

Some Macroeconomic Puzzles: Conjectural Refutations

The Costs of Business Cycles

Professor Jagjit S. Chadha

Mercers' School Memorial Professor of Commerce

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Business Cycle Shocks are both newsworthy and memorable.

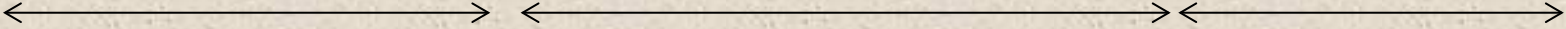
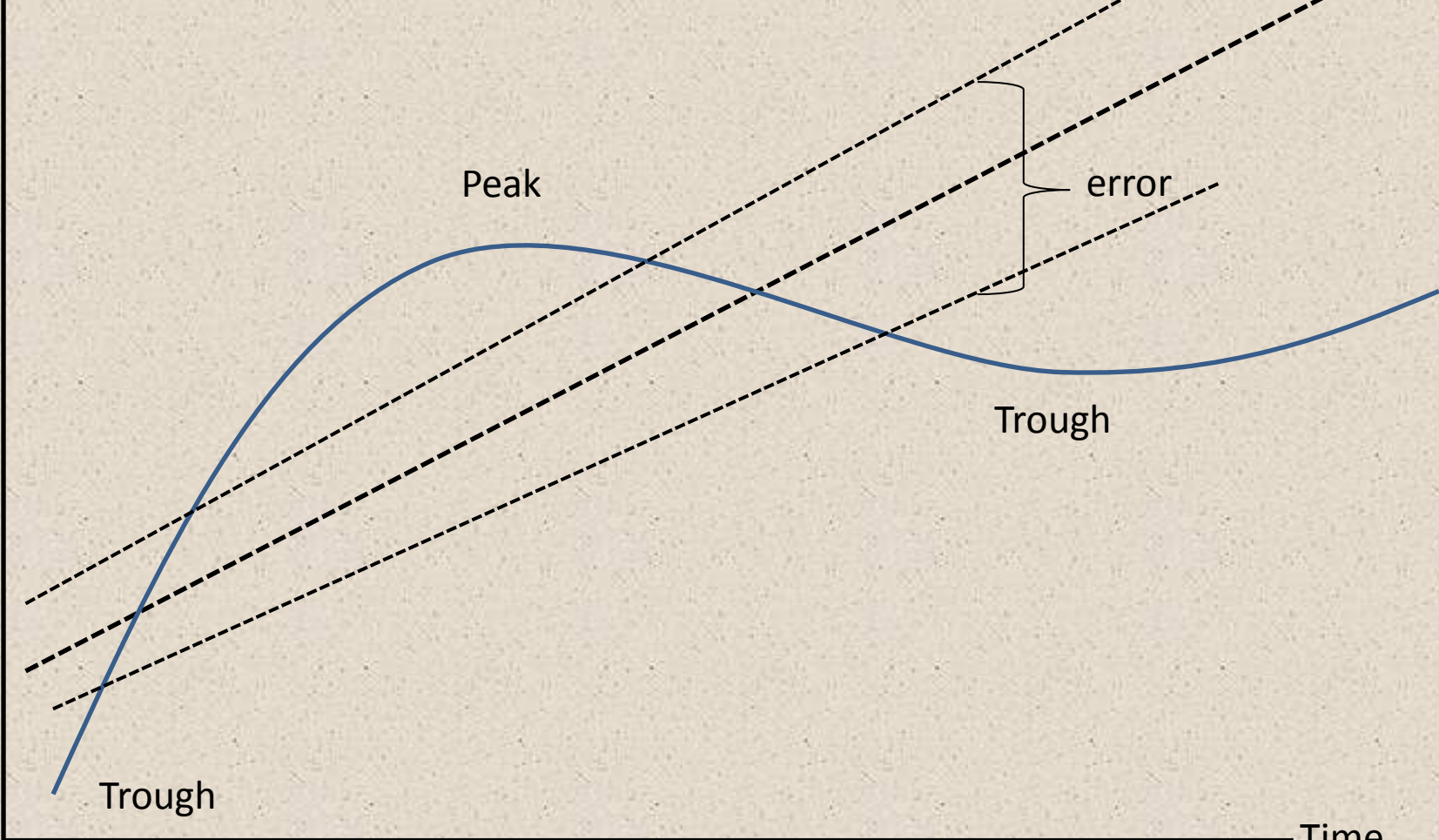
"When the next recession arrives you will find written on its bottom 'Made in Washington,' just as was the case with the last one. This is not because the Fed is a sadist or an ignoramus; nor it is because the bedrooms in the White House are occupied by politicians eager to lose elections. Rather it is like the fact that hospitals are where most people die: If the central bank and fiscal authorities did not step on the brakes of an overexuberant economy now, they might well have to overdo that later. There is never a guarantee that intelligent and feasible policies can be discovered which will lead to perpetual soft landings at high employment and a steady price level....So let me make clear that, like the below-median poor, economic instability we have always with us."

Paul Samuelson (1998).

**The Sveriges Riksbank Prize in Economic Sciences
in Memory of Alfred Nobel 1970**

The Business Cycle

Income



Expansion

Contraction

Growth Recession

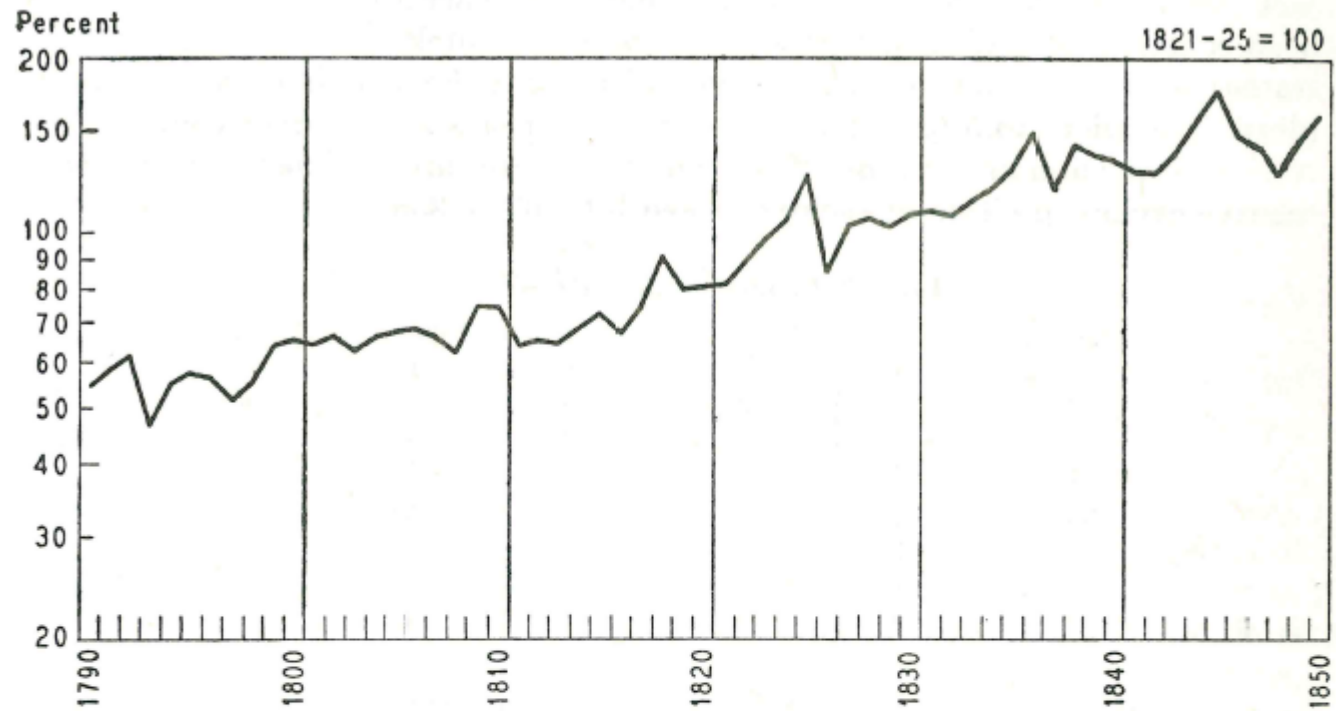


FIG. 91. Index of Business Activity

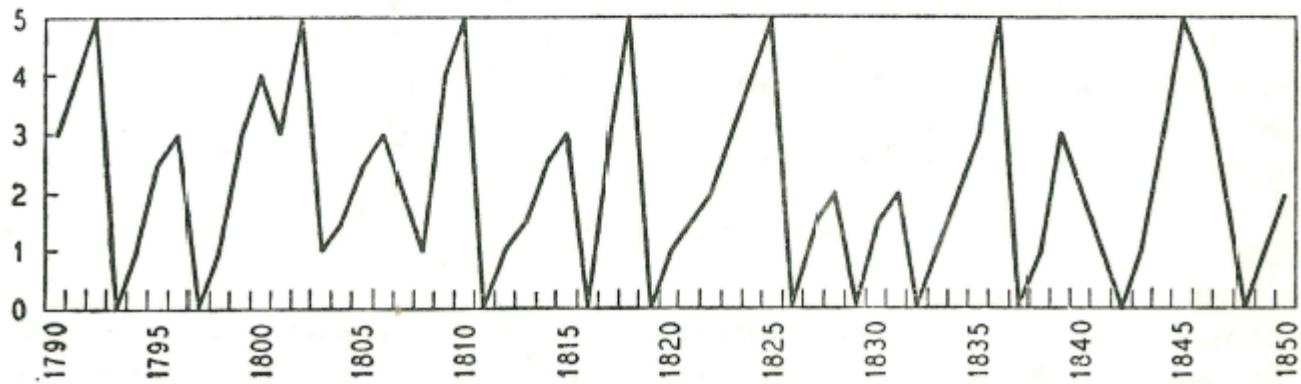


FIG. 92. Business-cycle Pattern (Abstract Scale)

British Trend and Cycle: 1790-1850 – Gayer, Rostow and Schwartz

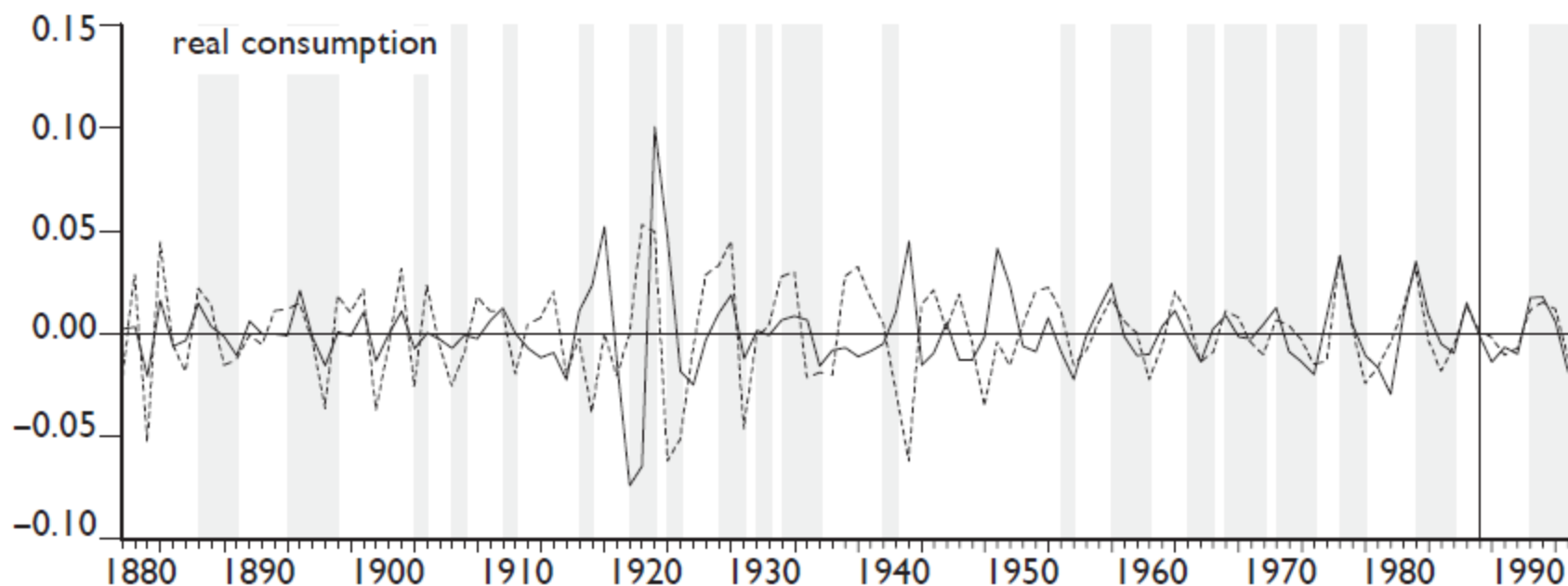
Table 1. Average length in months of UK business cycles (from 1871 onwards)

Average, all cycles:	Peak to peak	Trough to trough
1871-1997	61.48	62.81
1871-1913	79.71	78.43
1946-1997	60.75	55.63
Average peacetime cycles:		
1871-1913	79.71	78.43
1919-1939	45.4	46.6
1946-1997	60.75	55.63
Standard error, all cycles:		
1871-1997	28.80	27.80
1871-1913	32.93	33.47
1946-1997	26.54	10.68
Standard error, peacetime cycles:		
1871-1913	32.93	33.47
1919-1939	20.94	32.75
1946-1997	26.54	10.68

Source: Moore and Zarnowitz (1986) supplemented by Artis *et al.* (1995) and Dow (1998). See Annex A in Chadha, Janssen and Nolan (2000b) for table of dates.

Business Cycles last around 5 years +/-2 years! Except when they don't.

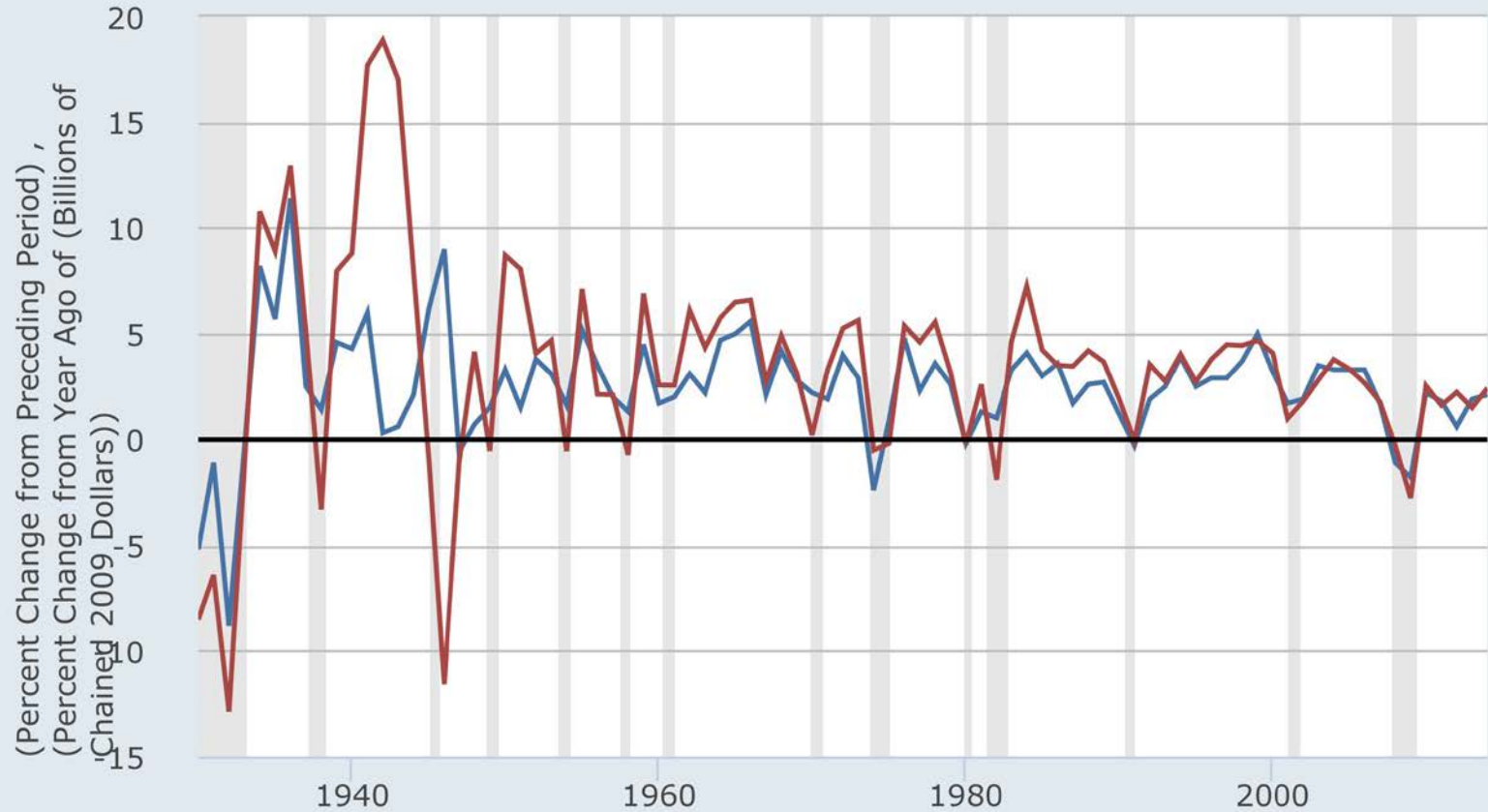
Chart 1A. Output (dotted) with consumption -Baxter-King



Note: The last complete business cycle identified by these methods was completed in 1989. This is indicated by the vertical line on charts 1A-9.

Over the Long Run consumption moves closely with income but with around 50% less variability.

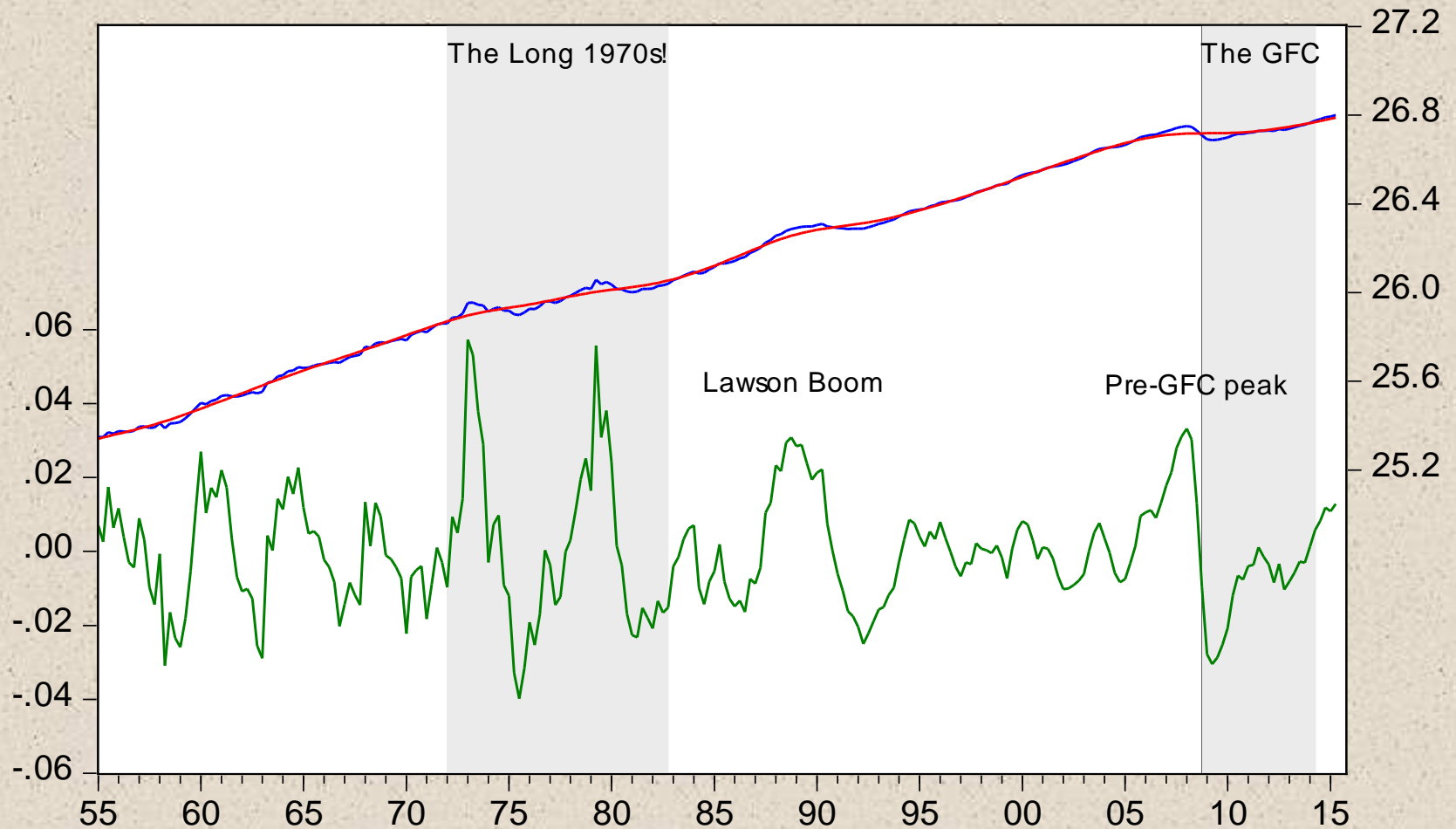
- Real Personal Consumption Expenditures: Goods: Nondurable Goods
- Real Gross Domestic Product



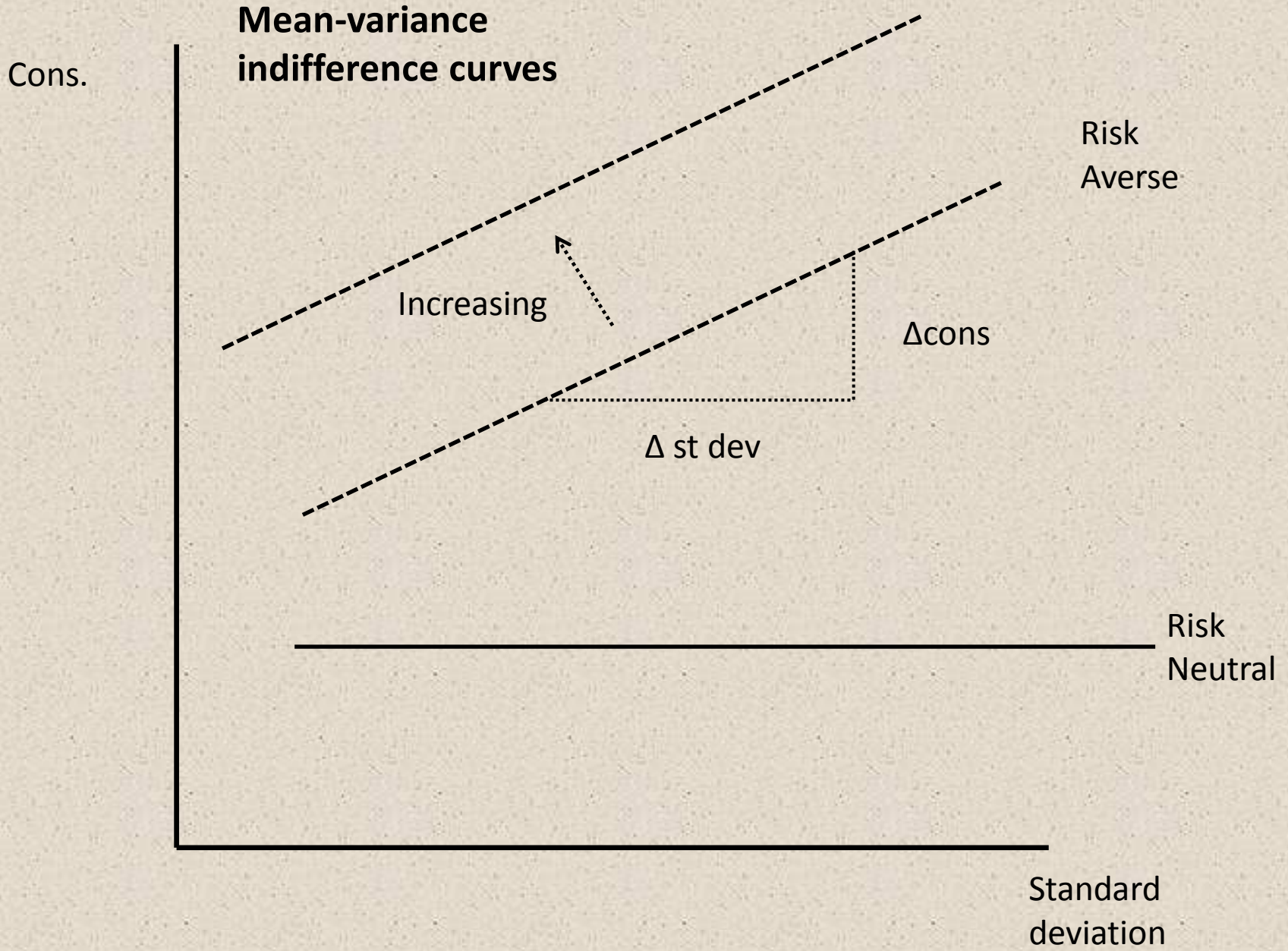
Shaded areas indicate US recessions - 2015 research.stlouisfed.org

A very similar story for the US from 1930.

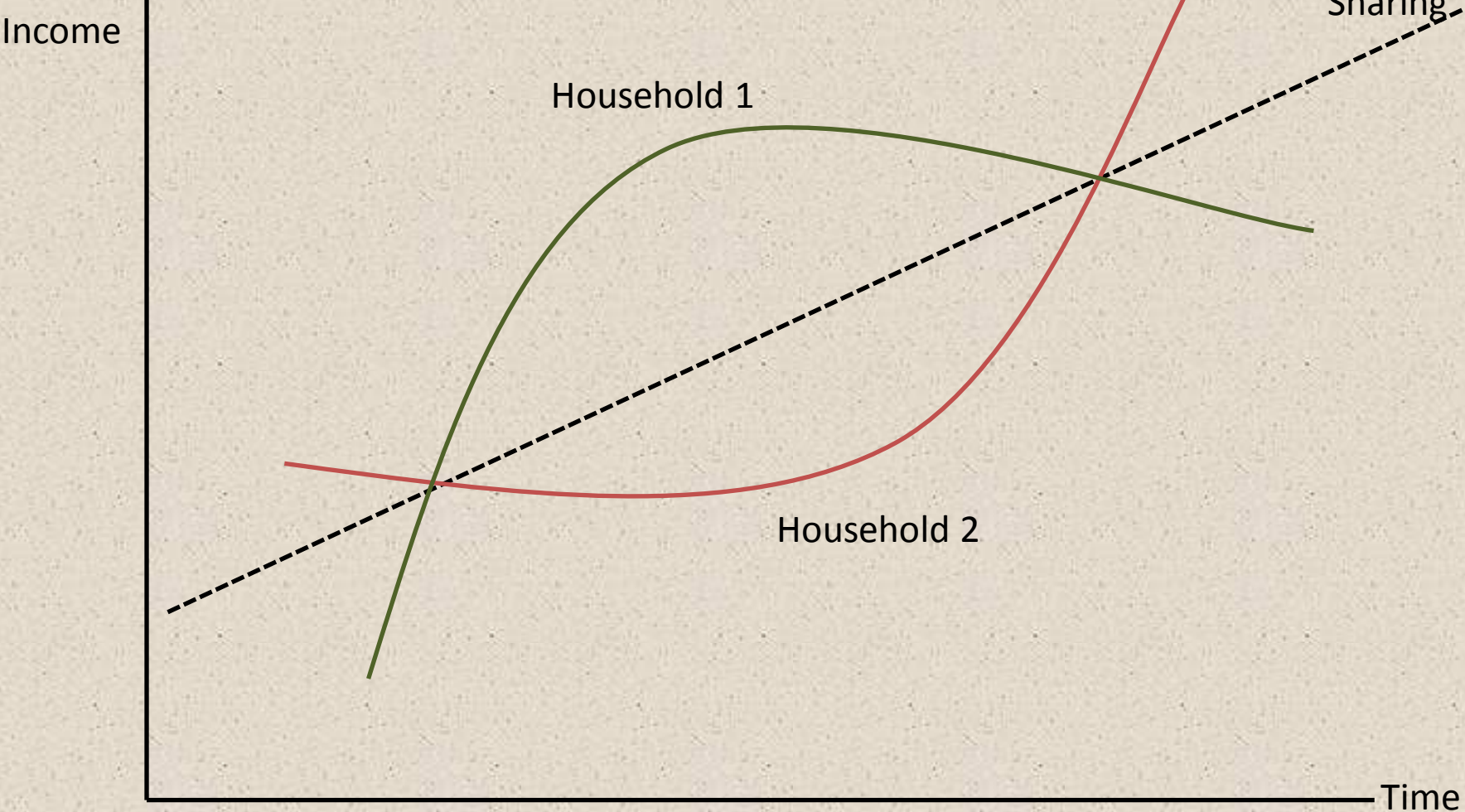
A Non-Unique Trend-Cycle Decomposition UK GDP 1955Q1-2015Q2



The more recent past continues to have business cycle-like behaviour
What is permanent and what is temporary?

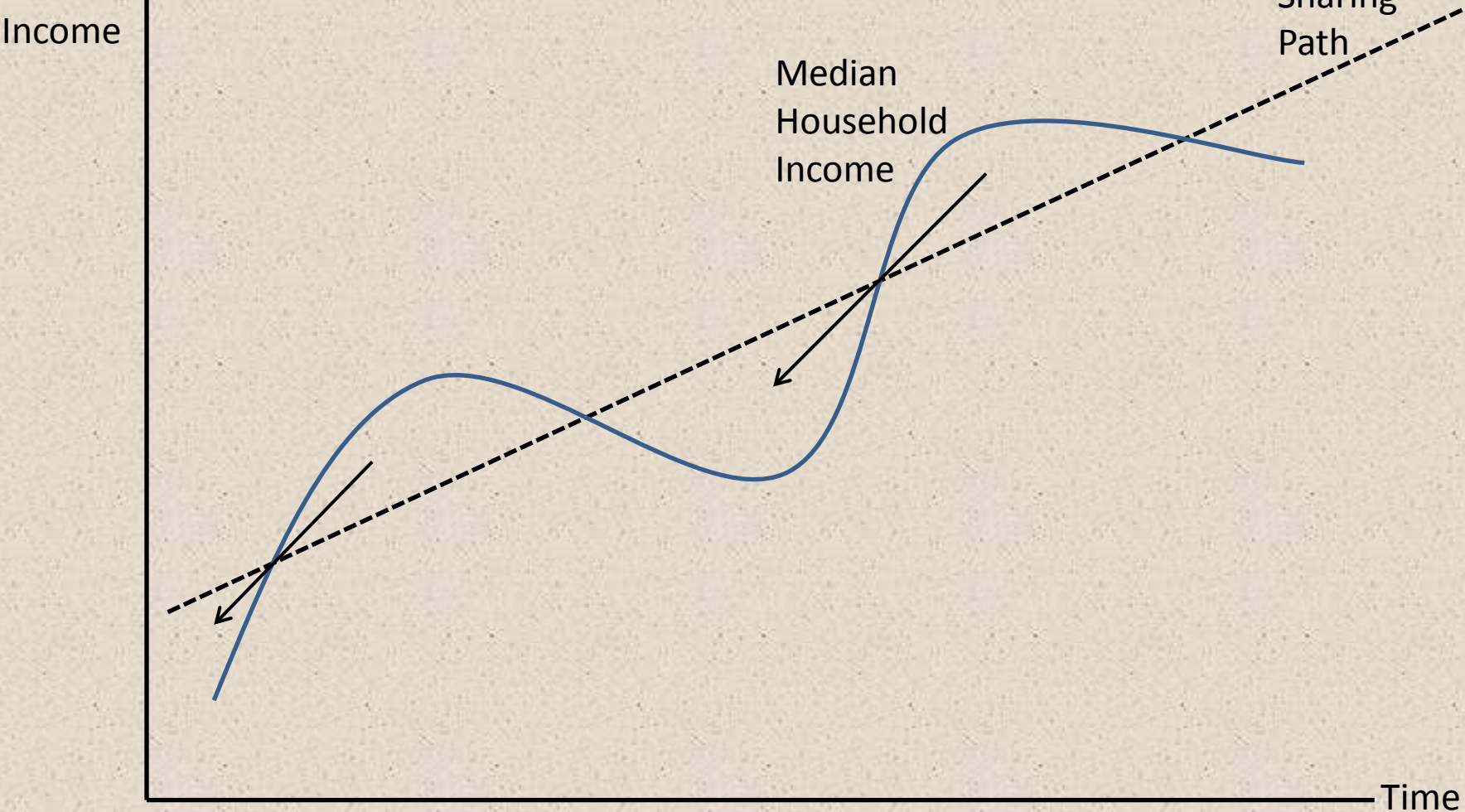


Intra-temporal Risk Sharing



How to share manna from heaven....

Intertemporal Risk Sharing

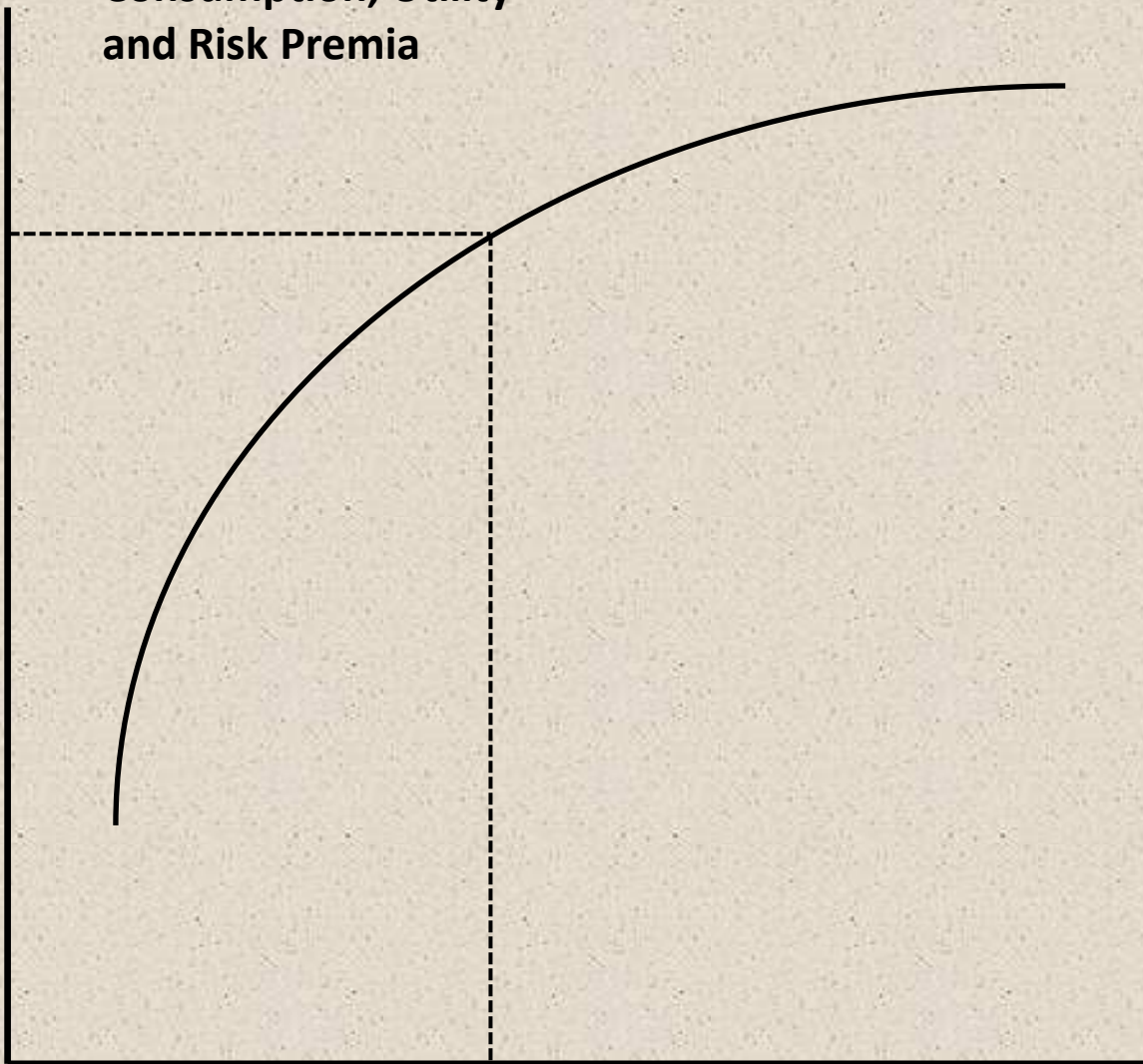


How to deal with uncertainty over time in manna-flows

Consumption, Utility and Risk Premia

UTILITY

$U(C)^A$



100

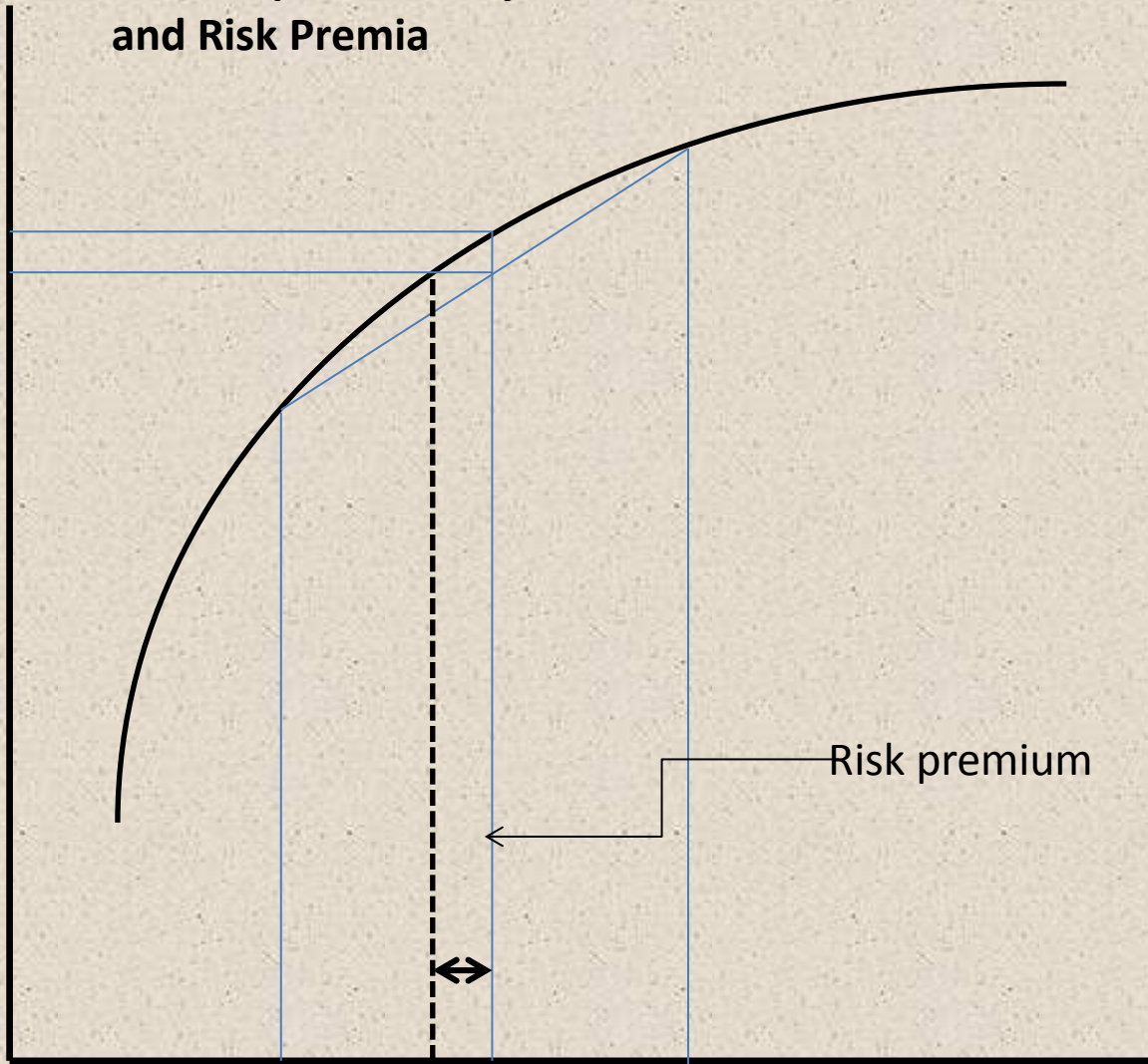
CONSUMPTION

Mapping from consumption to utility
(happiness)

Consumption, Utility and Risk Premia

UTILITY

$U(C)^A$



Risk premium

50

$E(100)$

150

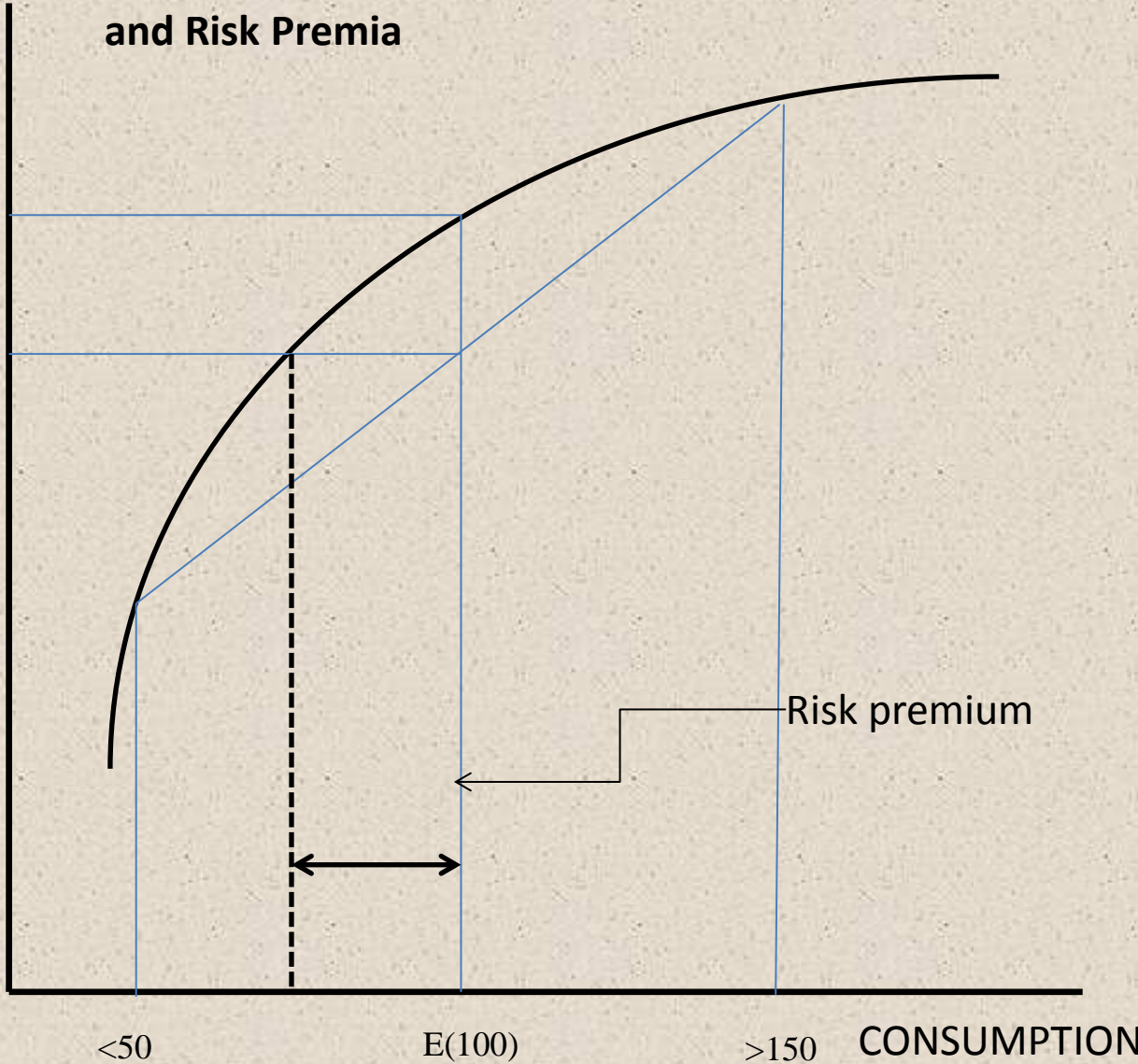
CONSUMPTION

How to determine the risk premium

Consumption, Utility and Risk Premia

UTILITY

$U(C)^A$



Risk premium

<50

$E(100)$

>150

CONSUMPTION

What makes the risk premium change

The Lucas Costs of Business Cycles

$$U(\bar{c}) = \frac{\bar{c}^{1-\rho}}{1-\rho}$$

where \bar{c} = average consumption and ρ measures risk aversion.

$$E[U(\bar{c})] \approx \frac{\bar{c}^{1-\rho}}{1-\rho} - \frac{\rho}{2} \bar{c}^{-\rho-1} \sigma_{\bar{c}}^2$$

$$\frac{[\frac{\rho}{2} \bar{c}^{-\rho-1} \sigma_{\bar{c}}^2 / U'(\bar{c})]}{\bar{c}} = \frac{\rho}{2} \left(\frac{\sigma_{\bar{c}}}{\bar{c}} \right)^2$$

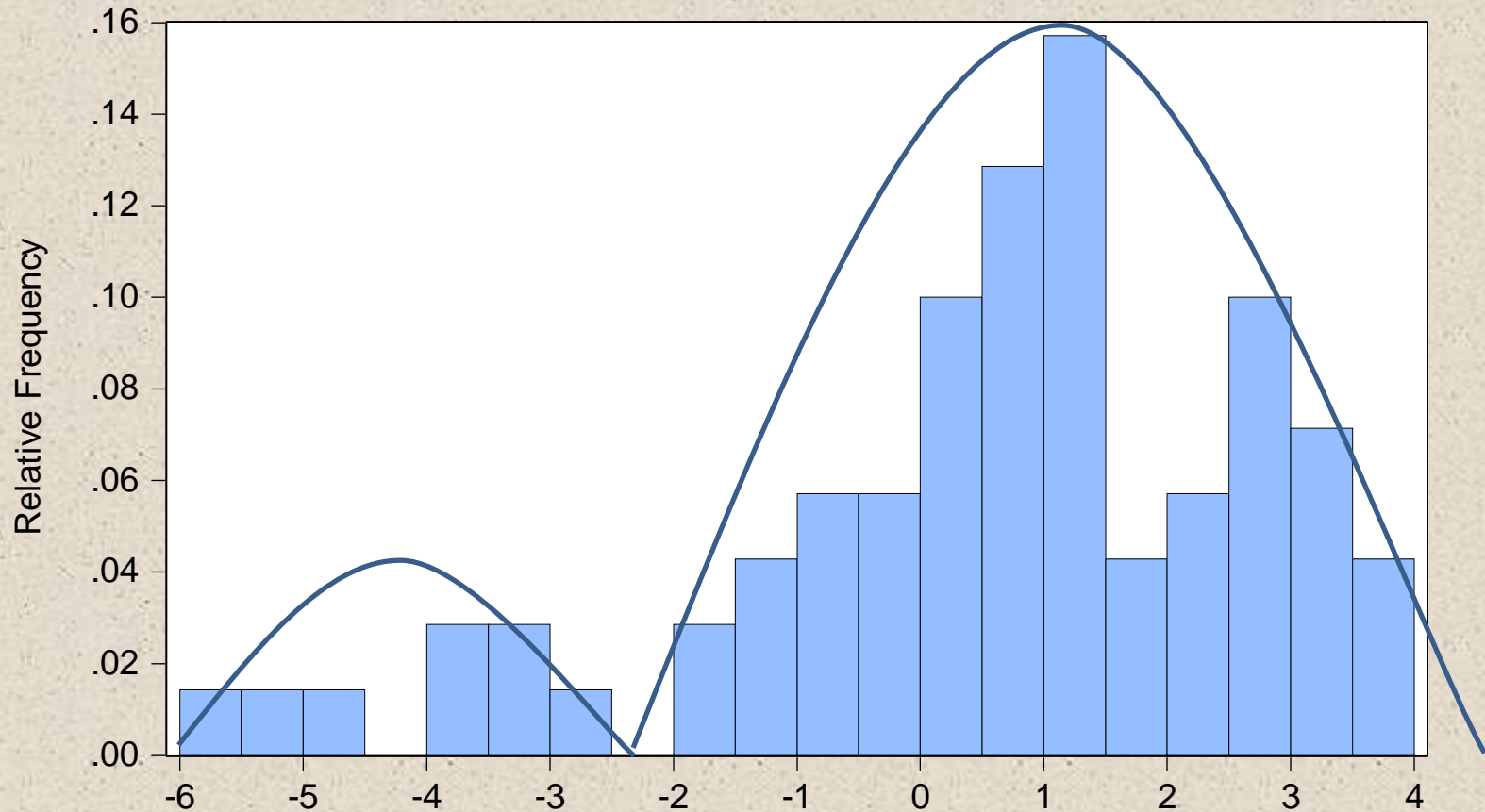
$$\frac{\rho}{2} \left(\frac{\sigma_{\bar{c}}}{\bar{c}} \right)^2 = \frac{4}{2} (0.03)^2 = 0.2\% \bar{c}$$

- If \bar{c} is \$30,000 then the costs of business cycle fluctuations is only around \$30 per year!

Why this calculation is Wrong...

- US and UK consumption standard deviation is 2-3%
- Is the median household the unit of account?
- How about high or low income groups?
- What if monetary and fiscal policy, and other institutions have done their jobs?
- Is the standard deviation of the average accurate? What about the average standard deviation of all households consumption?
- What if there are permanent effects on income of any one household or on the average household from business cycle shocks?

UK consumption 1998q1-2015q2



Variance (consumption of all households)=
Average variance of all households + Variance of the average
Most measures miss the first argument on the rhs.

Concluding Remarks

- William Beveridge's 1944 call for 'Full Employment'
- Incidence of words like recession, boom and bust in our common language
- We do not want to pay twice for insurance because policy has already done the job..
- The risk faced by certain households may be significant and the risk premium not affordable
- Deep preferences about attitude to risk
- Perhaps we are all pretty average but think we are exceptional!