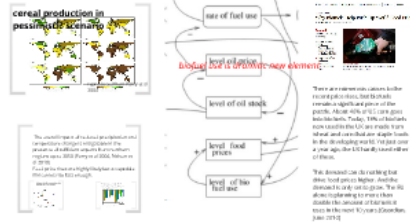
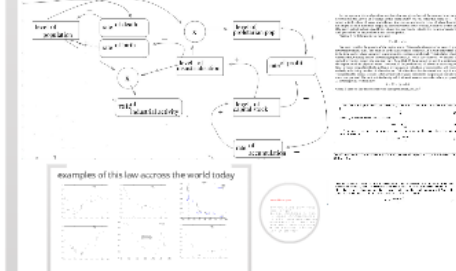


World System

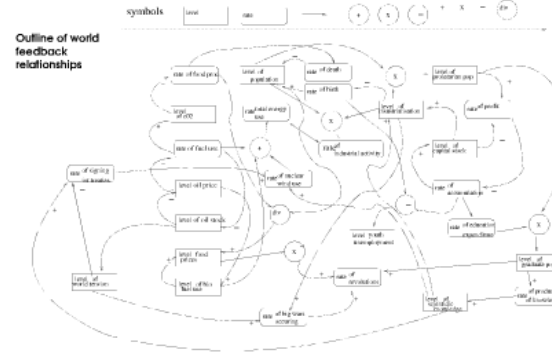
Energy atmosphere system



Profit system



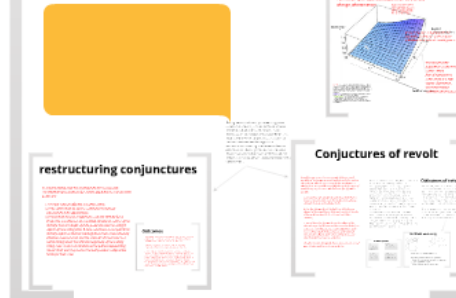
Overview of loops



The energy/politics system

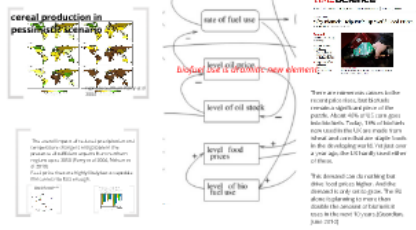


Revolt system

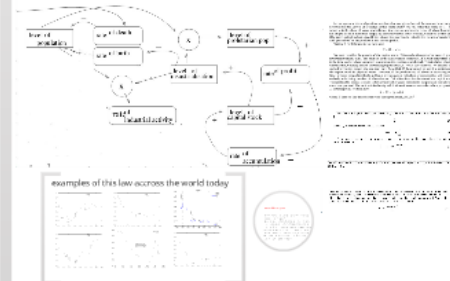


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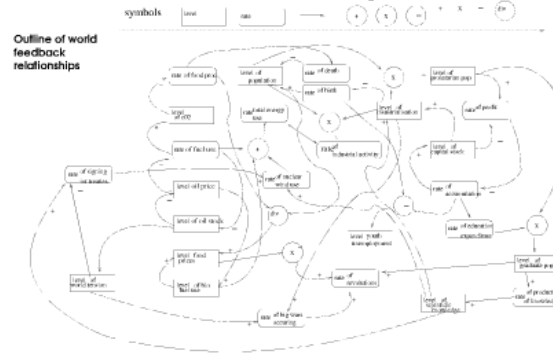
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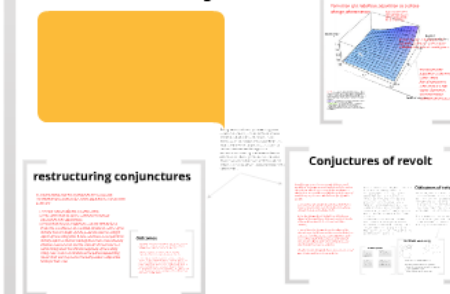
Overview of loops



The energy/politics system



Revolt system



Overview of loops

symbols

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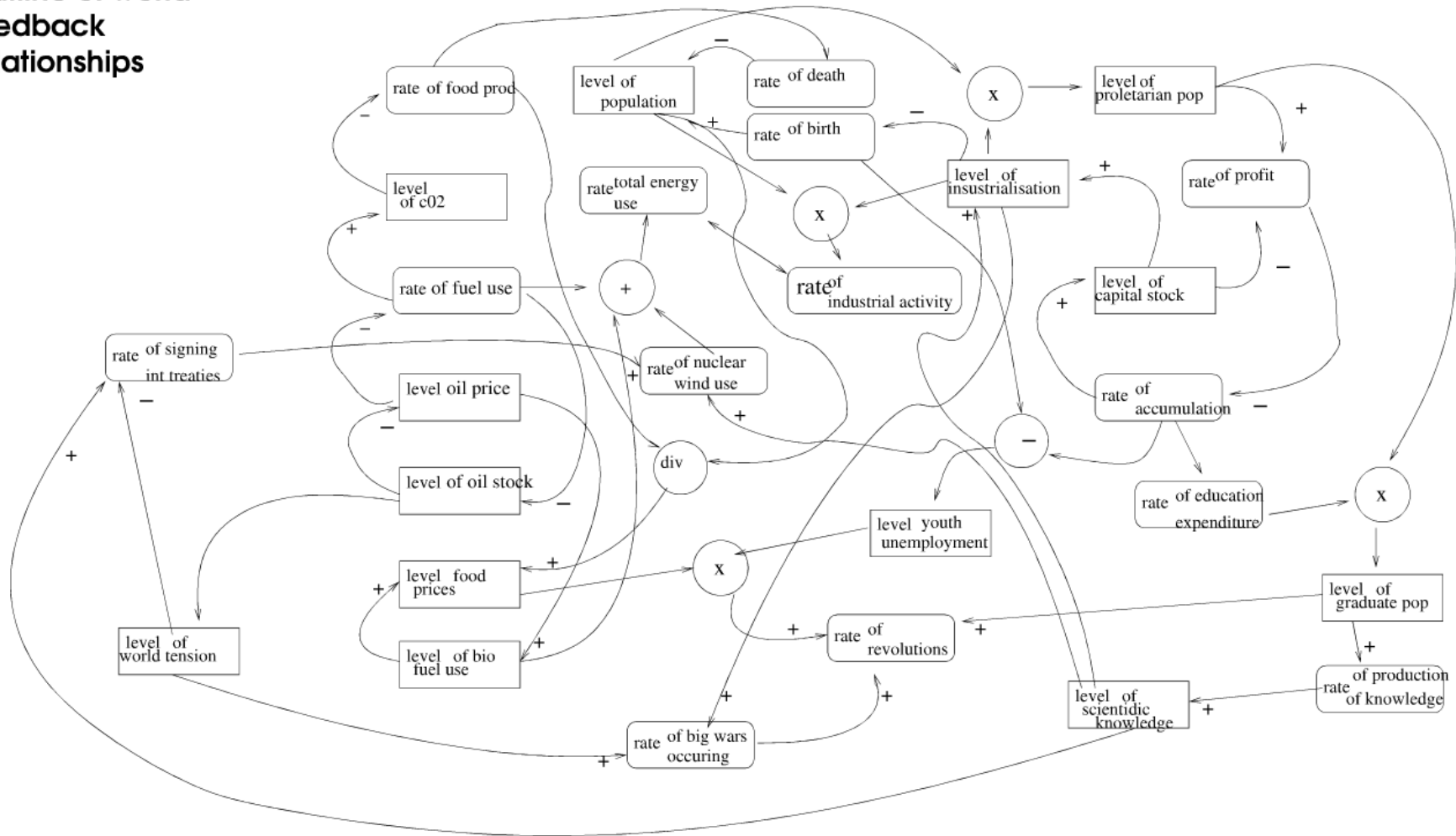
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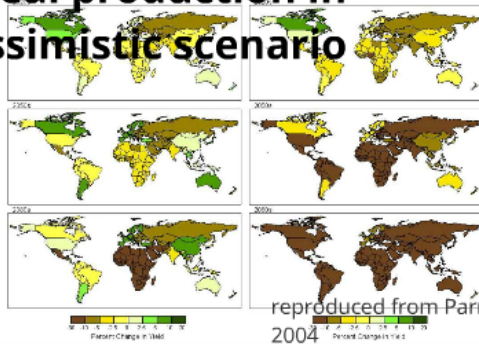
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Outline of world
feedback
relationships



Energy atmosphere system

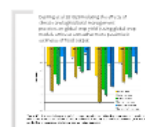
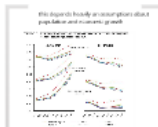
cereal production in pessimistic scenario



reproduced from Parry et al 2004

The overall impact of reduced precipitation and temperature change is mitigatable in the presence of sufficient exports from northern regions up to 2050 (Parry et al 2004, Nelson et al 2010)

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Why Biofuels Help Push Up World Food Prices

By BRYAN WALSH Monday, Feb. 14, 2011

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A man fills up his car's gas tank with ethanol in Munich. Andrew Gersh / OPA / Corbis

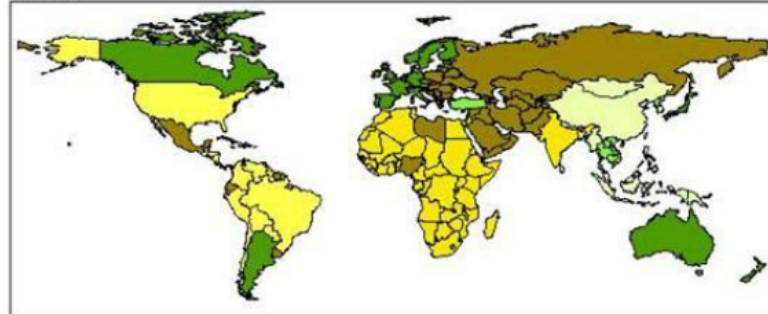
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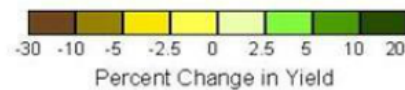
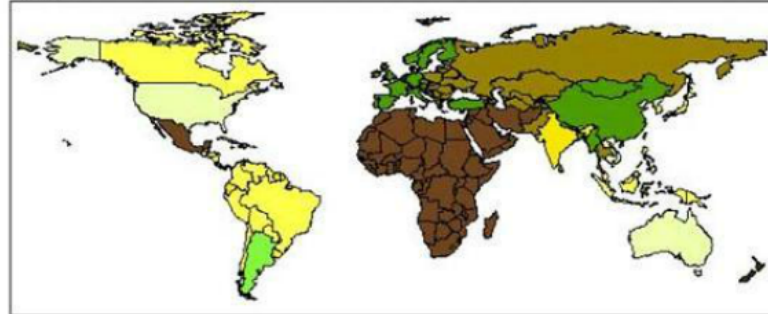
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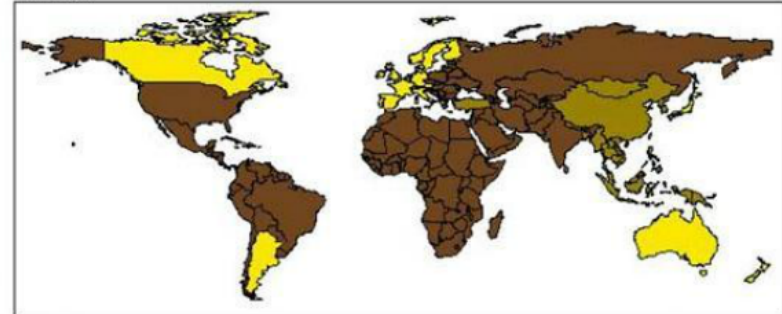
2050s



2080s



2050s



2080s



reproduced from Parry et al
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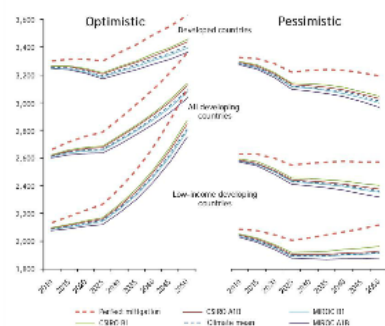


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this depends heavily on assumptions about population and economic growth

Figure 3.1 Assessing the impacts of climate change and economic development on food security (average kcal/day)



Deyring et al 2010, (Simulating the effects of climate and agricultural management practices on global crop yield) using global crop models arrive at somewhat more pessimistic estimates of food output

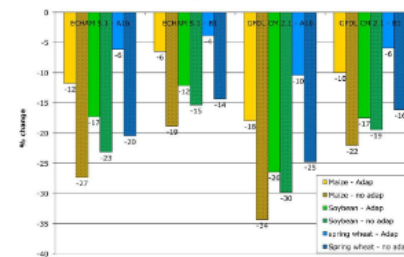
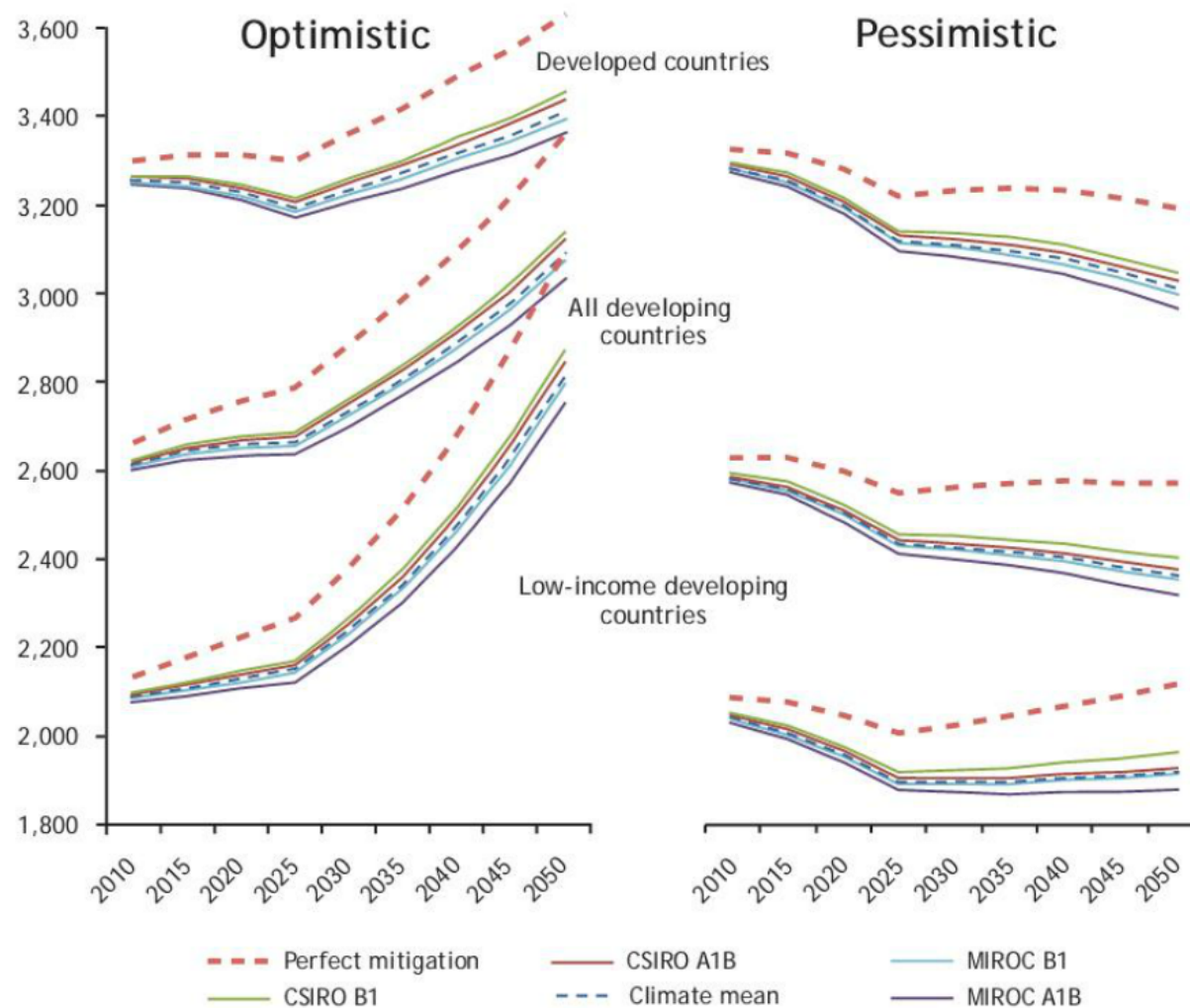


Figure 10. Estimated changes in global average crop yield by 2050 using temperature and precipitation simulations from two GCMs (ECHAM 5.1 and GFDL CM 2.1), two emissions scenarios (A1b and B1), and for the two scenarios of planting and harvesting decisions.

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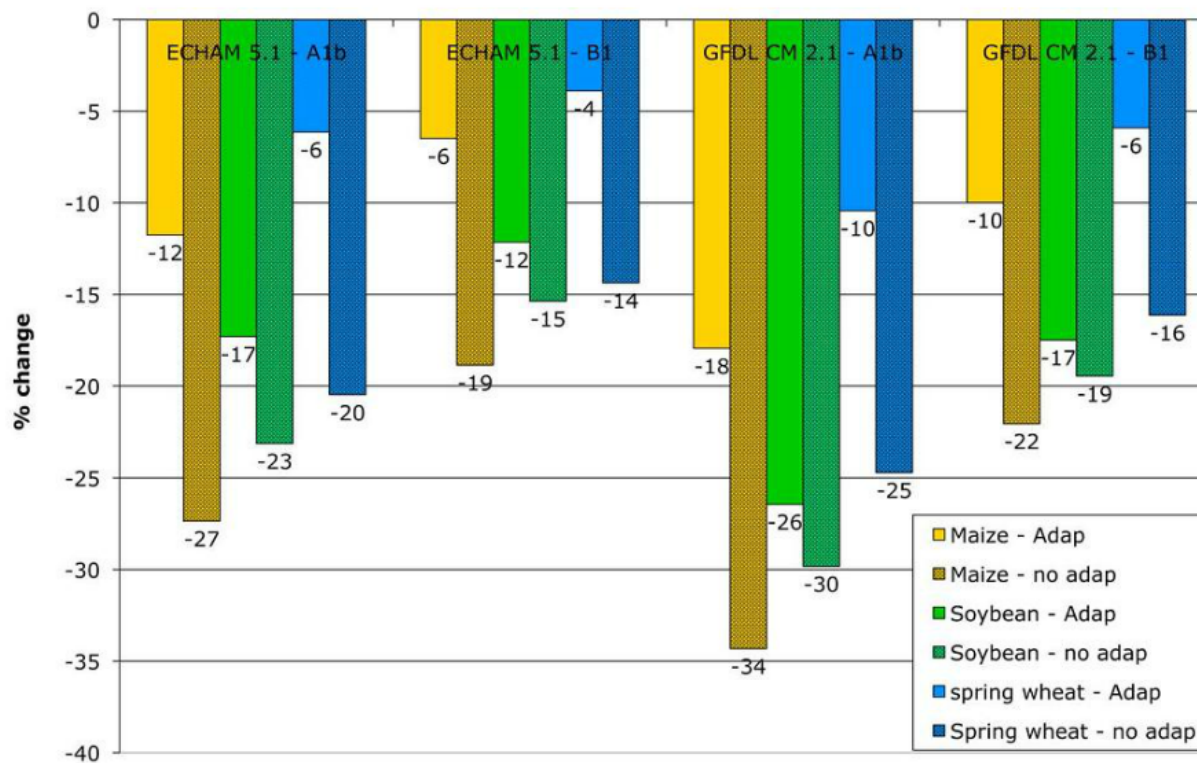
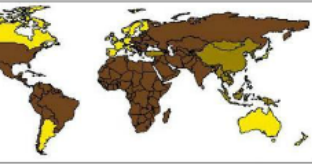
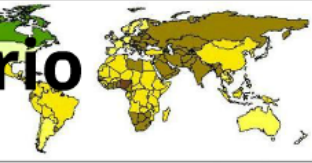


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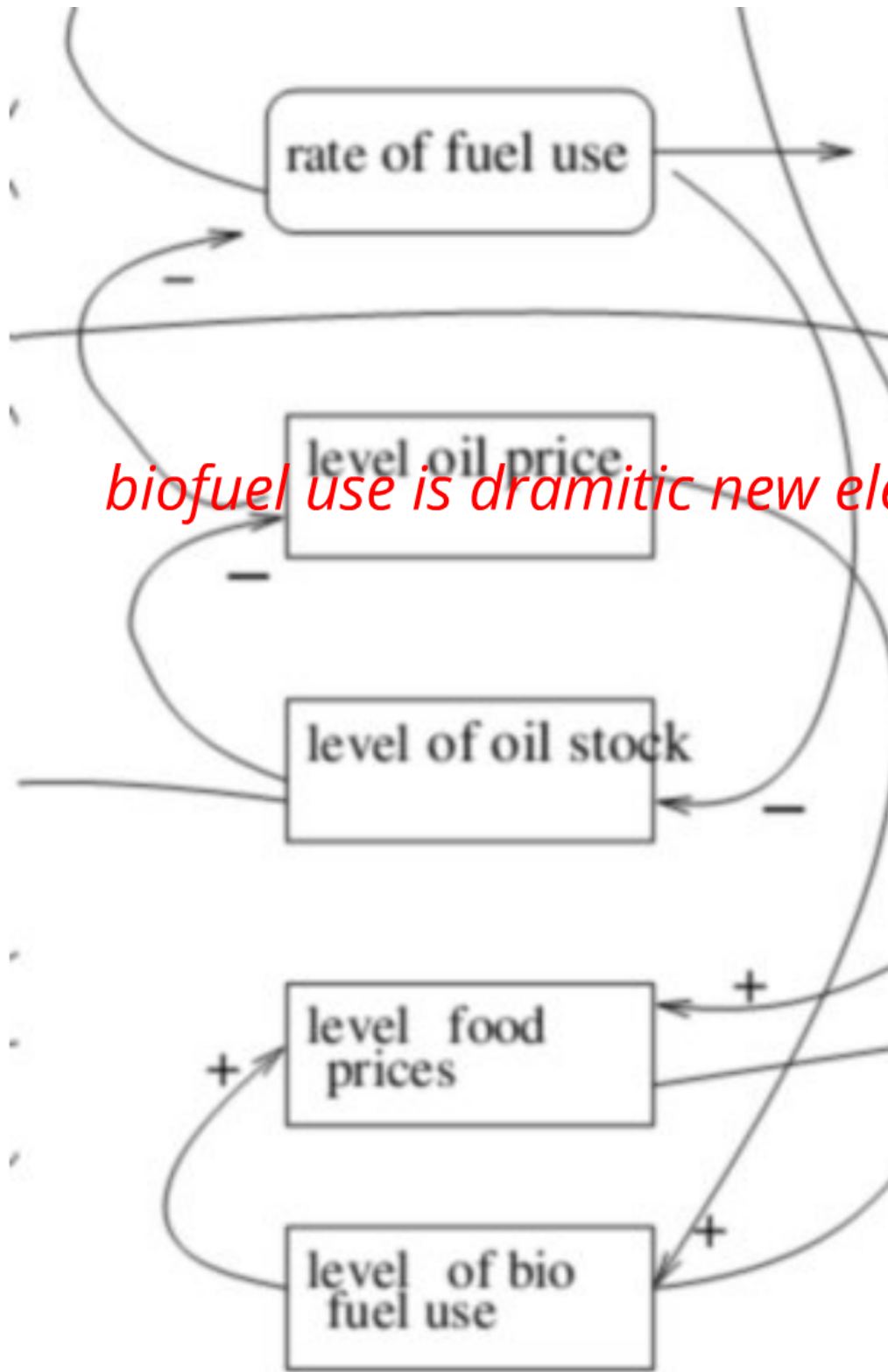
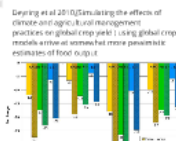
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04 Percent Change in Yield

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biofuel use is dramatic new element

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By BRYAN WALSH Monday, Feb. 14, 2011

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A man fills up his car's gas tank with biofuel. Andreas Gebert / DPA / Corbis

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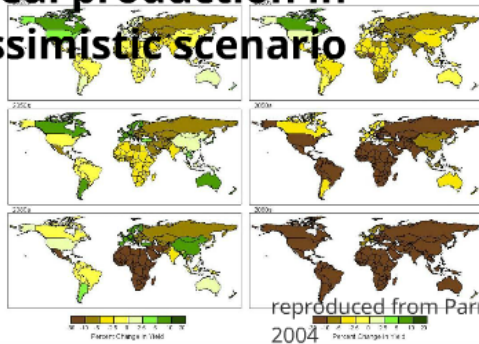


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A man fills up his car's gas tank with ethanol in Munich
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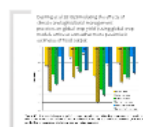
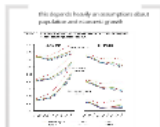
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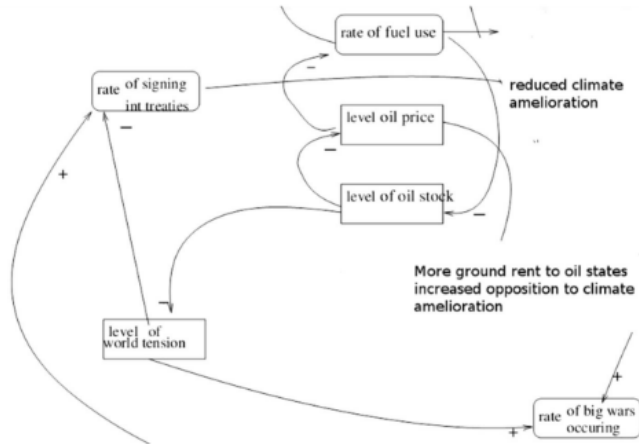


stock

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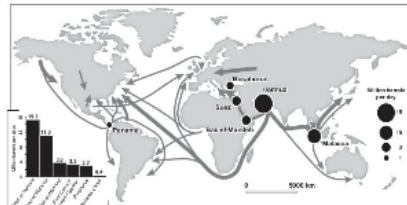
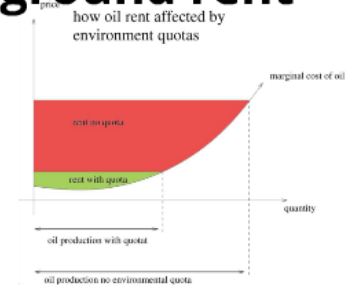
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The energy/politics system



Oil price and ground rent

Oil rent states have a clear interest in preventing introduction of CO2 quotas, as this would cut into their ground rent revenue. The rent revenue would potentially be transferred to the body (the UN?) issuing the quotas since this body could auction them.



Shortages of oil make control over oil choke points in transit increasingly important in great power competition.

the need to control these is leading to a new naval arms race of a scale not seen since the 1930s

Country new aircraft carriers finished or ordered

China
India
Japan
Korea
UK
US



new Indian Carrier
Bharat Naukarm



new UK carrier



South Korean Carrier



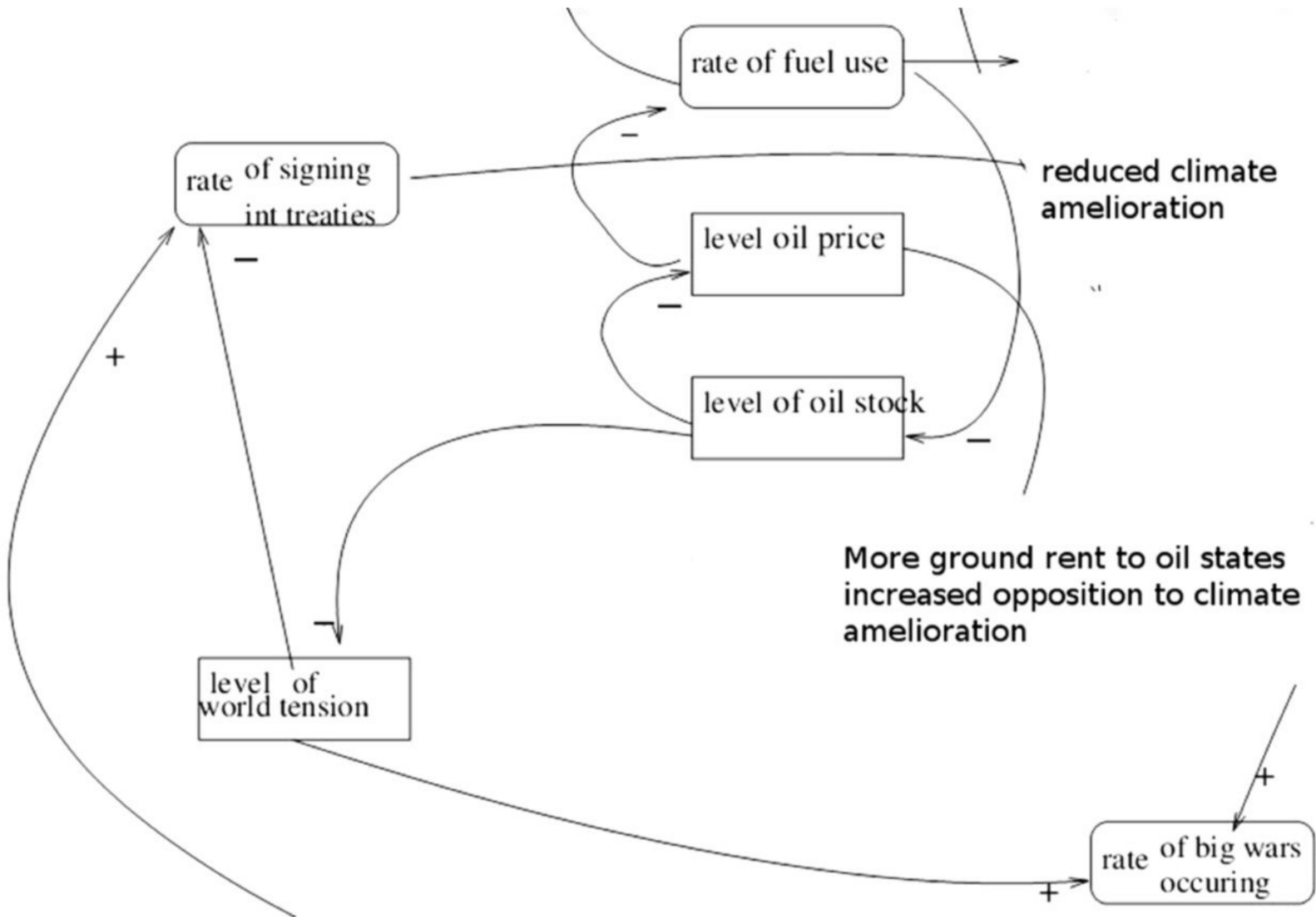
Chinese carrier
Liaoning



Japanese carrier

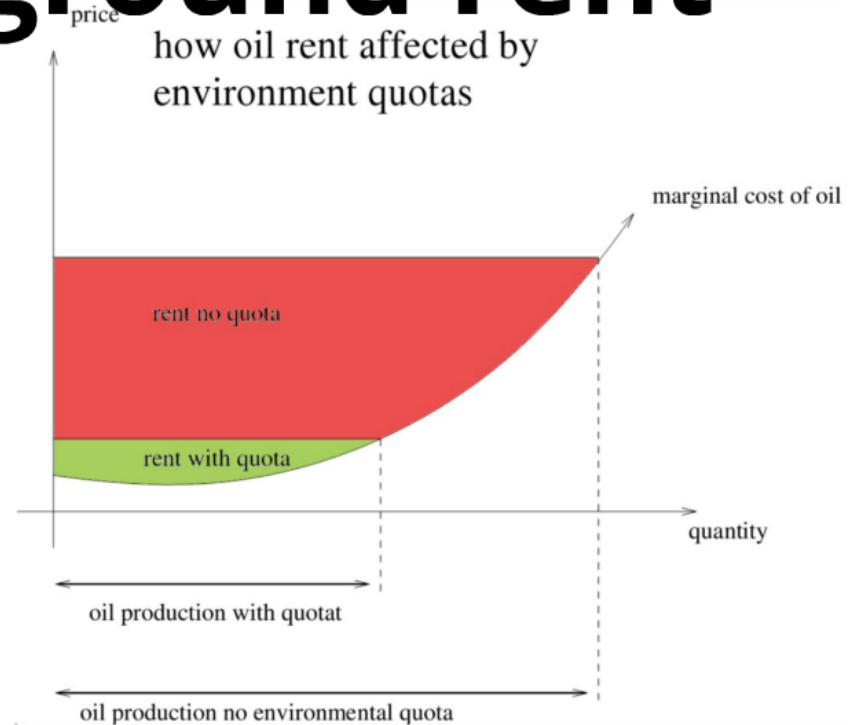


US carrier
Gerald R. Ford



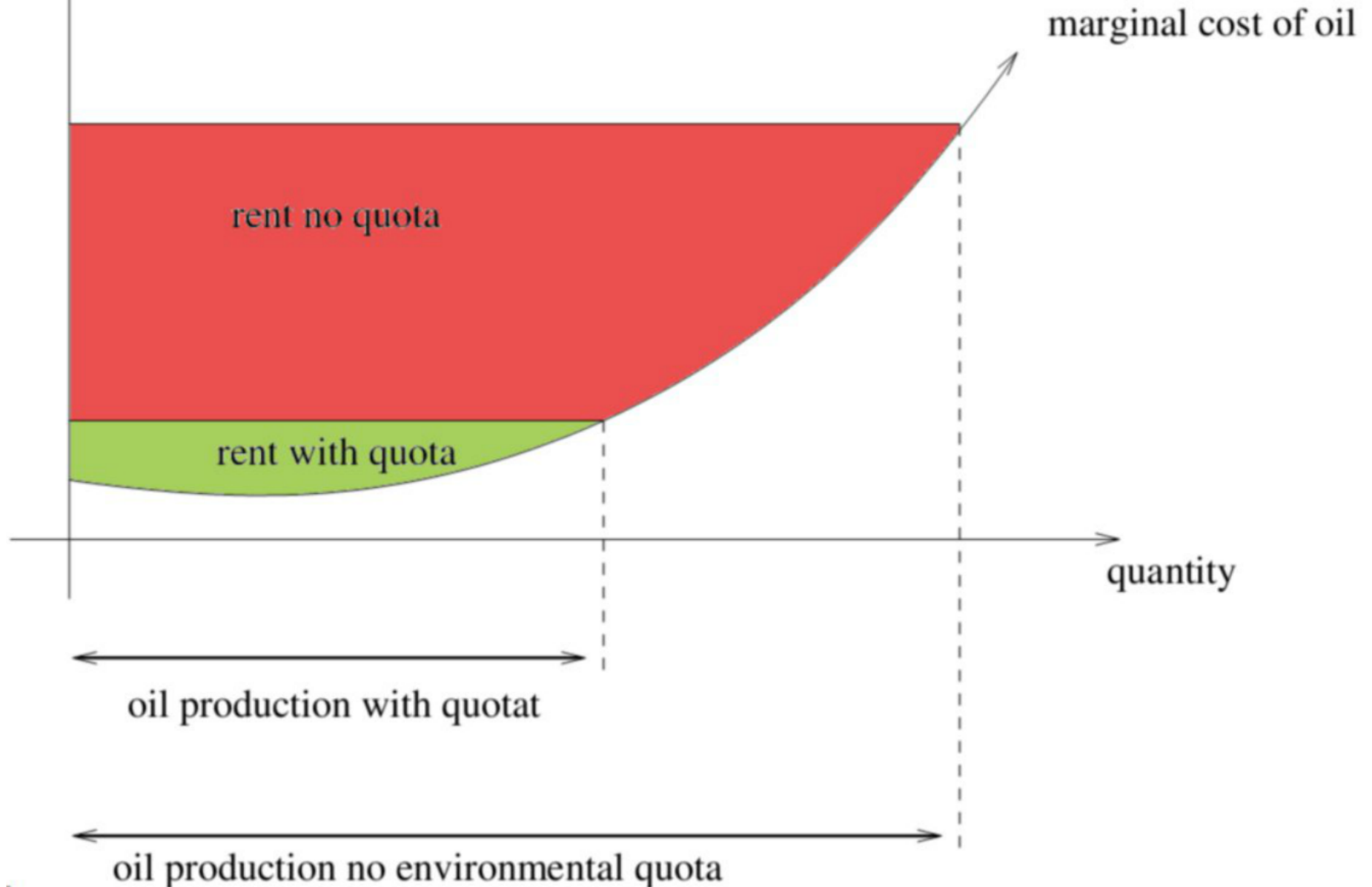
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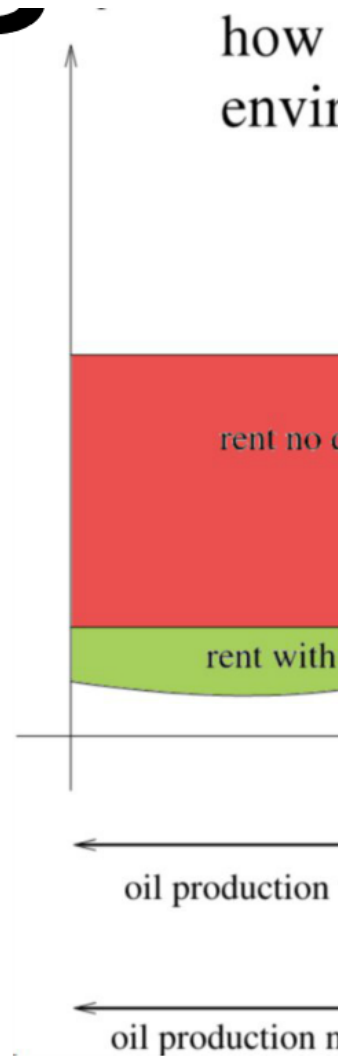


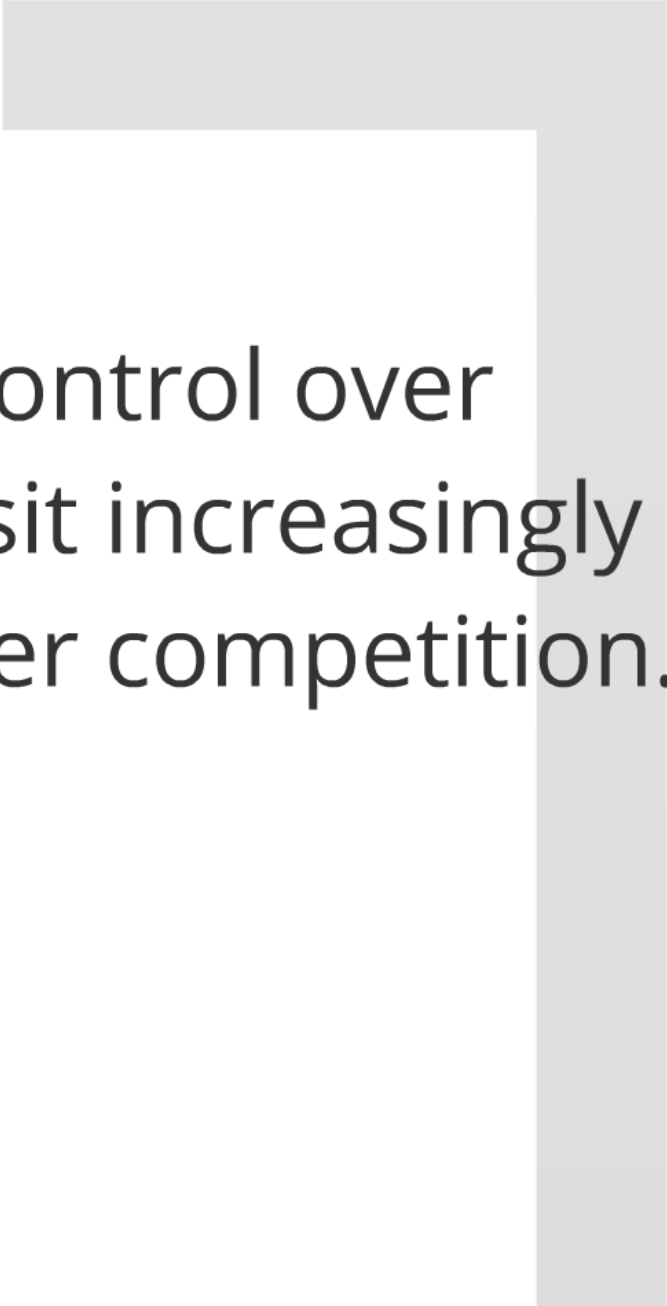
price

how oil rent affected by
environment quotas

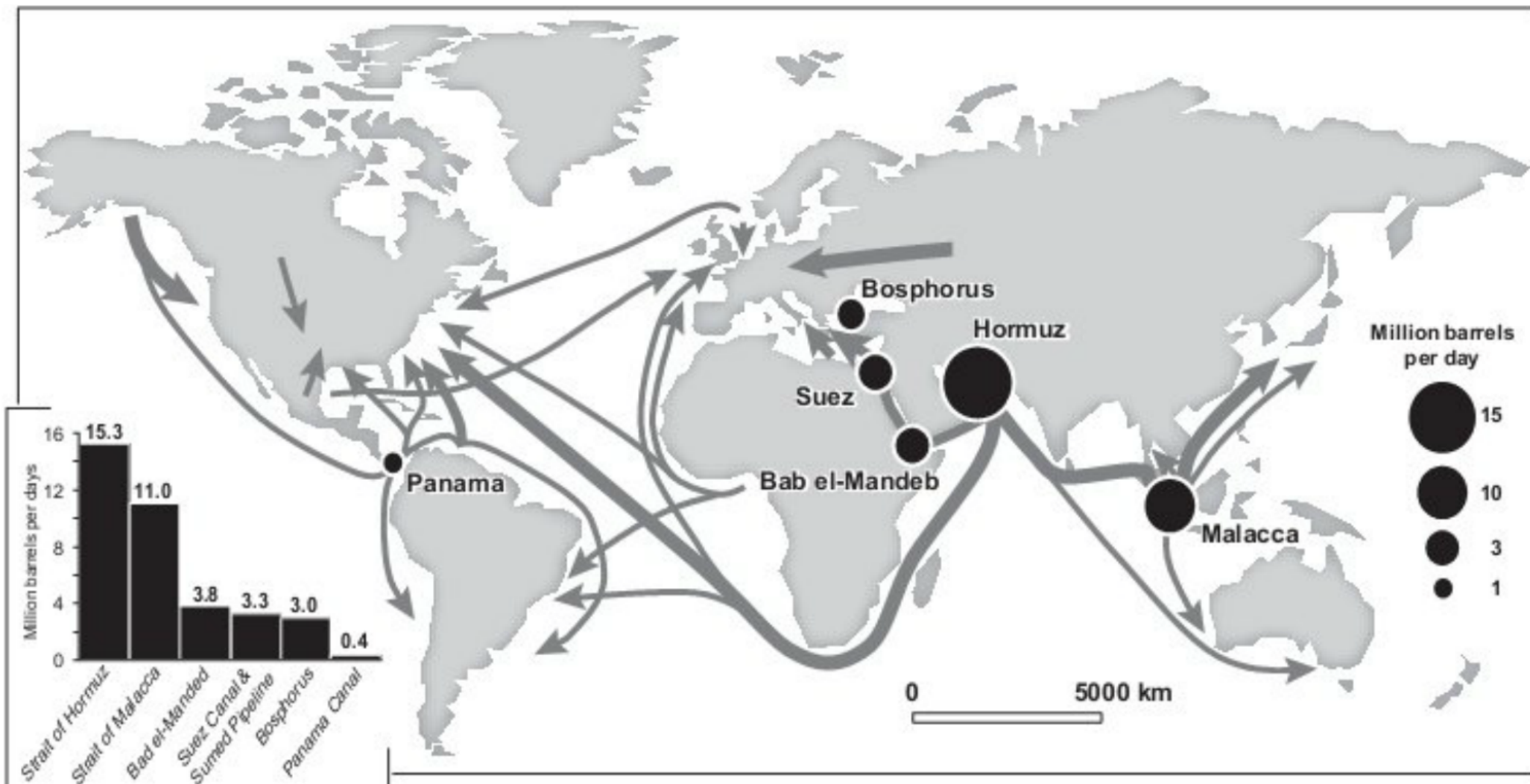


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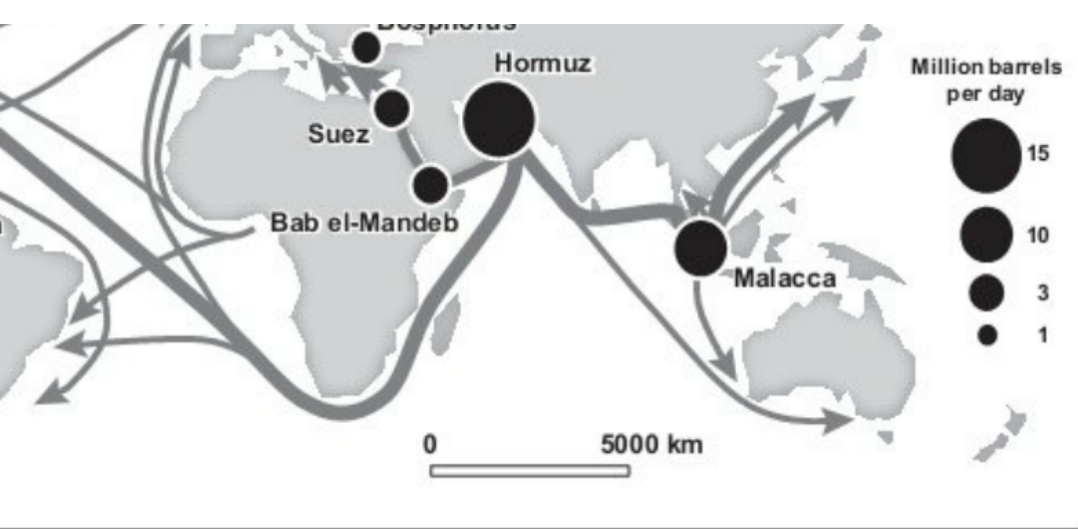




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new aircraft
carriers finished
or ordered

2
3
2
2
2
2



New Indian Carrier
Vikrant under construction



new UK carrier



Chinese carrier
being finished



Japanese carriers

since the 19

Country	new aircraft carriers finished or ordered
China	2
India	3
Japan	2
Korea	2
UK	2
US	2



ince the 1930s



New Indian Carrier
Vikrant under construction



new UK carrier



South Korean Carrier



Chinese carrier
being finished



Japanese carriers



US carrier Gerald Ford currently under
construction

Overview of loops

symbols

level

rate

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x

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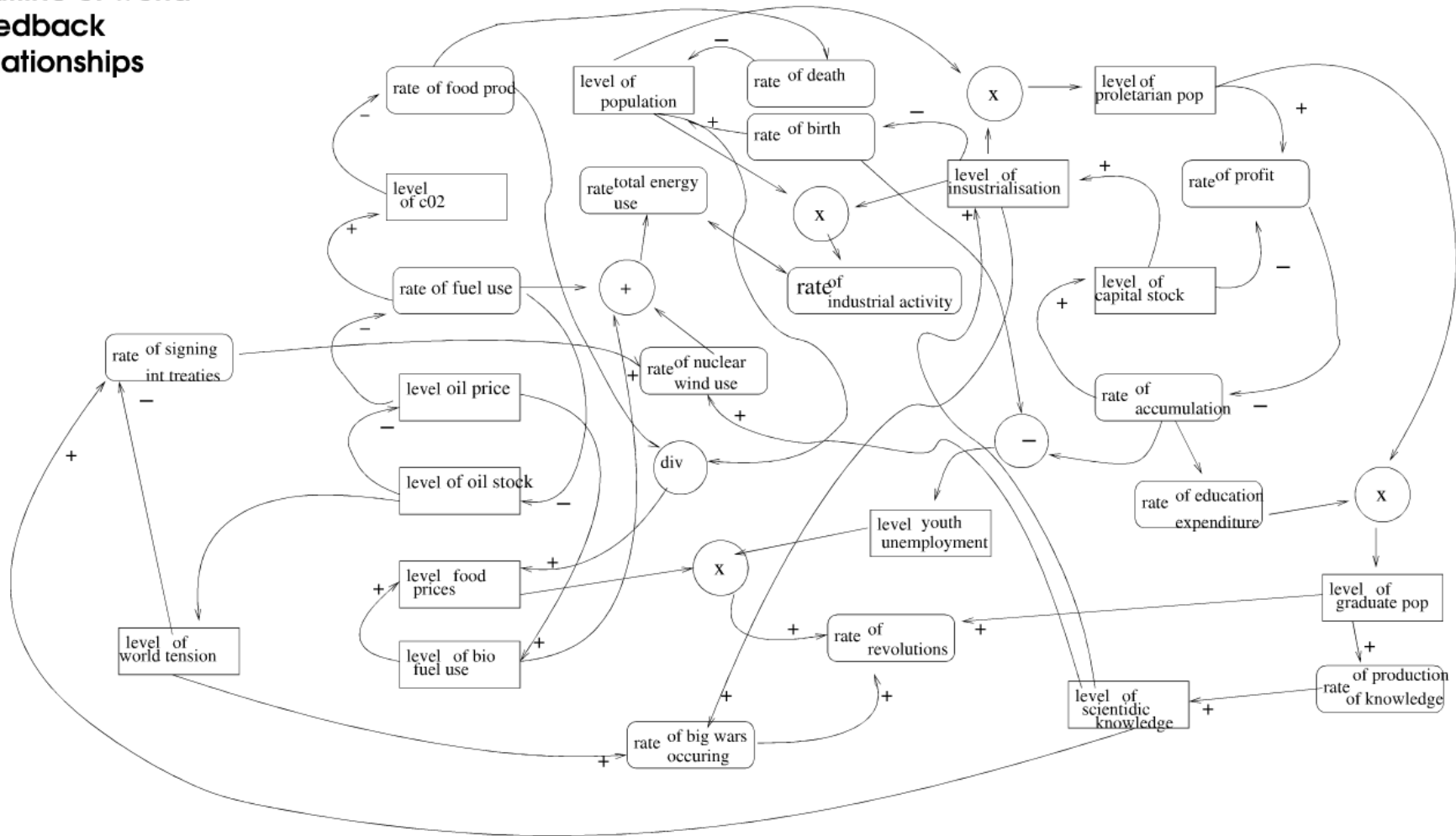
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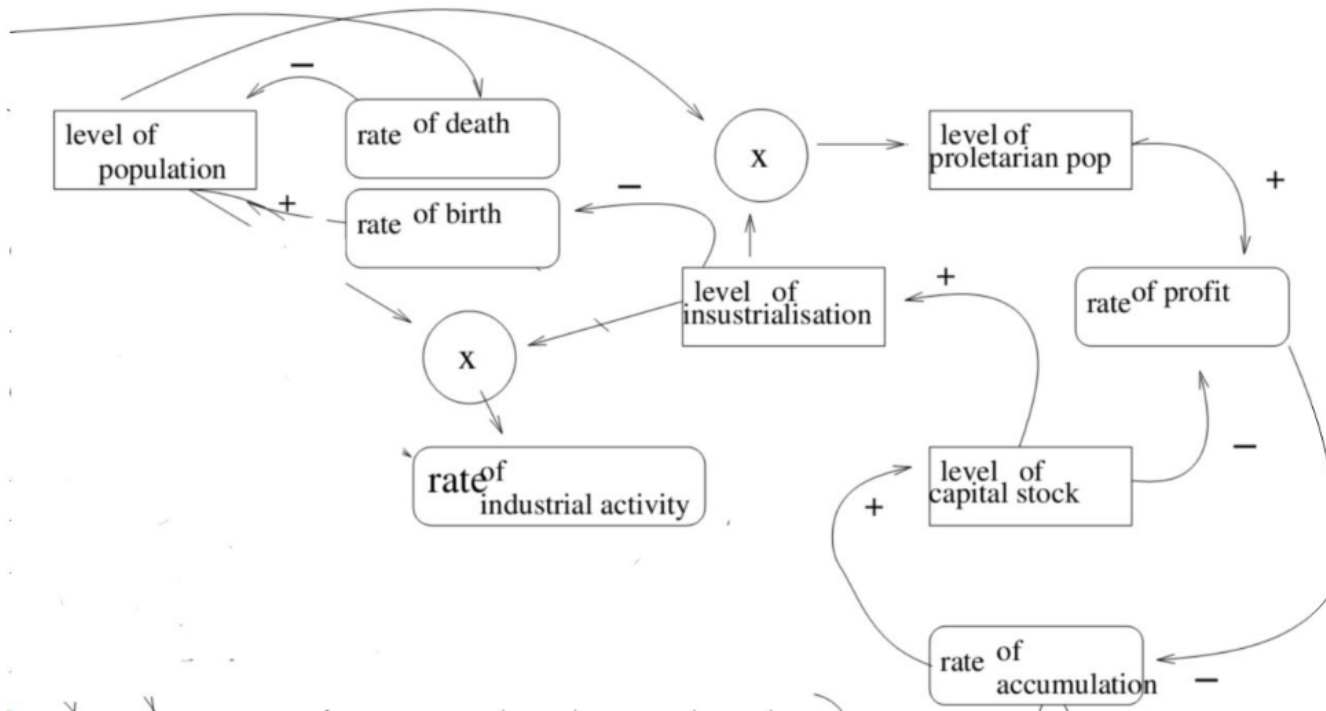
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Outline of world
feedback
relationships



Profit system



Let us represent the total profit or surplus value as a given share of the economy's net output (we consider the effects of a change in this share later).¹ We will write this share as $(1 - w)$, where w is the share of wages and salaries. Since we are working in terms of labour hours the net output itself is measured simply by the total current hours worked, which we'll write as L . (The gross output includes in addition labour-time previously embodied in means of production and "passed on" to the product in the current period.)

Writing S for total profit, we then have

$$S = (1 - w)L \quad (1)$$

We next consider the growth of the capital stock. This can be thought of as 'source' (gross investment) minus 'sink'. The analysis of the sink requires some care. In labour-time terms, this is the total workers-hours required to maintain the existing capital stock. This includes physical depreciation, whereby part of the existing capital stock, K , wears out each year. We assume that such depreciation occurs at a constant rate, δ , so that δK hours must be spent in maintaining the capital stock in physical terms. However, if the productivity of labour is increasing over time, at some proportional rate g , then a given physical collection of commodities will come to embody a declining number of labour-hours. Call this effect *devaluation* of the capital stock. To maintain the capital stock in value terms (worker-years embodied), the physical capital stock must be expanded. The total sink is then $(g + \delta)K$. Gross investment we take to be a proportion, λ , of total profit. We then have

$$\dot{K} = \lambda S - (g + \delta)K \quad (2)$$

where \dot{K} denotes the time-derivative of the capital stock, dK/dt .²

Now the rate of profit (in labour-time terms) is the ratio of the surplus, S , to the capital stock, K :

$$R = \frac{S}{K} \quad (3)$$

Using (1) to substitute for S in (3), we get

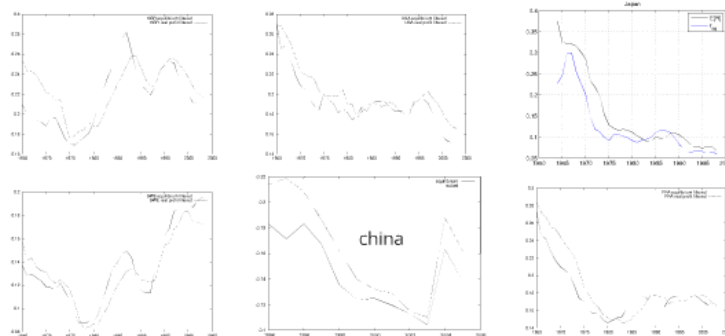
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If the wage-share in net output, w , remains constant then the time-derivative of the rate of profit is given by

$$\dot{R} = (1 - w) \frac{d(L/K)}{dt} \quad (5)$$

We will assume that the total labour performed per year changes at a proportional rate n (that is, $\dot{L}/L = n$).

examples of this law accross the world today



Disequilibrium system

The conclusion is that capitalist economy is a Disequilibrium System. As population reserves are absorbed the rate of profit falls, labour becomes scarce and capital plentiful. Then the social balance between labour and capital will tend to shift in favour of labour. A major task of political economy is to come up with quantitative models of the rate this is happening on a world scale.

Here we have an expression for the time evolution of the value rate of profit in terms of the basic parameters of the system. Under what condition is the rate of profit unchanging (i.e. $\dot{R} = 0$)? Given that the wage share, w , must lie between 0 and 1, and that total hours worked, L , must be positive, the required condition is that $\lambda R + (g + \delta) = 0$. That is,

$$R^* = \frac{n + g + \delta}{\lambda} \quad (7)$$

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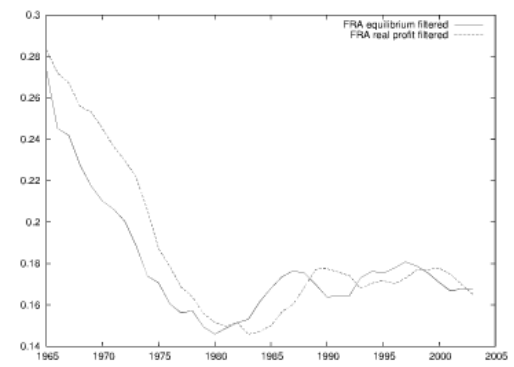
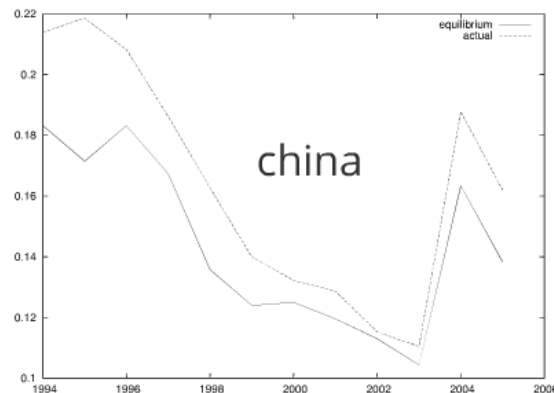
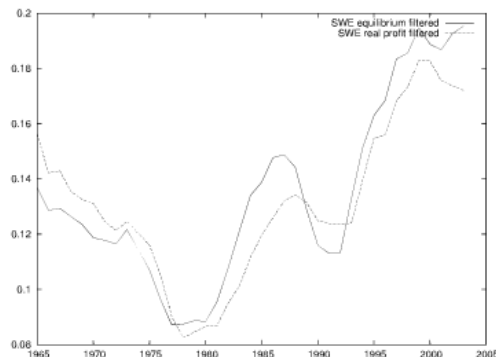
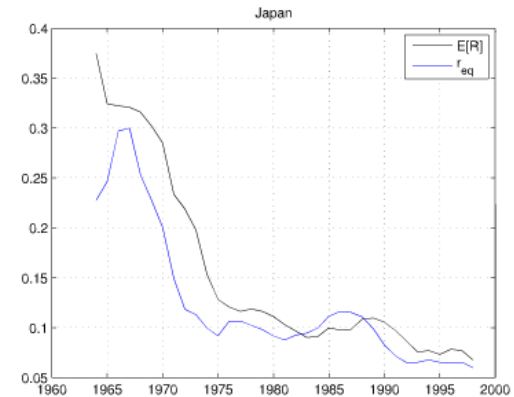
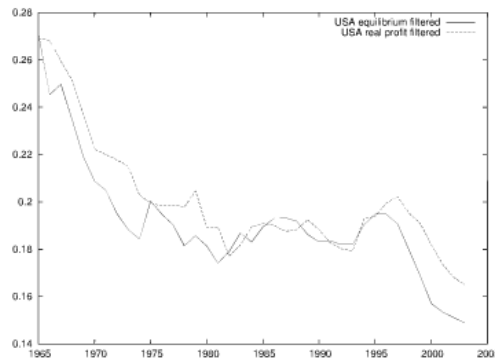
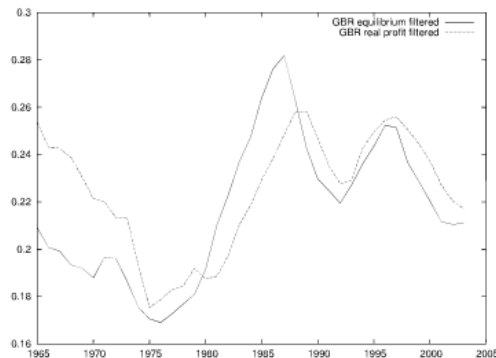
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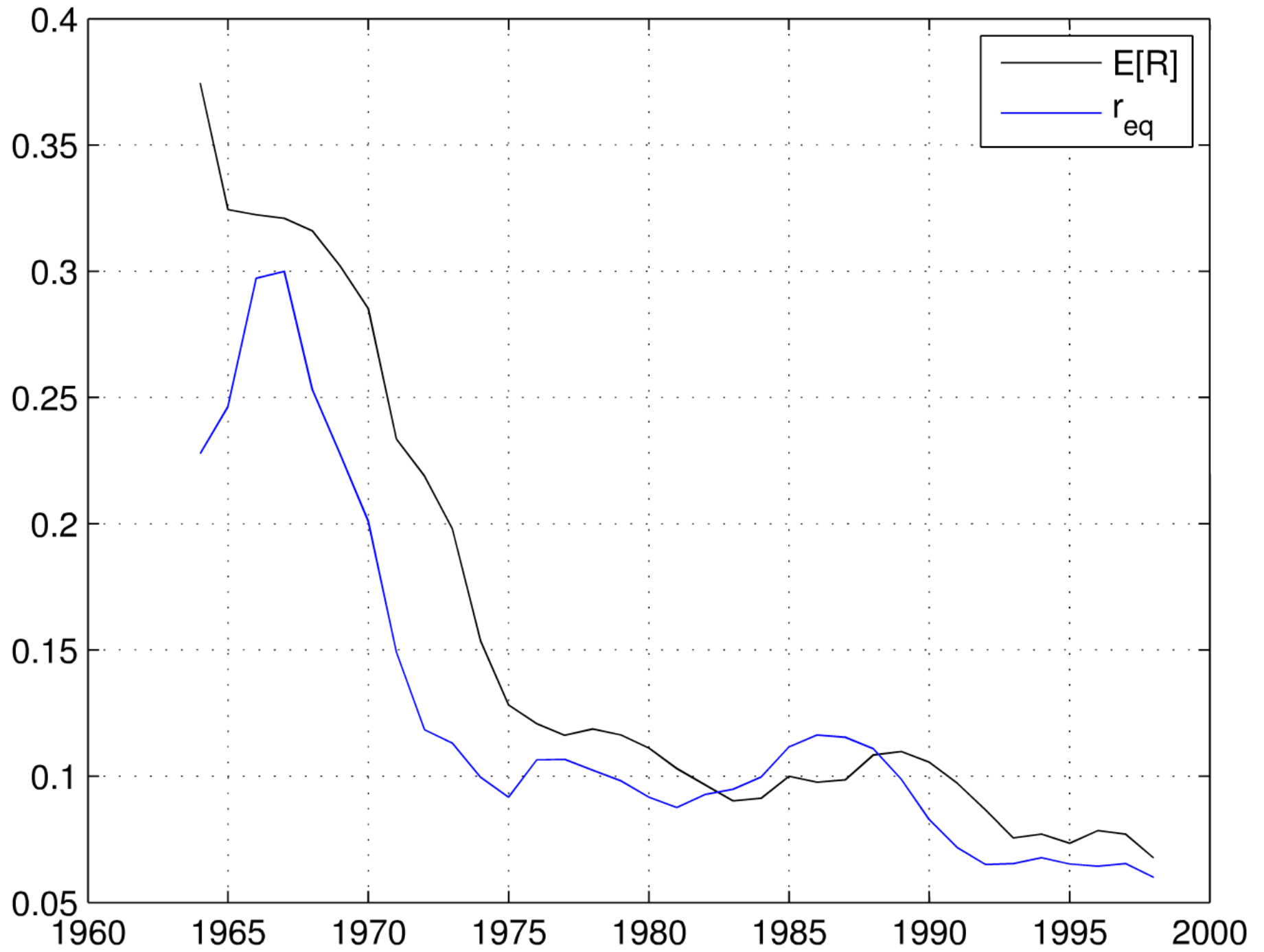
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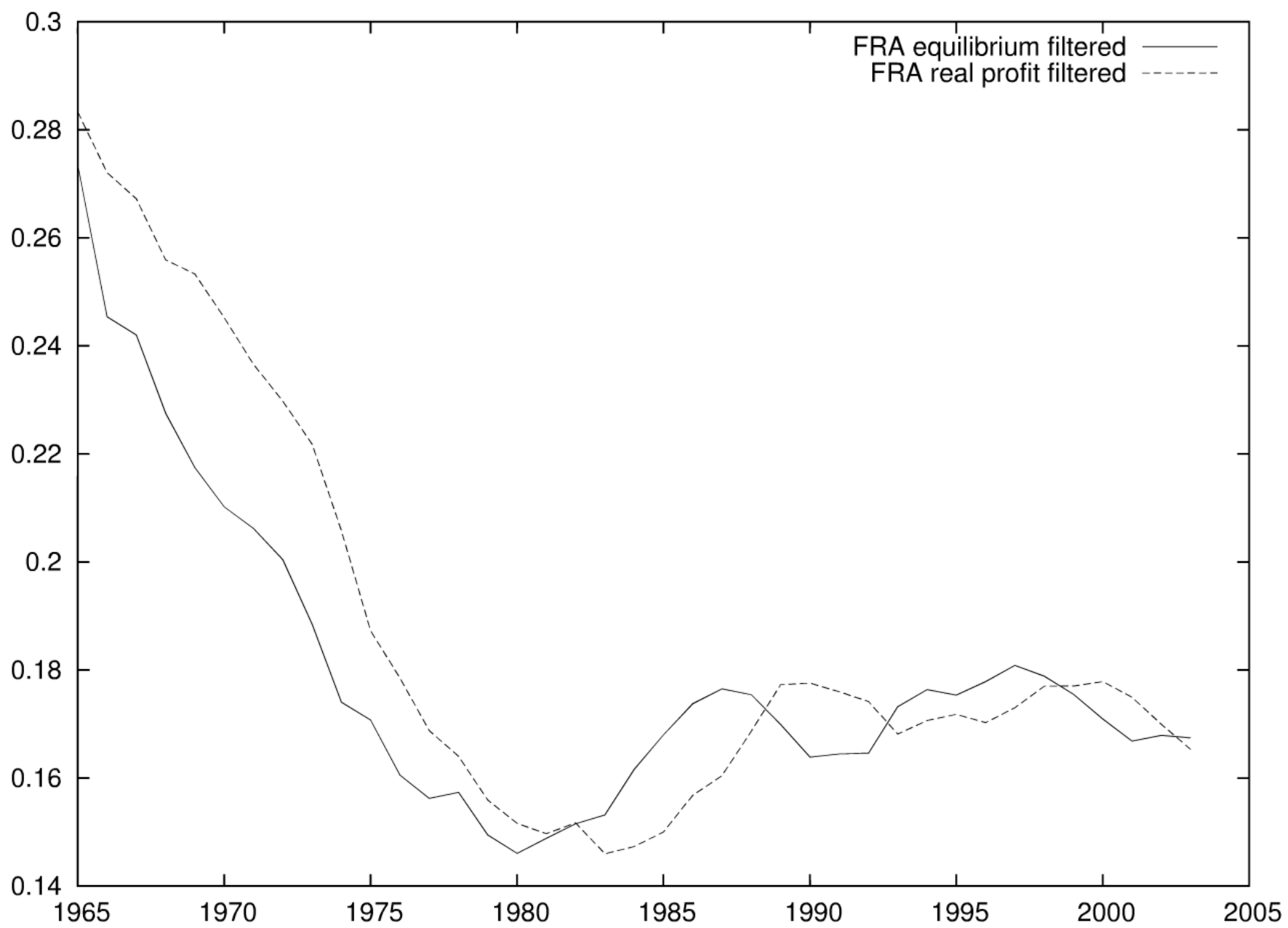
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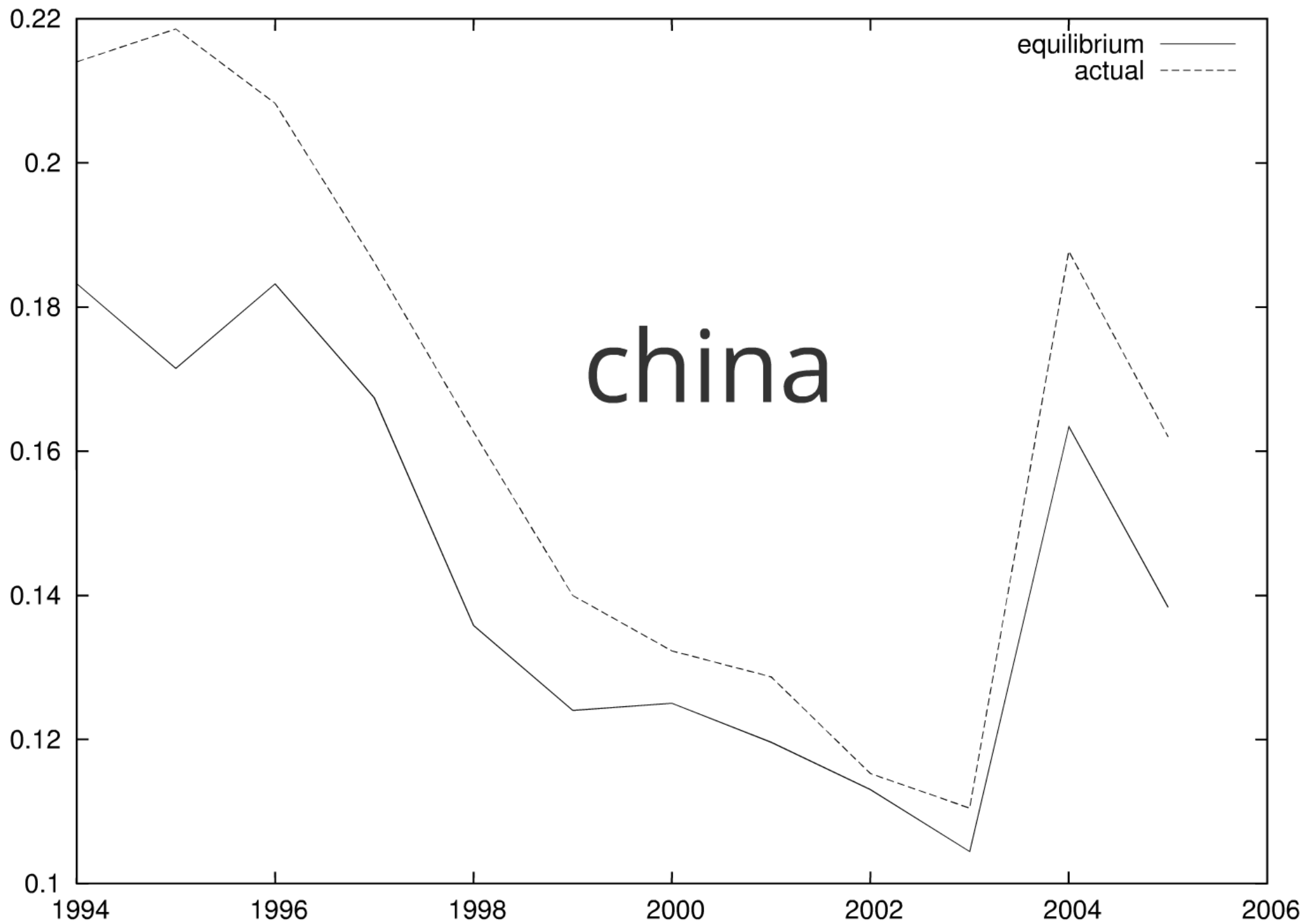
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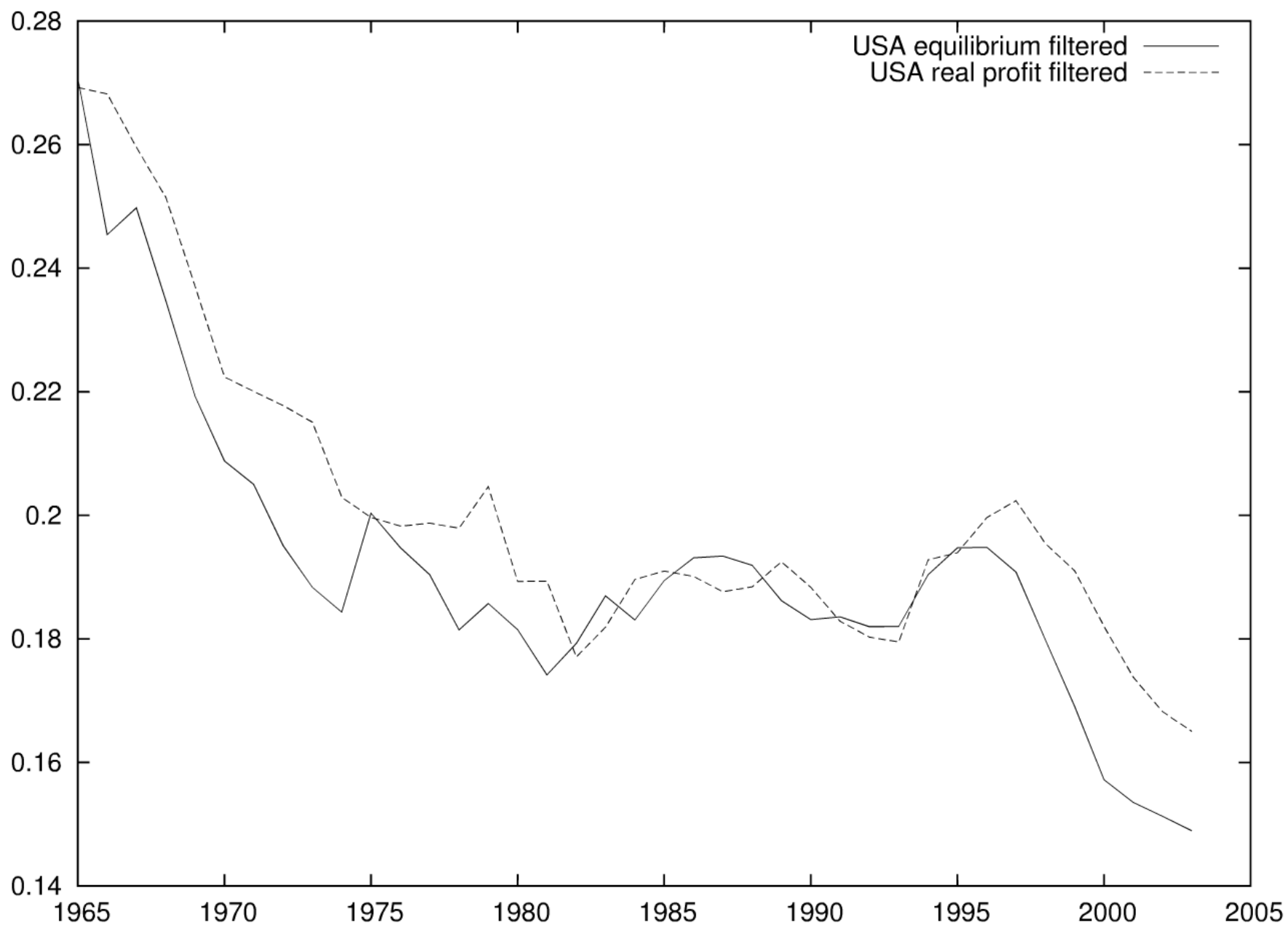


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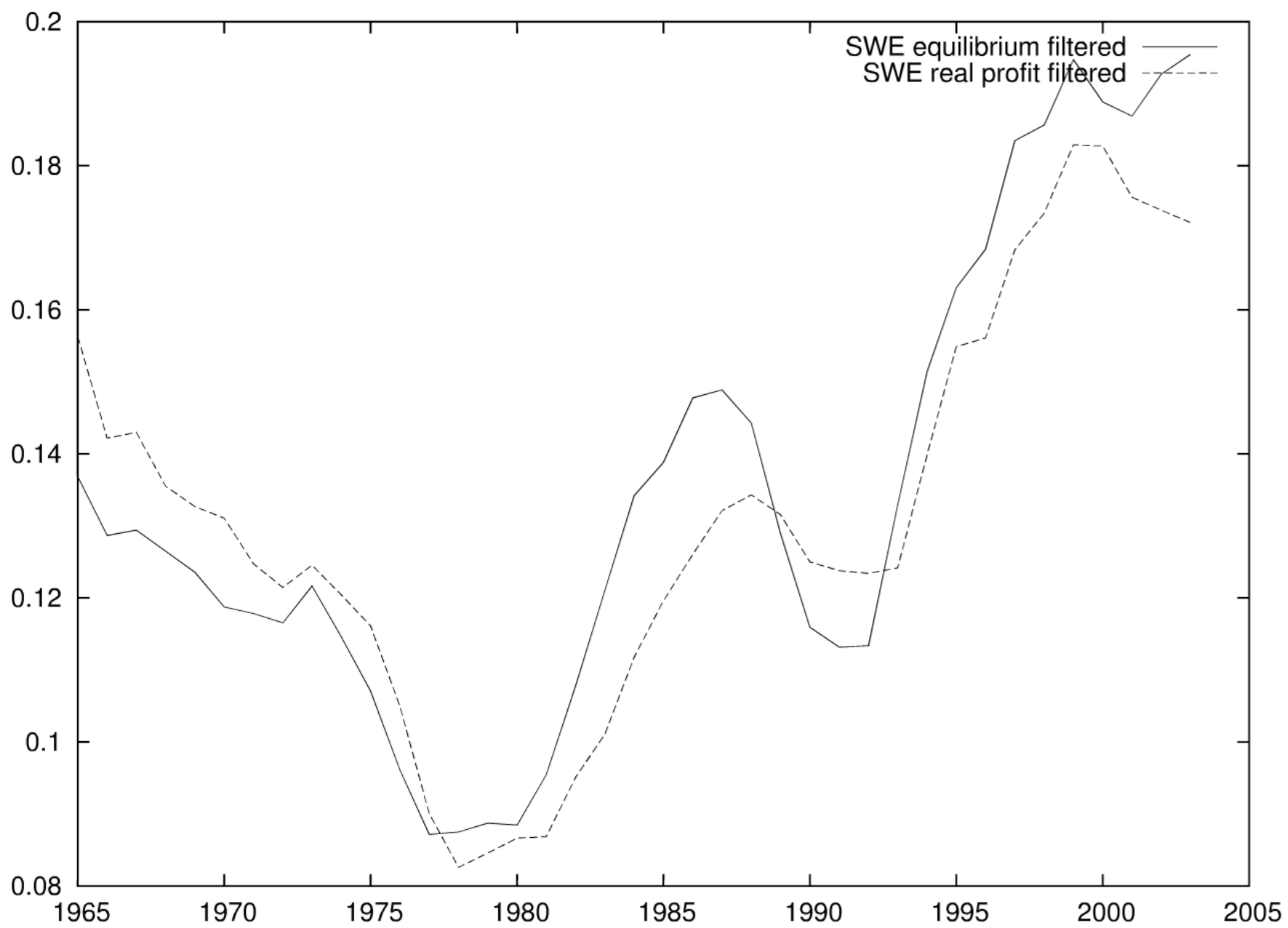


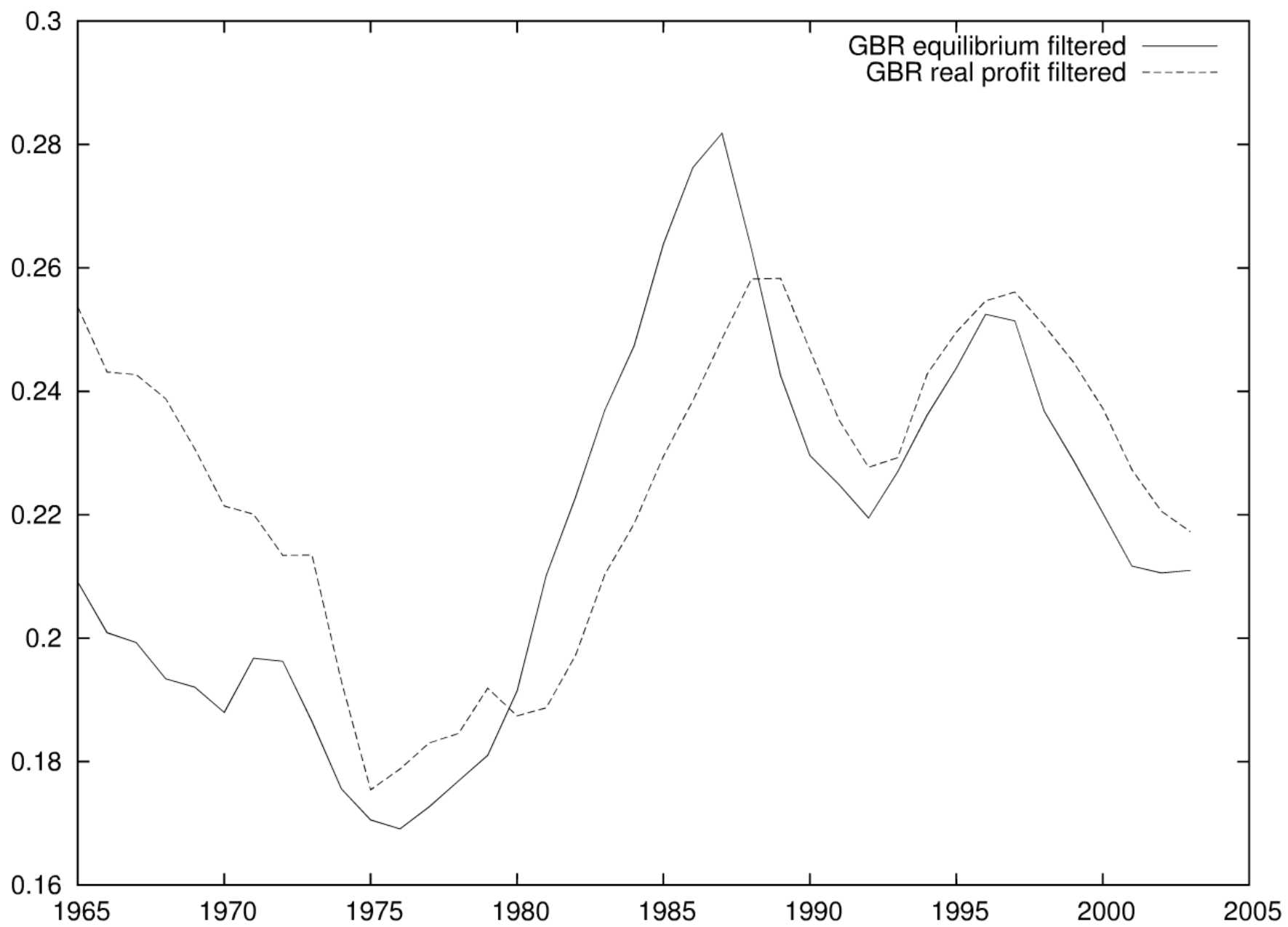






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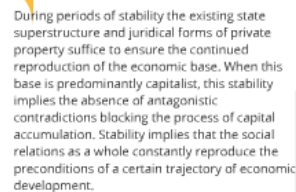


Disequilibrium system

The conclusion is that capitalist economy is a Disequilibrium System.

As population reserves are absorbed the rate of profit falls, labour becomes scarce and capital plentiful. Then the social balance between labour and capital will tend to shift in favour of labour.

A major task of political economy is to come up with quantitative models of the rate this is happening on a world scale.



*In a restructuring crisis the existing state still holds power.
The minimum preconditions for a state apparatus to exercise state power are:*

- 1. it must have an effective executive centre;
 - 2. this centre must be able to command the various subordinate state apparatuses;
 - 3. these must include a hegemonic coercive/military force.
- Where the executive (or an executive) remains in control of the military, then a transfer of state power involves the outright defeat of the existing state. Where conditions do not permit its military defeat or internal disintegration, then a revolutionary situation does not exist, and the crisis will at most lead to a restructuring under the ultimate hegemony of the existing ruling class. In such circumstances the parties representing labour must work to produce the best possible compromise terms for their class.

The economic behaviour of the strategy solving the manufacturing crisis will have a crucial influence upon the strategy solving the cost reduction crisis. The cost reduction measures, and the choice of their realisation will determine:

1. what will be the means of struggle for the winning strategy;
2. which coalitions are likely to preclude the next crisis.

In a cost reduction crisis it is therefore to the labour union that manufacturing has to ascribe as possible, in the sense of establishing a tension that is favourable for future labour action. It is important to specify in advance of concrete decisions the specific content of such a "strategic understanding" not at the next general meeting but already at the next meeting of the "task", the establishing of a concrete strategy and the growth of the winning class. One can identify an attempt to give rise to a novel ad hoc device.

A revolutionary conjuncture is one in which there is a real possibility of state power passing from the hands of an existing ruling class. In all such conjunctures the decisive element is military force. It is possible to usefully distinguish four types of revolutionary conjunctures in which the transfer of power is possible:

- a peaceful transfer of power brought about by the latent presence of superior forces on the revolutionary side, e.g. Mongolia 1924-6, Czechoslovakia 1948
- b. transfer of power due to the defection of the decisive element of the armed forces of the existing state to the side of the revolt, e.g. March 1917 in Russia, Nov 1918 in Germany
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The importance of the military factor in revolutions is so obvious that it scarcely needs to be emphasised, except to point out that, even in case (c) power can only be retained if the revolutionary forces are able to organize an army before the enemy re-establishes its executive. It is very dangerous for an opposition to advance revolutionary objectives (i.e. ones necessitating the transfer of power) in a period when military factors make a transfer of power impossible.

Repeated experience has shown that a well-disciplined and trained army, under decisive centralized command can suppress any threat to the state power other than a superior army. What has been happening in the Arab world these last two years emphasises this.

A crisis may raise the population to revolt, but the beneficiaries will be the opposition group with the most coherent and widely popularised ideology - socialists in many countries up to 1975, islamists in the middle east since 1977, neo-liberals in Eastern Europe post 1989, socialist again in latin america post 2000.

This is true whether the crisis is a restructuring one or a revolutionary one - ultimately a popularised view of political economy and the type of state is decisive.


Possible policies

- 1. Financial liberalization**
 - The 1990s witnessed a rapid increase in the liberalization of financial markets in many countries
 - This was driven by a number of factors, including the need to attract foreign investment and to improve the efficiency of the financial system
 - However, the liberalization of financial markets has also led to a number of challenges, including the need to strengthen prudential supervision and consumer protection
- 2. Financial liberalization and strengthening prudential supervision**
 - This option involves the liberalization of financial markets, as well as the strengthening of prudential supervision
 - This option is often seen as a more balanced approach, as it allows for the benefits of liberalization while also ensuring that the financial system remains stable
- 3. Financial liberalization and strengthening prudential supervision and strengthening consumer protection**
 - This option involves the liberalization of financial markets, as well as the strengthening of prudential supervision and consumer protection
 - This option is often seen as a more comprehensive approach, as it addresses both the stability of the financial system and the protection of consumers
- 4. Financial liberalization and strengthening prudential supervision and strengthening consumer protection and strengthening competition**
 - This option involves the liberalization of financial markets, as well as the strengthening of prudential supervision, consumer protection, and competition
 - This option is often seen as the most comprehensive approach, as it addresses all three key areas of the financial system



This includes developing policies on:

1. Environmental regulation and planning
2. Forms of economic organisation and property
3. Types of political system
4. Forms of international organisation





During periods of stability the existing state superstructure and juridical forms of private property suffice to ensure the continued reproduction of the economic base. When this base is predominantly capitalist, this stability implies the absence of antagonistic contradictions blocking the process of capital accumulation. Stability implies that the social relations as a whole constantly reproduce the preconditions of a certain trajectory of economic development.



restructuring conjunctures

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Outcomes

The success or otherwise of the strategy during the restructuring crisis will have a crucial influence upon the ensuing period. The contradictions resolved, and the mode of their resolution will determine:

- 1. what will be the terrain of struggle in the ensuing period;*
- 2. which contradictions are likely to precipitate the next crisis.*

In a non-revolutionary crisis it is therefore in the labour interest that restructuring be as progressive as possible, in the sense of establishing a terrain that is favourable for future labour struggle. It is impossible to specify in advance of concrete conjunctural analysis the specific content of such a "progressive restructuring" but at the most general level such elements as the centralisation of capital, the weakening of private property rights and the growth of the working class, can be identified as tending to give rise to a more advanced terrain.

Outcomes

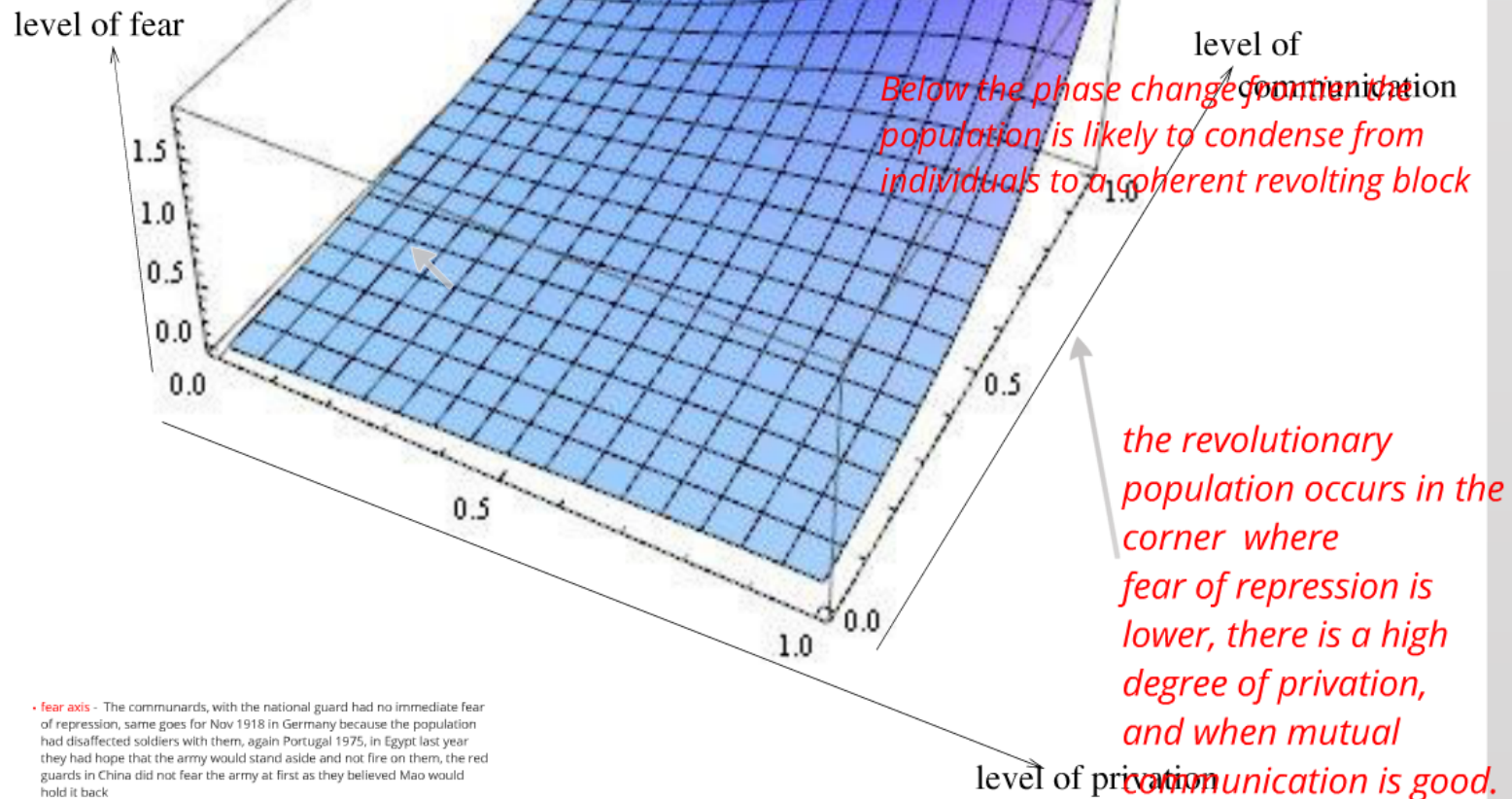
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Formation of a rebellious population as a phase change phenomenon

you can view the formation of a revolutionary population as a bit like a phase change to a more condensed state or more coherent state
If you have 3 axes of measurement your system
x axis = degree of satisfaction or non privation
y axis = degree of fear of repression
z axis = degree of mutual communication

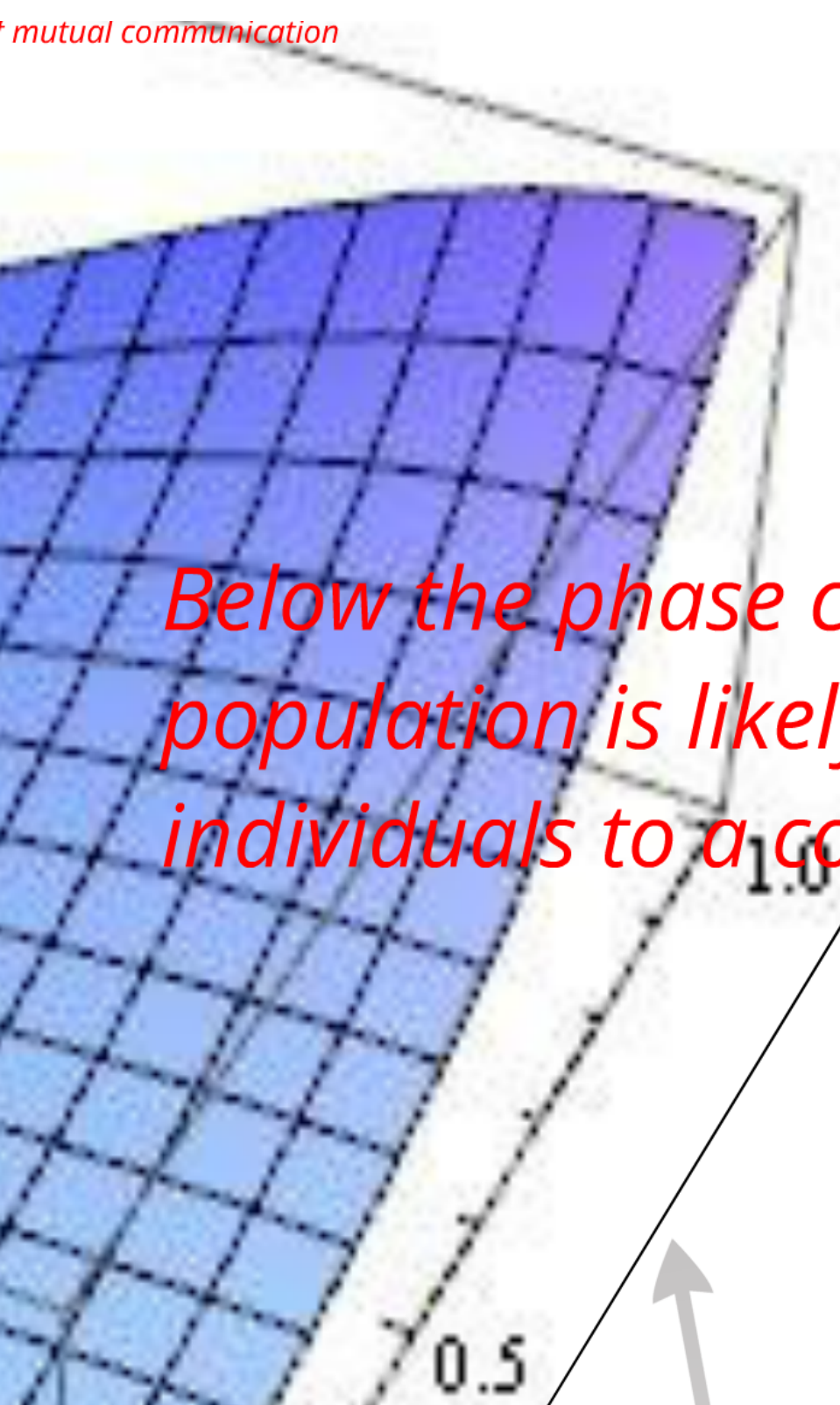


- **fear axis** - The communards, with the national guard had no immediate fear of repression, same goes for Nov 1918 in Germany because the population had disaffected soldiers with them, again Portugal 1975, in Egypt last year they had hope that the army would stand aside and not fire on them, the red guards in China did not fear the army at first as they believed Mao would hold it back
- **privation axis** - deprivation due to food shortages and unemployment have long been recognised as a key factor in revolution
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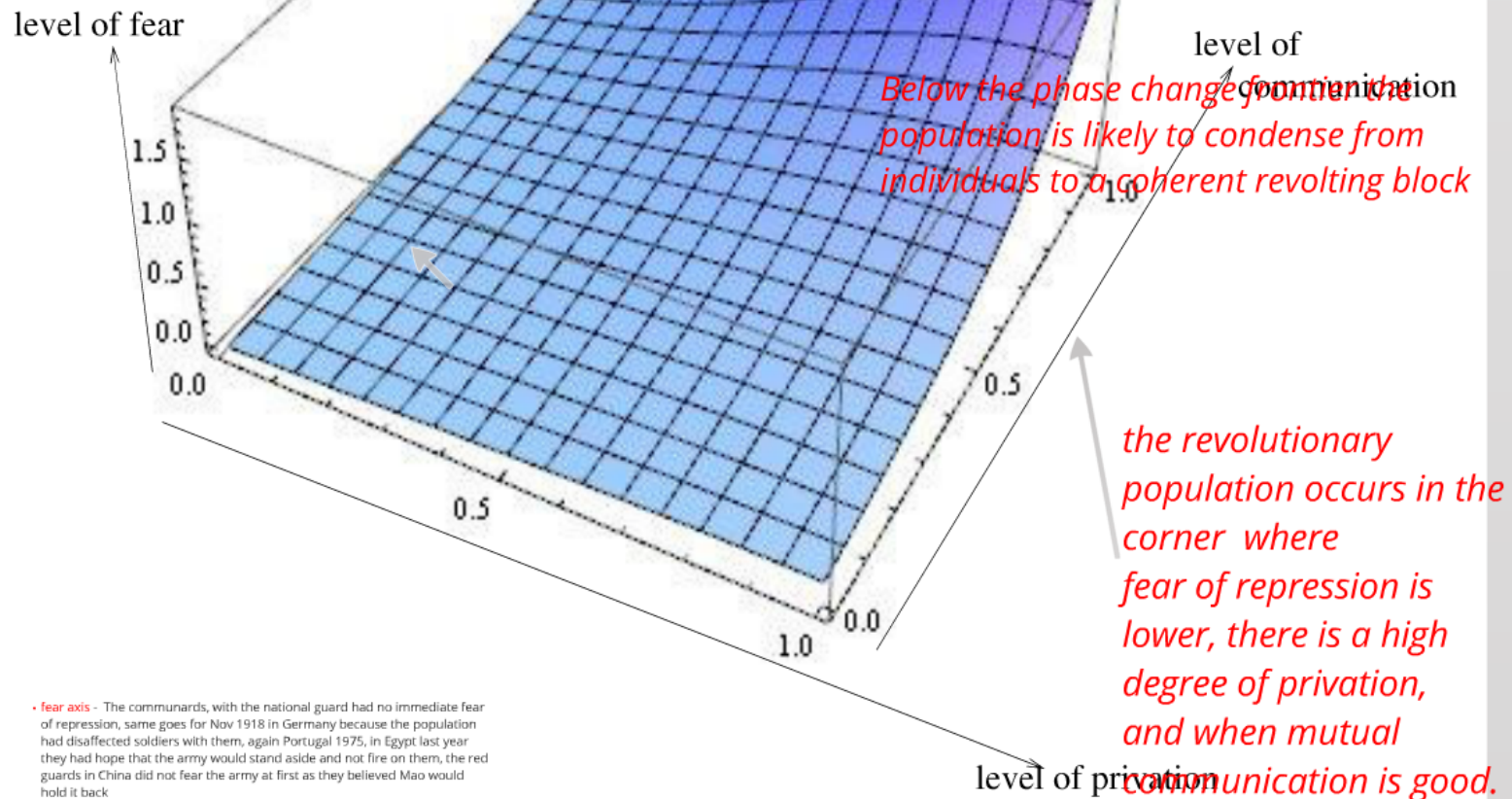


level of
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Below the phase change frontier the population is likely to condense from individuals to a coherent revolting block

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lower, there is a high
degree of privation,
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level of privation

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Conjectures of revolt

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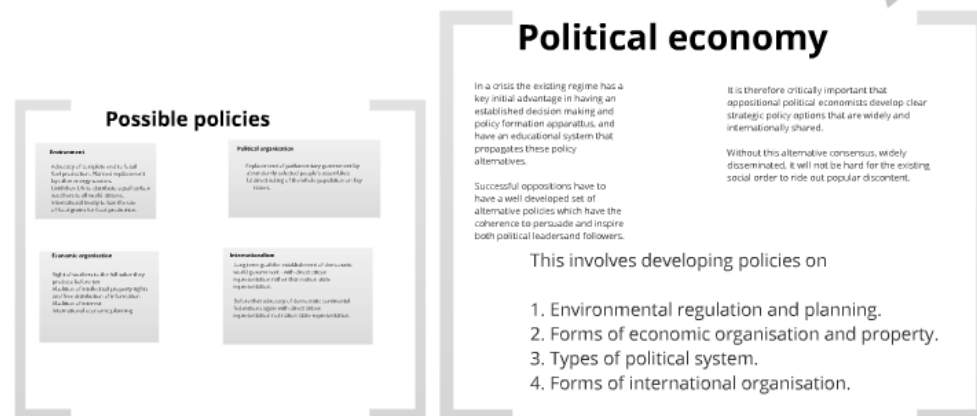
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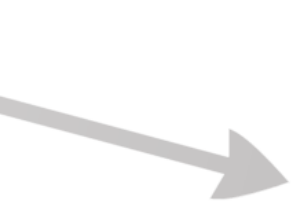
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Outcomes of revolt.

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Possible policies

Environment

Advisory of complete end to fossil fuel production. Planned replacement by other energy sources. Until then UN to distribute equal carbon vouchers to all world citizens. International treaty to ban the use of fossil fuels for food production.

Economic organisation

Right of workers to the full value they

Political

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Political economy

In a crisis the existing regime has a key initial advantage in having an established decision making and policy formation apparatus, and have an educational system that propagates these policy alternatives.


Successful oppositions have to have a well developed set of alternative policies which have the coherence to persuade and inspire both political leaders and followers.

It is therefore critically important that oppositional political economists develop clear strategic policy options that are widely and internationally shared.

Without this alternative consensus, widely disseminated, it will not be hard for the existing social order to ride out popular discontent.

This involves developing policies on

1. Environmental regulation and planning.
2. Forms of economic organisation and property.
3. Types of political system.
4. Forms of international organisation.

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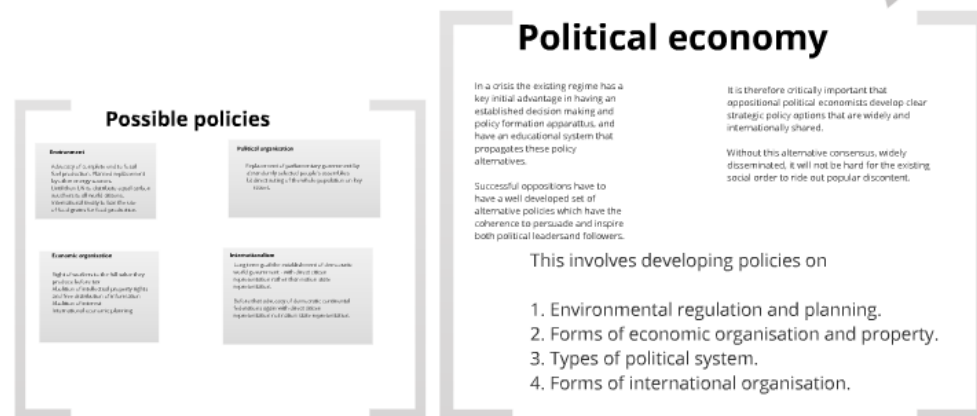
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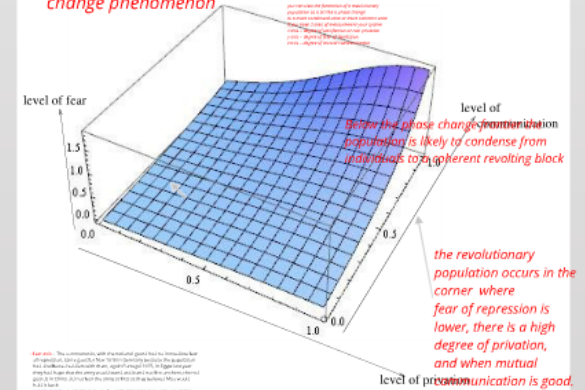
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Outcomes

The success or otherwise of the struggle during the restructuring crisis will have crucial influence upon the ensuing period. The contradictions remain, and the needs of the revolution will determine:

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In a non-revolutionary crisis it is therefore in the labour interest that restructuring be as progressive as possible, in the sense of establishing a semi-dictatorship favourable for future labour struggle. It is impossible to speak in advance of revolution or against the sale of it, in view of such a 'progressive restructuring', but at the next general election such answers as the nationalisation of banks, the widening of workers' property rights and the growth of workers' class can be identified as necessary to give rise to a more advanced society.

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Possible policies

Policy	Outcome
1. Nationalisation of banks and major industries	1. Centralisation of economic planning
2. Workers' control of production	2. Forms of economic organisation and property
3. Workers' control of production	3. Types of political system
4. Workers' control of production	4. Forms of international organisation

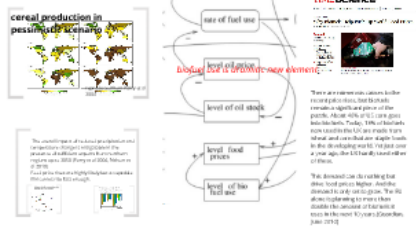
Political economy

The revolutionaries will be able to develop policies on:

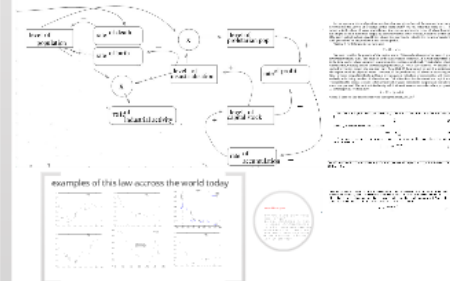
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World System

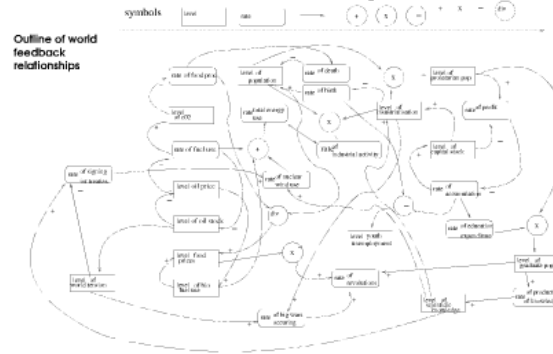
Energy atmosphere system



Profit system



Overview of loops



The energy/politics system



Revolt system

