Life and Death of Innovation—what’s next?

Hardy Hanappi
Hanappi@tuwien.ac.at

Gizem Yildirim
gzmyldrm@yahoo.com

Department of Economics
Vienna University of Technology

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Outline

1. Endogenous Needs, Values and Technology
   - Life of Innovations
     - Accounting of Exchange
     - Evolution of Growth
   - Death of Innovations

2. What is next?
   - European Economic Policy for the Short-run

3. New European Economy
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
A new mode of production: *the growth of labour productivity* as a systematic force that permanently leads to new forms of social relationships.
A simple society with three economic sectors: farmers ($f$), manufacturers ($m$) and state ($s$)

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

Input–Output Flow Matrix  Transfers between Enterprises
Evolution of Growth

- How do different species effect each other's 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
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
Aggregation

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

\[
\begin{pmatrix}
\lambda_1 \\
\lambda_2 \\
\vdots \\
\lambda_n
\end{pmatrix}
= 
\begin{pmatrix}
a_{11} & a_{12} & \cdots & a_{1n} \\
a_{21} & a_{22} & \cdots & a_{2n} \\
\vdots & \vdots & \ddots & \vdots \\
a_{n1} & a_{n2} & \cdots & a_{nn}
\end{pmatrix}
\begin{pmatrix}
\lambda_1 \\
\lambda_2 \\
\vdots \\
\lambda_n
\end{pmatrix}
+ 
\begin{pmatrix}
\ell_1 \\
\ell_2 \\
\vdots \\
\ell_n
\end{pmatrix}
\]

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

Implies constant productivity of average individual \( \frac{Y}{L} \)
Open Questions

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

\[
\begin{pmatrix}
a_{11} & a_{12} & \cdots & a_{1m} \\
a_{21} & a_{22} & \cdots & a_{2m} \\
\vdots & \vdots & \ddots & \vdots \\
a_{m1} & a_{m2} & \cdots & a_{mm}
\end{pmatrix}
\rightarrow
\begin{pmatrix}
b_{11} & b_{12} & \cdots & b_{1n} \\
b_{21} & b_{22} & \cdots & b_{2n} \\
\vdots & \vdots & \ddots & \vdots \\
b_{n1} & b_{n2} & \cdots & b_{nn}
\end{pmatrix}
\]
Death of Innovation

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

Growth of Labour Productivity

percent

Death of Innovation

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

Profit Rates

- Germany
- France
- UK
- Italy
- Spain

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

Long-term Interest Rates

- Germany
- France
- United Kingdom
- Italy
- Spain
- Row 12
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?
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

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

Unemployment

Banks

Devaluation

Debt

Wages

SMEs

Education

Innovations

Interest rate

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MONETARY UNION

National Governments

- Innovations
- SMEs
- Education

- Devaluation
- Banks
- Debt
- Wages
- Unemployment
- Interest rate
- Education
- Life and Death of Innovation–what’s next?
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