

The rate of profit and Okishio

A photograph of a port with large orange and white gantry cranes in the foreground and a snow-capped Mount Fuji in the background under a clear blue sky.

Cockshott & Zachariah

What is it?

Theorem by the Japanese Marxian economist Okishio:

If you have


1. An economy with equalized rates of profit
2. Constant real wages
3. The opportunity for balanced growth

Then any cost-saving technical change for a capitalist will raise the rate of profit in the economy as a whole.

(See Wikipedia for an adequate popularization.)

Why is it controversial?

It was seen as *contradicting* a generally accepted presentation of Marx's theory of a falling profit rate.



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As an individual capitalist *invests* in more capital-intensive techniques, this would give him more profit. But once generalised, the process would raise the capital-to-labour ratio and *lower* the average rate of profit in the economy

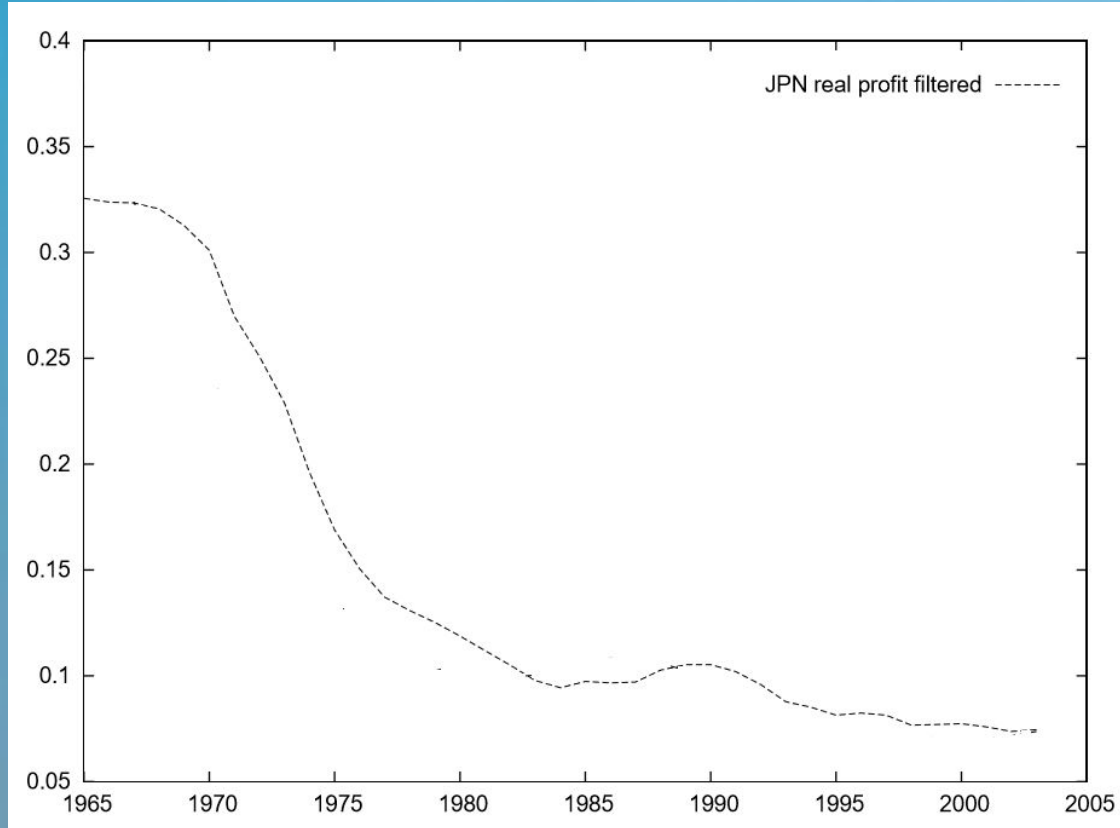
What about the evidence?

Graphs shows the actual rate of profit in Japan over 40 years after his paper.


Average rate rate clearly falls.

It falls a great deal.

What gives?



Let's look at those assumptions

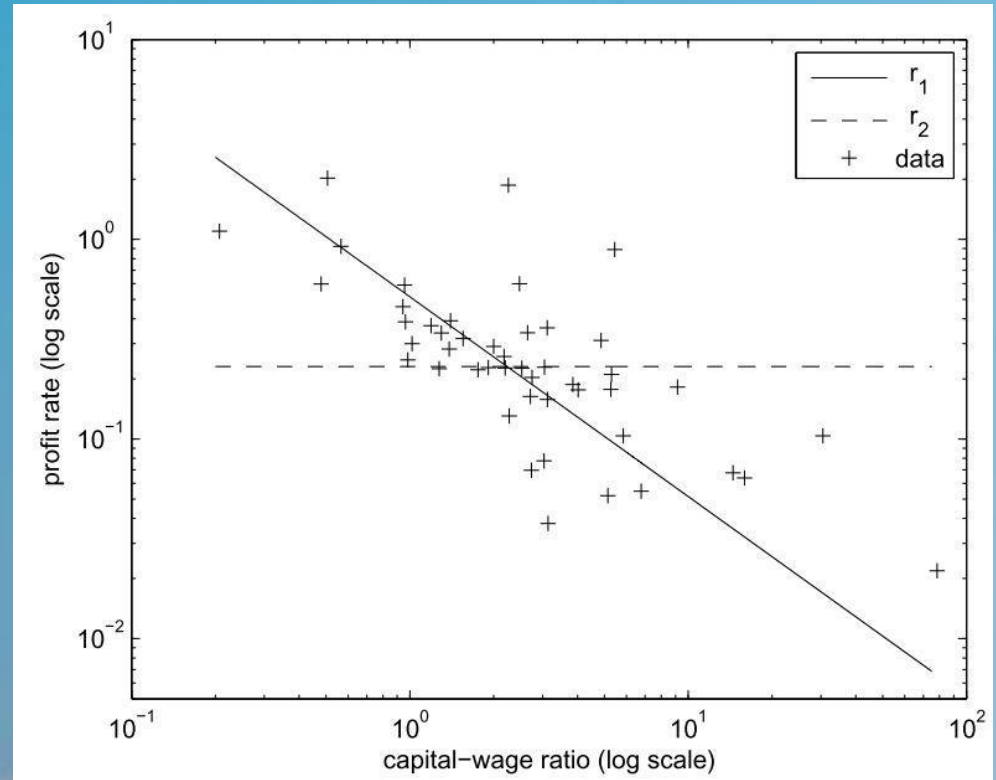
1. An economy with equalized rates of profit
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1. Equalized rates of profit? No!

Actual rates of profit are *not* equalized

Capital-intensive industries systematically experience lower rates of profit.

So one key *assumption* of the Okishio theorem is *false*

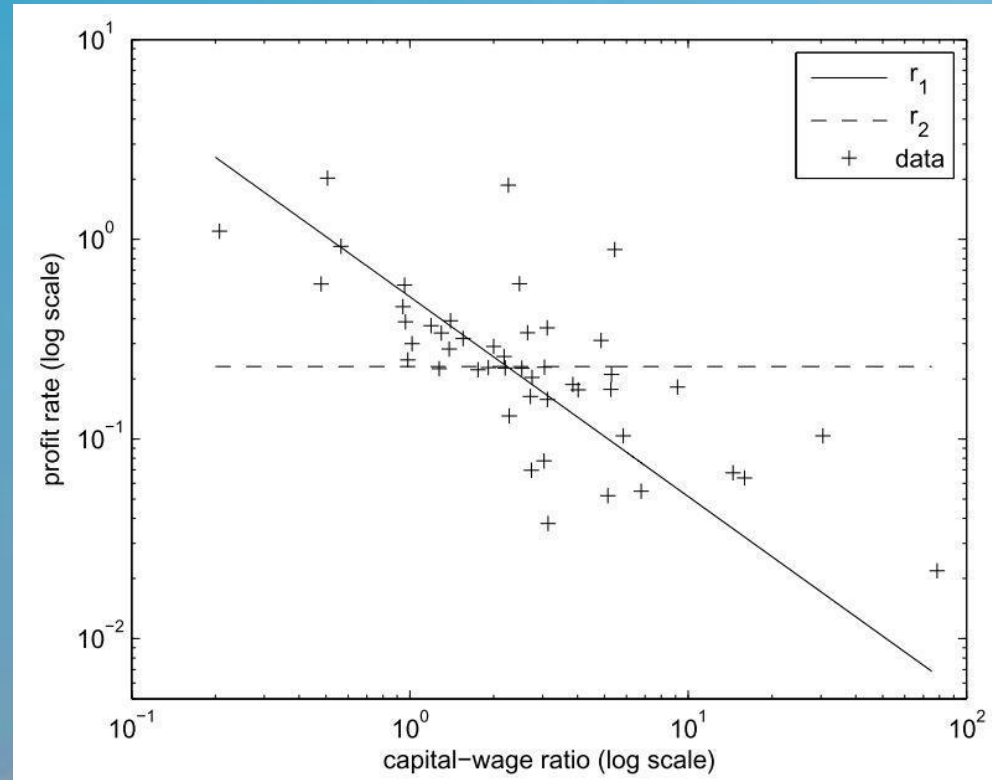


1. Equalized rates of profit? No!

Okishio himself admits this :
“the theorem is a form of comparative statics, a comparison between an old equilibrium and a new equilibrium. This *does not have much meaning* if the new equilibrium is *not established*.”

“Whether it is or not *depends on whether competition among capitalists leads to the situation where profit rates are equalised in every sector*. Many people have tried unsuccessfully to prove the convergence on production prices thus implied”

Okishio, N. "Competition and production prices." *Cambridge Journal of Economics* 25.4 (2001): 493-501.



Implications for capitalist investment

Lacking equalized profit rates, capitalists *cannot* use the average profit rate to make investment decisions.

The interest rate is the *only* general rate available for calculation.

In addition, capitalists only know what their own firm makes, and perhaps the profit rate foreseen in another line of production they are invited to invest in.

Example

Current Bank of Japan base interest rate is -0.1%

Thus any business that offers even a slight positive profit rate would be *preferable* to leaving money in the bank.

Suppose a capitalist's current capital stock earns 4% per annum. Investing in new line of production at 1% per annum would still be rational over saving the money in the bank.

Example

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Thus any business that offers even a slight positive profit rate would be *preferable* to leaving money in the bank.

In contrast to Okishio's assumptions, investment could then also flow into sectors with lower-than-average profit rates!

2. Constant real wage? No!

In actual fact real wages *rose* in Japan from 1961 to 2001.

In his 2001 paper, Okishio says that if you have competition between capitalists to employ labour, the rate of profit will decline to zero.

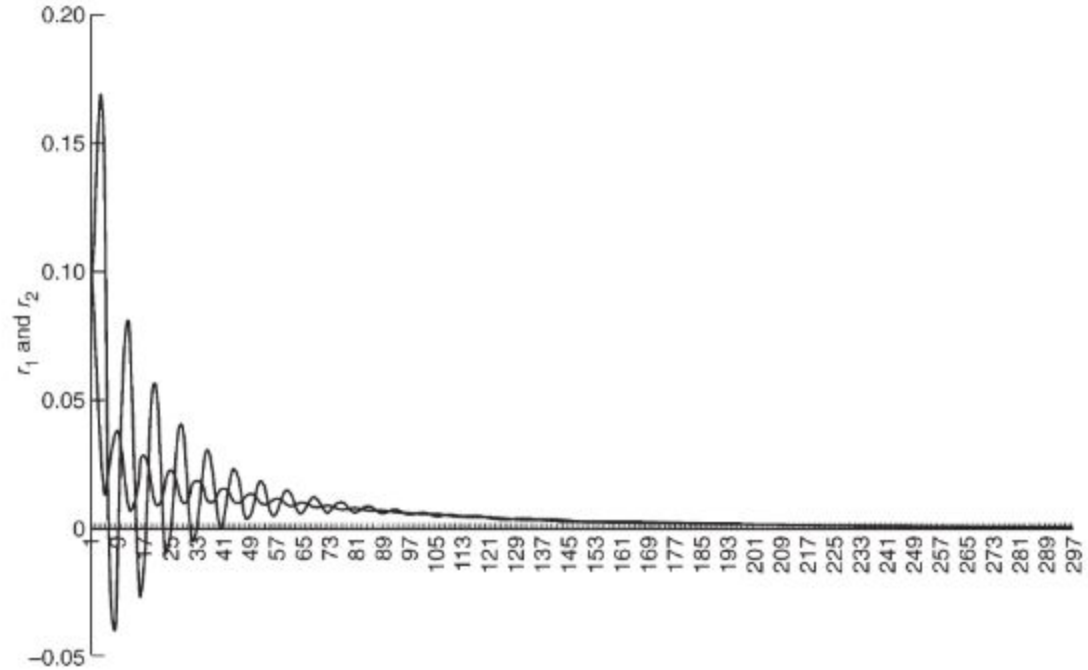


Fig. 2. Convergence of profit (r_1 , r_2) to zero.

Von Neumann, J. "A model of general economic equilibrium." *Readings in the Theory of Growth*. Palgrave Macmillan, London, 1971. 1-9.

3. Balanced growth? No!

What is balanced growth?

Goes back to von Neumann theory of growth:

- Equal expansion rate across all industries
 - Equal growths of capital stock and of employment
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Japanese growth constrained by population

Japan has almost *no* immigration,
and a *declining* birth rate.

In consequence balanced growth
is *impossible*, due to limit to labour
supply and an aging population.

Japanese population shrinking by
about half a million a year now.

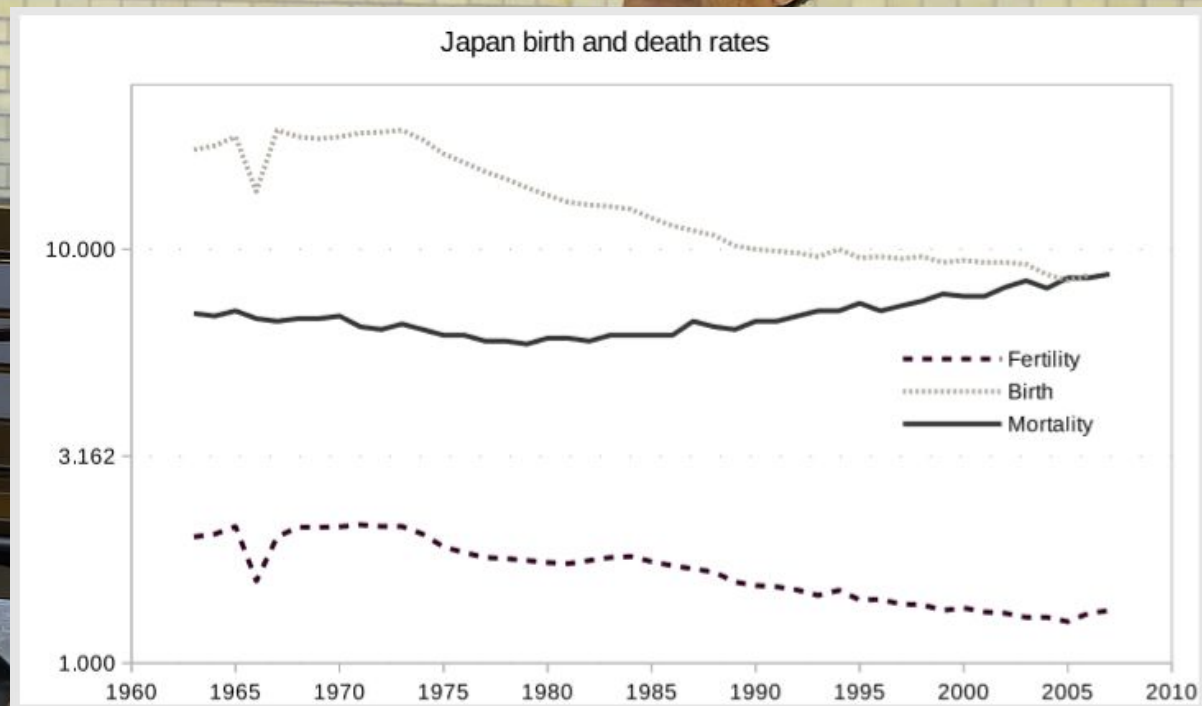


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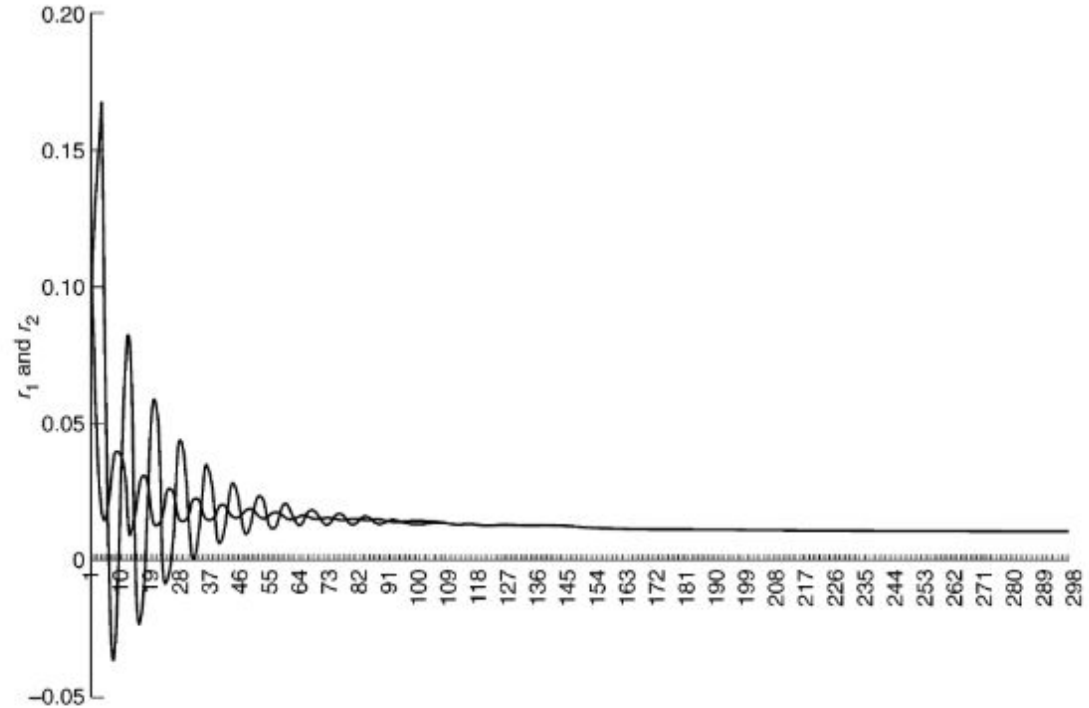
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Okishio and population growth

Okishio showed that if the rate of growth of the population is 1%, then the rate of profit will converge to 1%



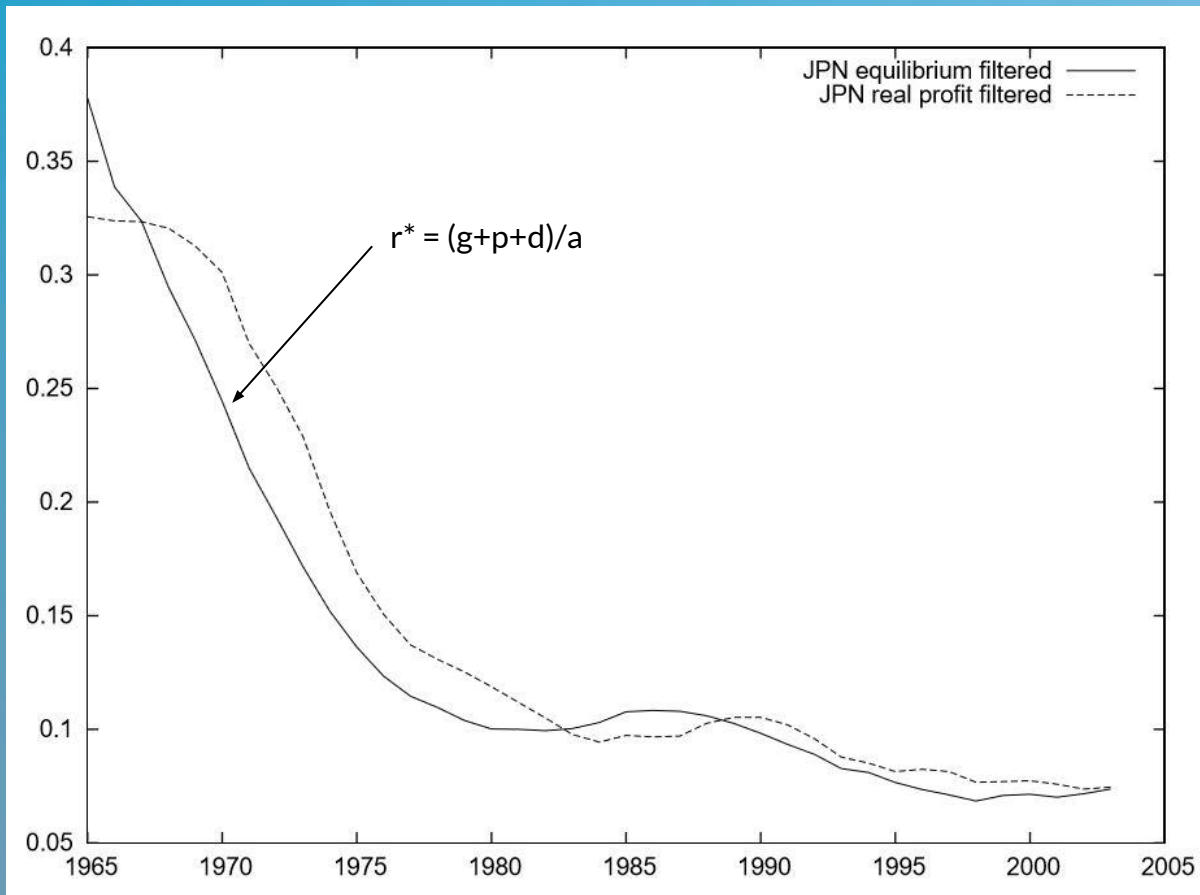
Zachariah and Cockshott

Using a stochastic labour theory of value, we can derive a more *general* formula for the trajectory of the average rate of profit:

$$r^* = (g+p+d)/a$$

where

- g = growth of workforce
- p = growth of labour productivity
- d = depreciation rate,
- a = share of surplus being reinvested



r^* almost exactly replicates actual trend of Japanese profit rate!

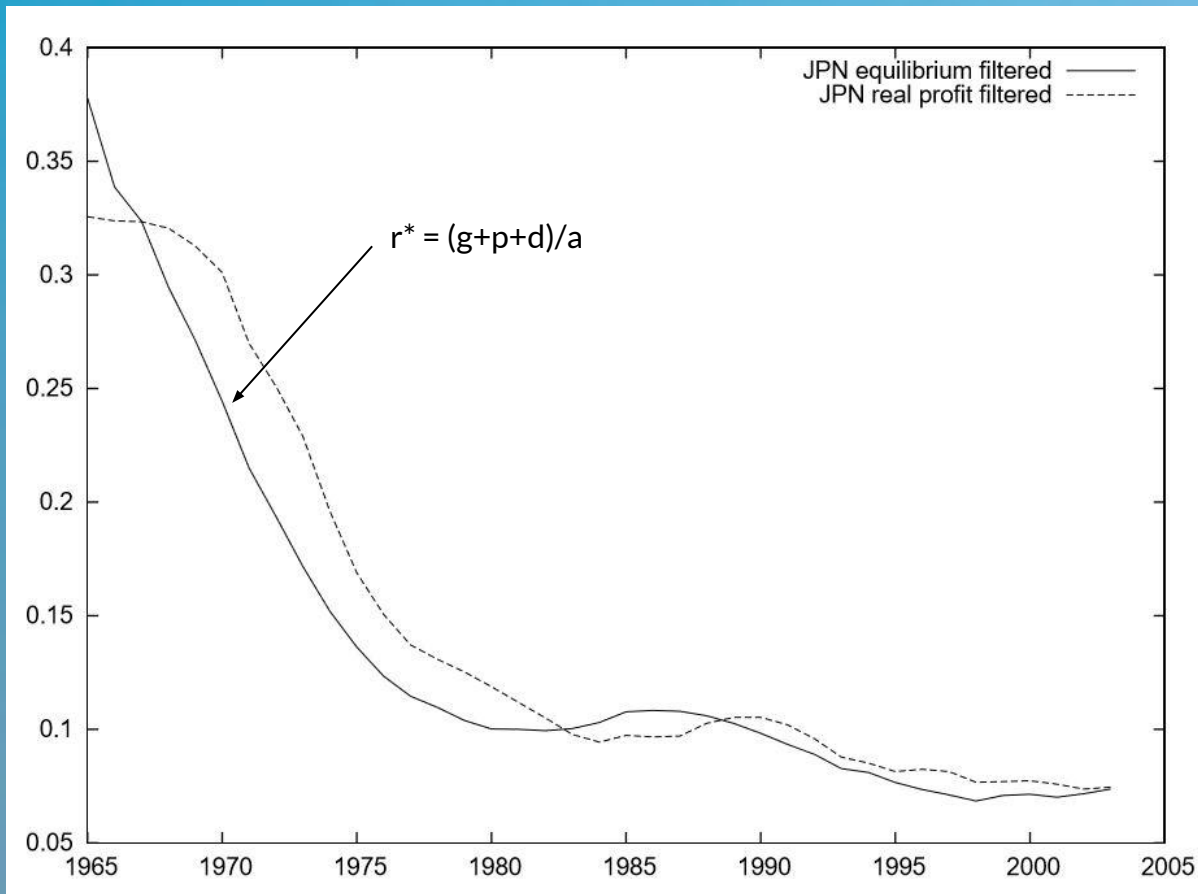
Zachariah and Cockshott

A more general formula for the trajectory of the average rate of profit:


$$r^* = (g+p+d)/a$$

Note: The long-run trajectory of the average profit rate is *independent* of rate of surplus value (> 0) !

Zachariah, D. "Determinants of the average profit rate and the trajectory of capitalist economies", *Bulletin of Political Economy*, vol. 3, no. 1 (2009).



Lessons for scientific socialists

1. Always look at the *assumptions* of a theory.
 2. Check against *empirical* reality
 3. See what *corrections* the author herself introduces for different assumptions
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Insights for scientific socialists

- The falling average rate of profit is *not* an issue of choice of technique
 - It is an issue of *accumulation* at the level of society as a whole
 - Is the capital stock rising faster than the population?
 - If so, the profit rate will *fall*
 - If the reverse, profit rate will tend to *rise*
 - You can not separate historical materialism from human reproduction and *demography*
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