Life and Death of Innovation–what's next?

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Outline

Endogenous Needs, Values and Technology
What is next?
New European Economy
Summary

Life of Innovations
Death of Innovations

Endogenous Needs, Values and Technology

- Exogenously given fixed preferences and production function
- Identical market mechanisms

- Preferences structure and production in permanent flux
- Diversifying market mechanisms

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Life of Innovations

A new mode of production: *the growth of labour productivity* as a systematic force that permanently leads to new forms of social relationships.

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Accounting of Exchange

A simple society with three economic sectors: farmers (f), manufacturers (m) and state (s)

$$F = \begin{pmatrix} d_1 & fm & fs \\ mf & d_2 & ms \\ sf & sm & d_3 \end{pmatrix} \longrightarrow E = \begin{pmatrix} e_{1,1} & e_{1,2} & . & . & e_{1,n} \\ e_{2,1} & . & . & . & . \\ . & . & . & . & . \\ . & . & . & . & . \\ e_{n,1} & . & . & . & e_{n,n} \end{pmatrix}$$

Input–Output Flow Matrix   Transfers between Enterprises

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Evolution of Growth

- How do different species effect each others growth rates?
    - Lotka–Volterra Two Species Model
    - Dynamic Exploitation

    Marx, Schumpeter:
    - Dynamic exploitation of nature and working class
    - $\rightarrow$ profit
    - $\rightarrow$ technical and social innovation
    - $\rightarrow$ labour productivity

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Growth

- New products and services create new utility dimensions
- Diversity, complicated networks of interdependent and heterogeneous agents, entry and exit
- Problem of determining social value
  - Aggregation of individuals' utility vector

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Aggregation

- No interaction programs and use IO formalism to describe social value

$$
\left(
\begin{array}{c}
\lambda_1 \\
\lambda_2 \\
\vdots \\
\lambda_n
\end{array}
\right)
=
\left(
\begin{array}{cccc}
a_{11} & a_{12} & \cdots & a_{1n} \\
a_{21} & a_{22} & \cdots & a_{2n} \\
\vdots & \vdots & \ddots & \vdots \\
a_{n1} & a_{n2} & \cdots & a_{nn}
\end{array}
\right)
\left(
\begin{array}{c}
\lambda_1 \\
\lambda_2 \\
\vdots \\
\lambda_n
\end{array}
\right)
+
\left(
\begin{array}{c}
\ell_1 \\
\ell_2 \\
\vdots \\
\ell_n
\end{array}
\right)
$$

- The total value of net outputs Y
- The sum of direct labour time inputs L

Implies constant productivity of average individual $\frac{Y}{L}$

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Open Questions

- Evolution of Growth – Heterogeneous agents' approach
- Aggregation: Technical coefficient matrix in permanent change
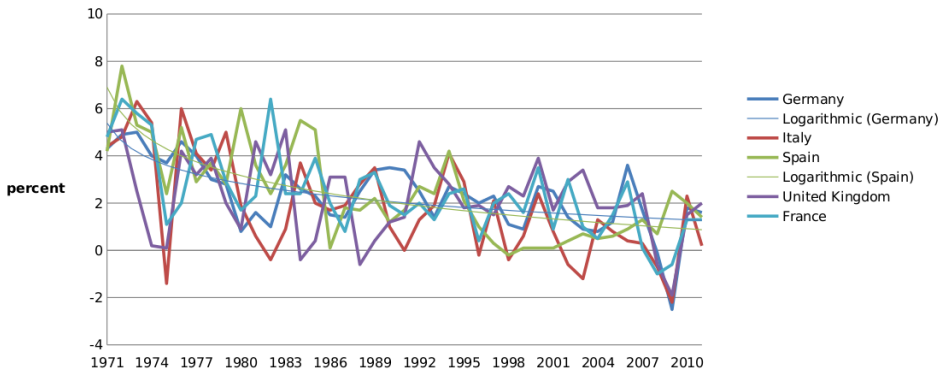
process innovation

$$
\begin{pmatrix}
a_{11} & a_{12} & \cdots & a_{1m} \\
a_{21} & a_{22} & \cdots & a_{2m} \\
\vdots & \vdots & \ddots & \vdots \\
a_{m1} & a_{m2} & \cdots & a_{mm}
\end{pmatrix}
\xrightarrow{\text{Innovation}}
\begin{pmatrix}
b_{11} & b_{12} & \cdots & b_{1n} \\
b_{21} & b_{22} & \cdots & b_{2n} \\
\vdots & \vdots & \ddots & \vdots \\
b_{n1} & b_{n2} & \cdots & b_{nn}
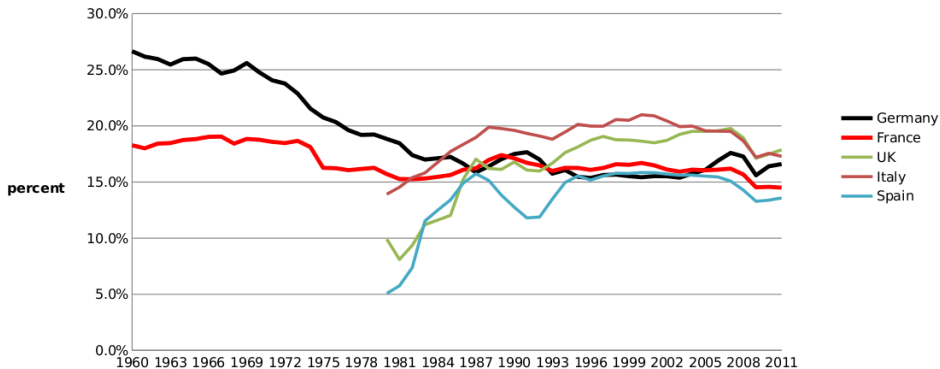\end{pmatrix}
$$

product innovation

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Source: http://stat.oecd.org/

Growth of Labour Productivity

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Profit Rates

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Source: http://stat.oecd.org/

Long-term Interest Rates

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European Economic Policy for the Short-run
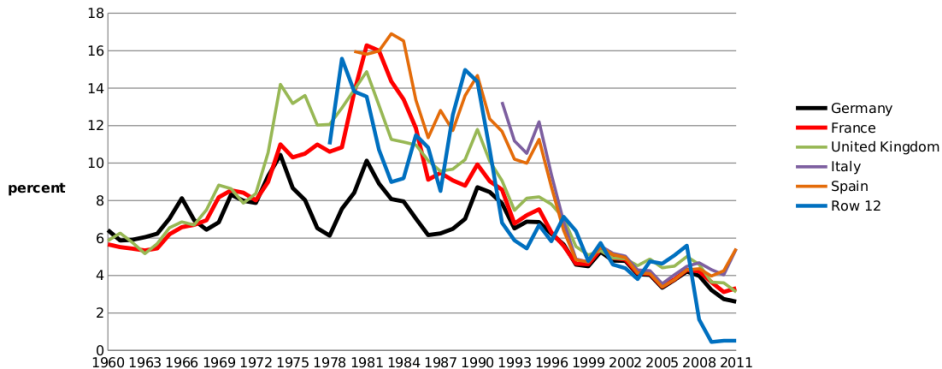
Europe at the Crossroads

1. What are the choices for Europe?
   - Break-up or full-fledged
2. Why should the Euro survive?
   - Economic decline, wider political diversity
3. How can Europe survive?
   - Europe needs a plan
4. Will Europe survive?

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European Economic Policy for the Short-run

European Economic Policy for the Short-run

Time is running short!!!

1. Debt
2. Interest rates
3. Banks
4. Unemployment
5. Social innovation

6. SMEs
7. Devaluation of the Euro
8. Wages
9. Fiscal Authority
10. Education

Hanappi H., 2012, Can Europe Survive? Ten Commandments for Europe's Next Ten Years, Papers for Evolutionary Political Economics (PEPE), No 9 (2012)

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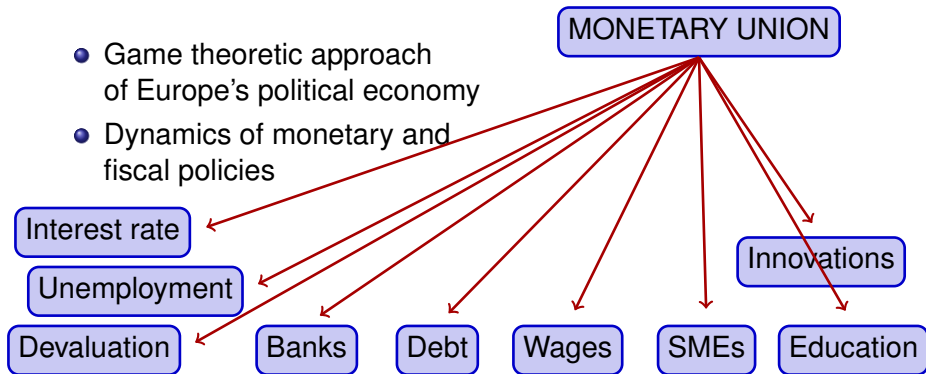European Economic Policy for the Short-run

Innovation policy in Europe focuses on social innovation

- How to increase utilities of Europe's citizens
- Stimulate participation in democratic process
- Export globally

Innovation policy in Europe focuses on social innovation
Democratic mechanisms for governance within Europe are
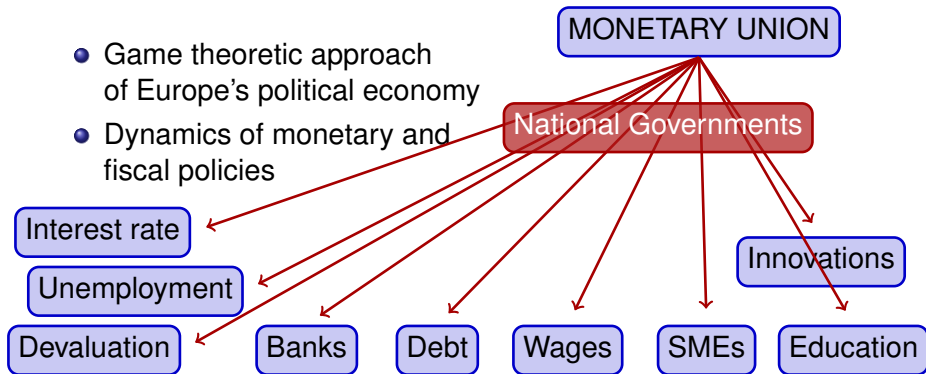preferred to solely technological advances.

New European Economy

- Game theoretic approach of Europe's political economy
- Dynamics of monetary and fiscal policies

MONETARY UNION

Interest rate

Unemployment

Devaluation

Banks

Debt

Wages

SMEs

Innovations

Education

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MONETARY UNION

National Governments

Interest rate

Unemployment

Devaluation

Banks

Debt

Wages

SMEs

Innovations

Education

Summary

- A better understanding – Heterogeneous agent based approach
- Finiteness of capitalisms – focus on social innovation
- New European economy – democratic control on monetary and fiscal policies in the EU