $K/Y, H/L$ constant over time

Decomposition shows two very different economies,

1980 - 1993 - Sweden is stable, but slow growth economy

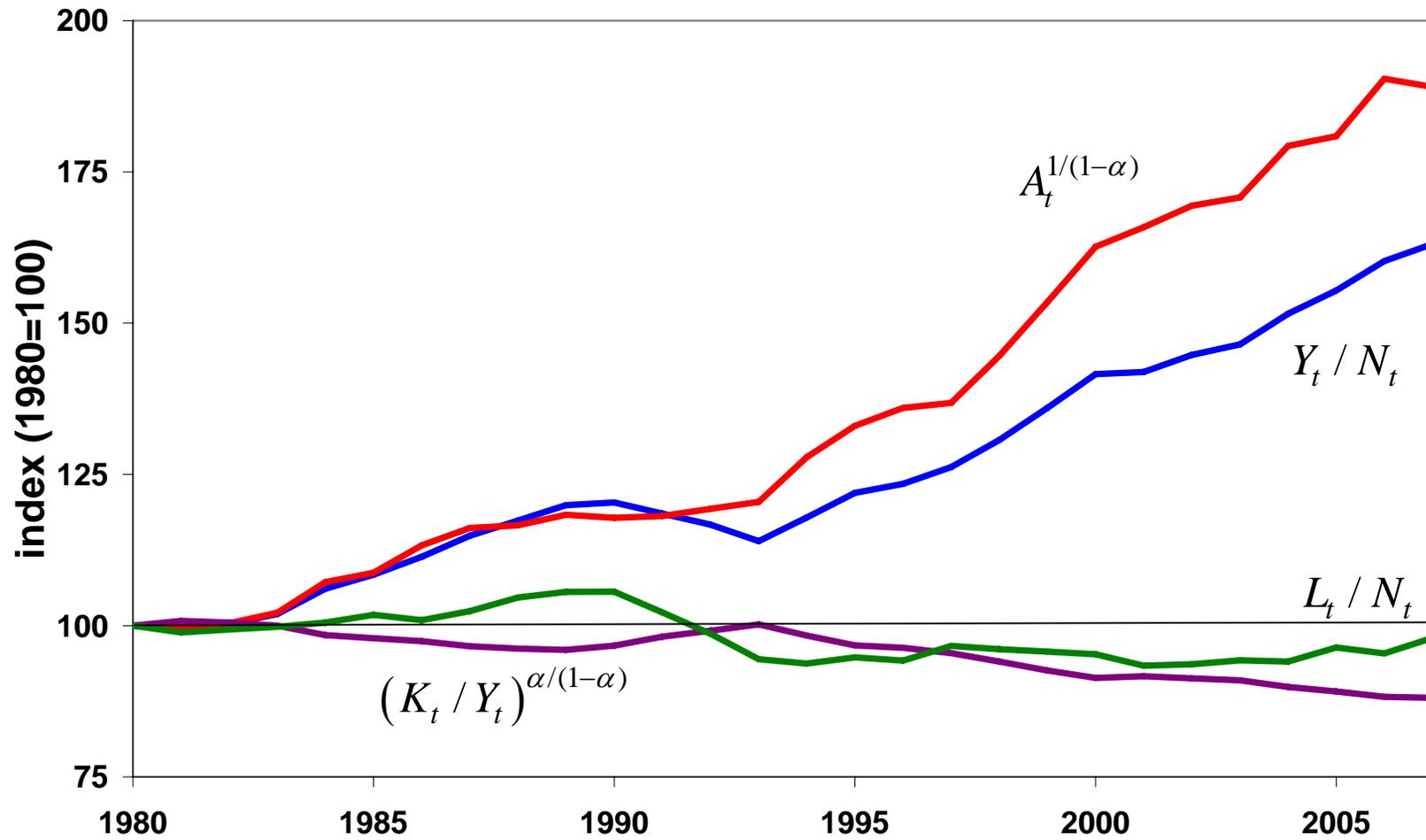
Close to steady state growth path with low productivity growth

1994 - 2007 - Large change in Swedish economy

Productivity growth almost triples, but...

Swedish economy not on steady state path, or transitioning to path

Growth accounting for Sweden



(1) Understanding productivity growth. Why did it change so much? How to model shift between two economies?

(2) Hours worked appear too low relative to theory. Why?

Swedish Productivity Comparison to Peer Group

Finland and Sweden - both had fin'l crises & contraction in early 1990s

Swedish productivity growth changes remarkably

1.3 percent per year 1980-1994

3.5 percent per year after that - Swedish TFP increased by 56 percent

Finnish productivity growth

1.8 percent per year through 1994

4 percent per year after that

What is source of low productivity before crisis, and high productivity after the crisis?

Higher trade? Increased competition? Government policies?

How long will this persist?

These issues are central for welfare, for policy, and for modeling.

Productivity, Output, and Hours Worked

Standard one-sector stochastic growth model

$$\max E \sum \beta^t \{\ln(c_t) + \phi \ln(1 - h_t)\}$$

$$z_t k_t^\alpha (x_t h_t)^{1-\alpha} = c_t + i_t$$

$$k_{t+1} = (1 - \delta)k_t + i_t$$

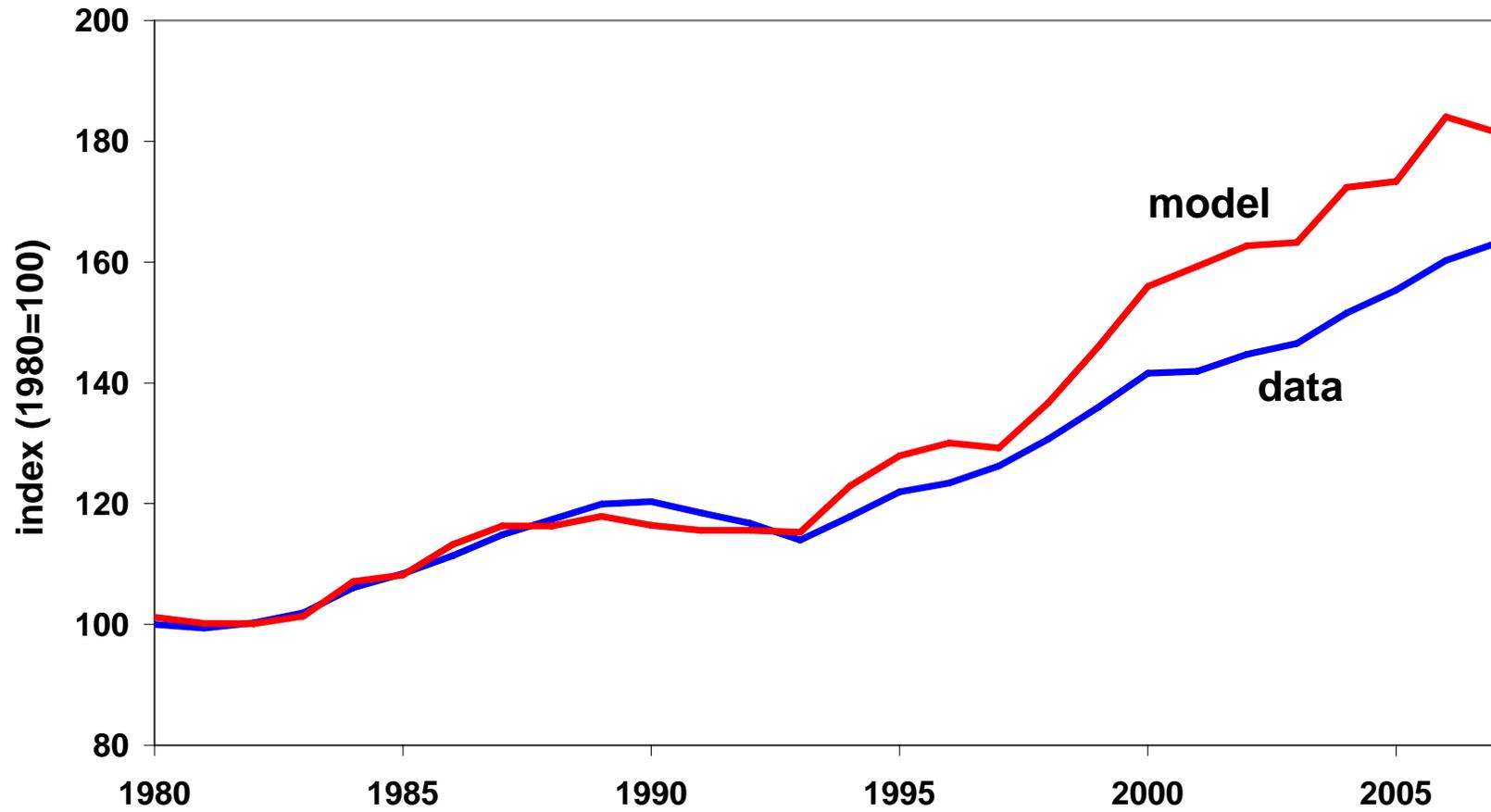
$$x_t = (1 + \gamma)^t,$$

Given parameter values, feed in $\{z\}$, compare model allocations to actual data (Kehoe, 2009)

Model fits data through banking crisis/recession of early 1990s

But afterwards, actual output significantly below model output

Real GDP per working age person in Sweden



$$\frac{Y_t}{L_t} = A_t^{\frac{1}{1-\theta}} \left(\frac{K_t}{Y_t} \right)^{\frac{\alpha}{1-\alpha}} \frac{H_t}{L_t}$$

One source of output deviation is hours worked

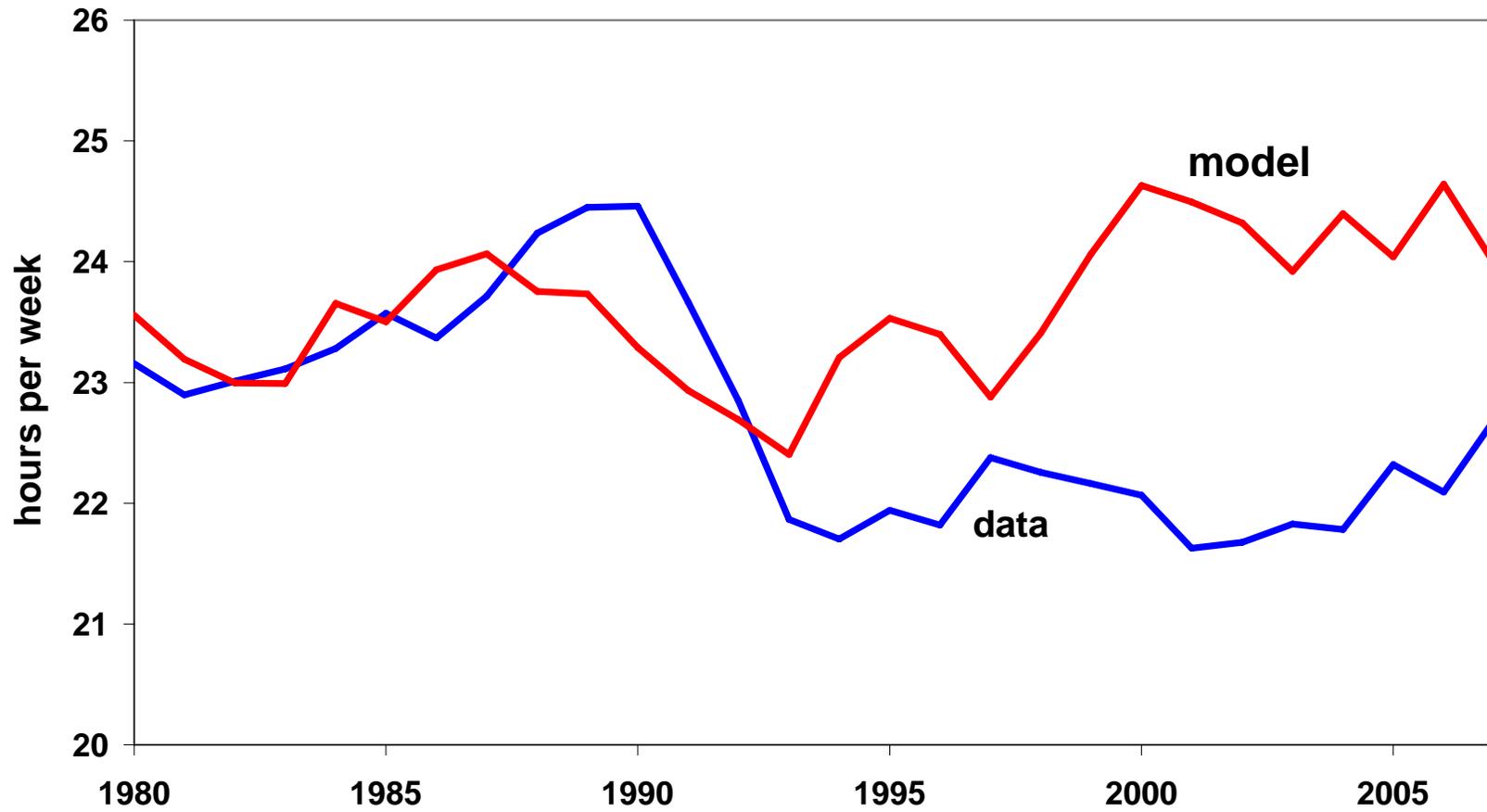
Time allocation f.o.c. doesn't fit well (but not because of taxes)

Model hours significantly above actual hours

Why aren't hours higher in Sweden?

Ramses will likely allocate some of this to labor supply shock - what might this be?

Hours worked per working age person in Sweden



Low Hours Worked in Sweden...& in Finland

Sweden and Finland

Both had banking crises in early 1990s

Both had recession/depression in early 1990s

Hours worked in both countries too low relative to theory

Chronic low hours following crisis symptom of labor market distortion

US and France in 1930s, Gorodchenko et al (2009) argue similar for Finland

Coincidence of low hours, high union wages,

But Sweden seems to be the opposite...

Wage relative to productivity is falling

Labor share of income is falling

Taxes aren't higher

Discussion

Serious, very well-executed work that is pushing frontiers in this class of models

Models are in position to conduct quantitative policy assessments

Choosing good policies and understanding implications for welfare will benefit from:

- (1) Understanding striking changes in productivity before and after crisis
- (2) Behavior of hours worked.
- (3) Accounting for long-run increases in foreign sector in model, and its related implications for competition, productivity, and other variables.