

Evolutionary Economics

Towards the New World of Digital and Localized Economies

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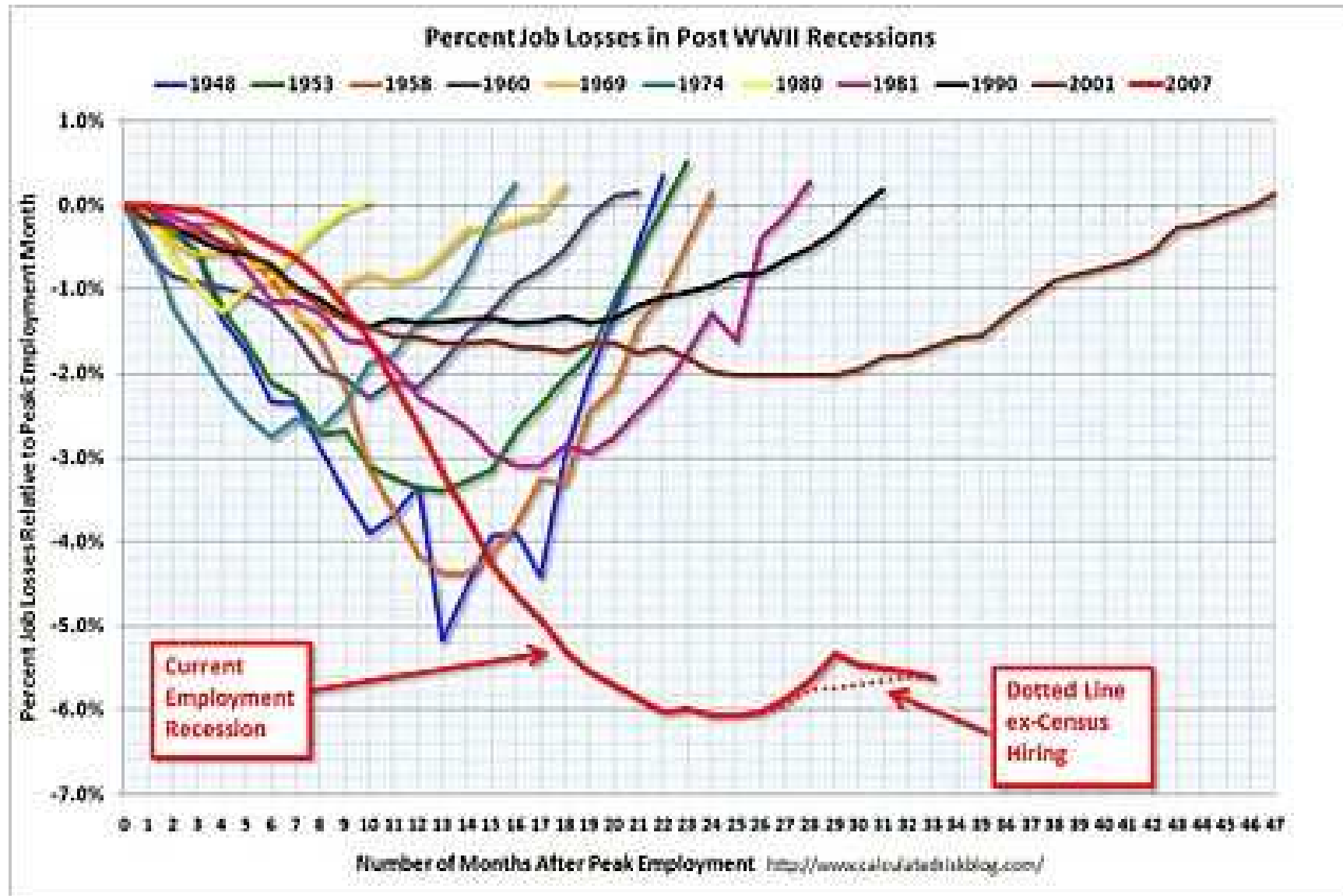
Fordham University

The Tomas Bata University

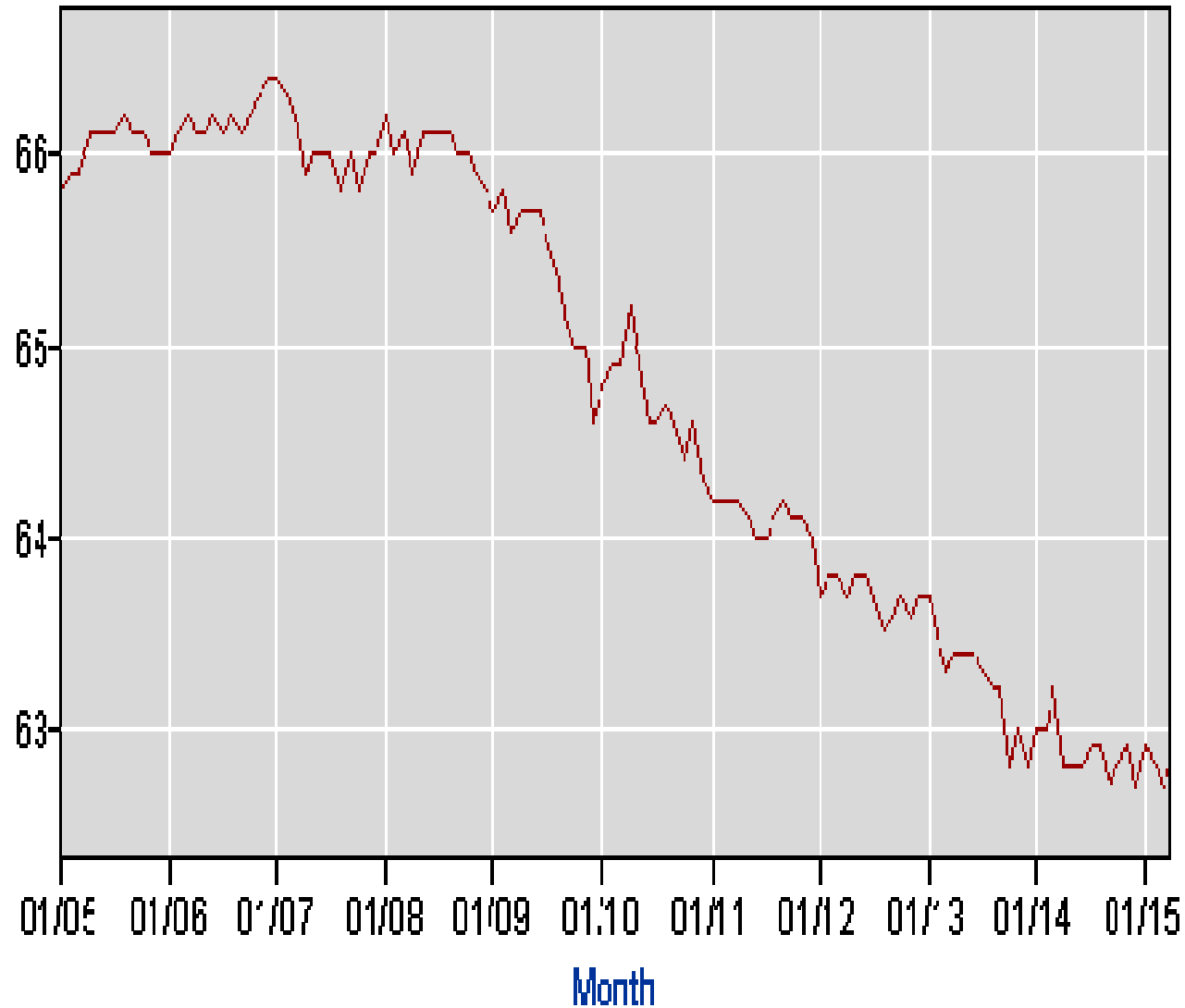
These truly are remarkable times

- US GDP shrank - **0.7 %** in the first quarter of 2015
- US business investment fell - **2.8 %**
- Exports of goods and services decreased - **7.6 %**
- Weak US trade knocked **-1.9 %** off the overall growth GDP
 - The rouble is one of the world's best performing currencies this year with **+20 %** gain against the US dollar
- Index of consumer sentiment fell **to 90.7 from 95.9** in April.
- **5.4%** unemployment rate, 7-year low. **93 million Americans not working**. US labor force participation **lowest since 1977**.
- Excluding the inventory, Japan GDP grew a meager **+0.7 %**
- German economy grew by only **+0.3%** in Q1 2015
- German PMI Manufacturing down to 51.1

Pattern of recessions



Workforce Participation since 2005



Workforce Participation since 1950

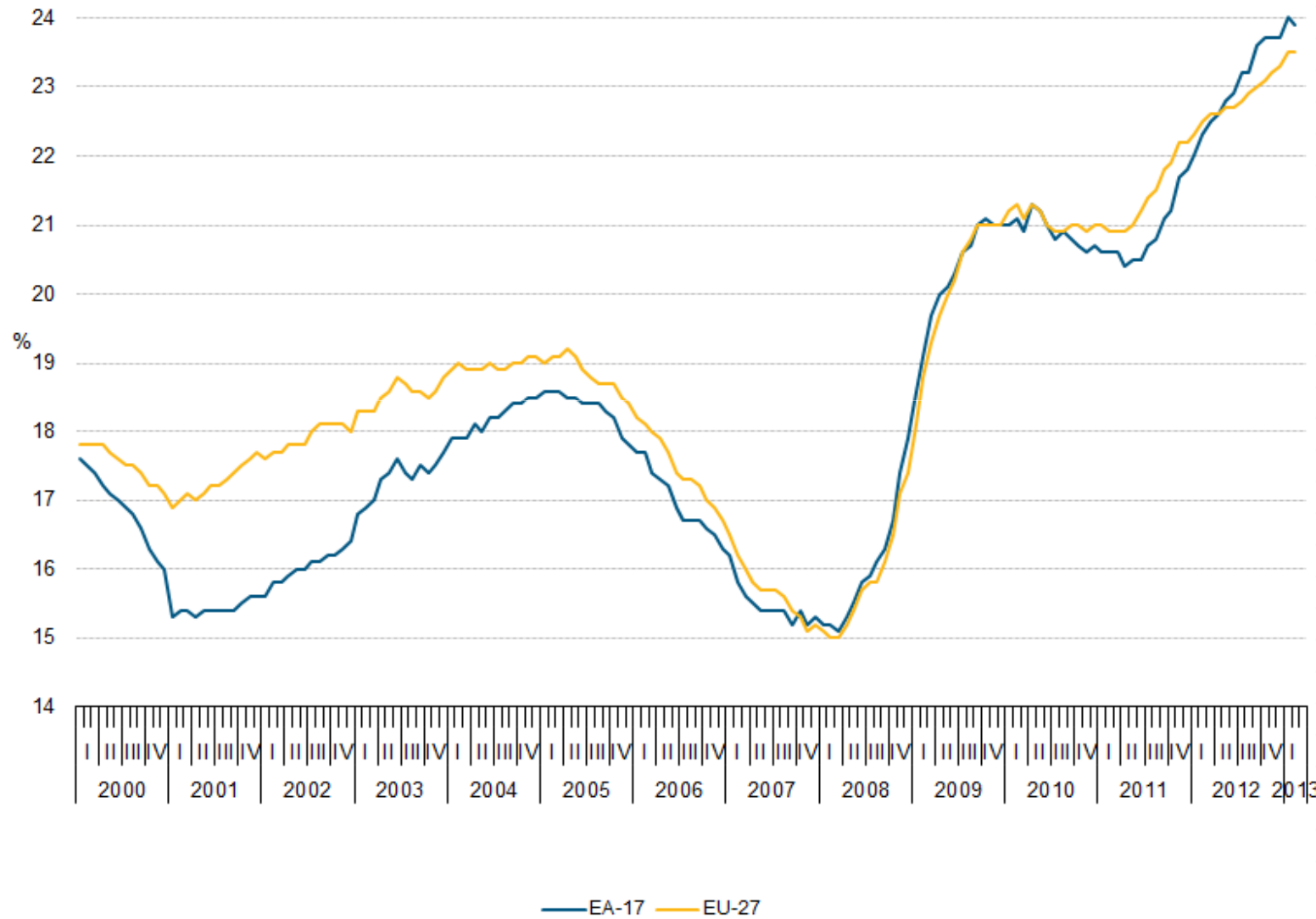
(USA 62.7% - as in 1977)



Not in Workforce (over 93 mil.)



EU youth unemployment 2013

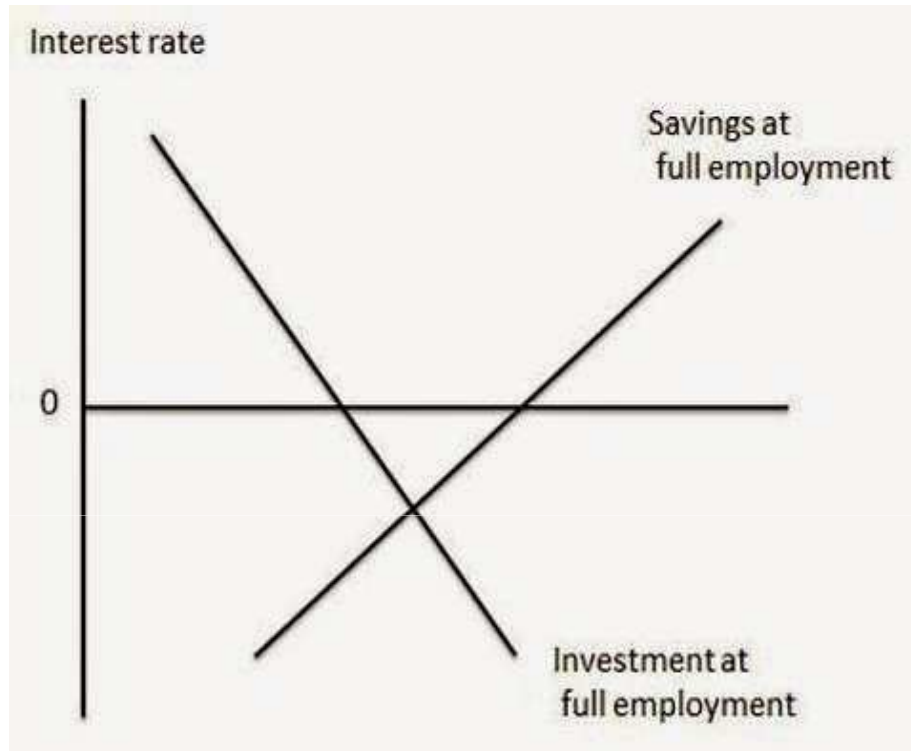


30 Year US T-Bond Yield (1977-2015)

30 Year US T-Bond Yield



Secular stagnation (SS)



**Chronic excess
of savings over
investments**

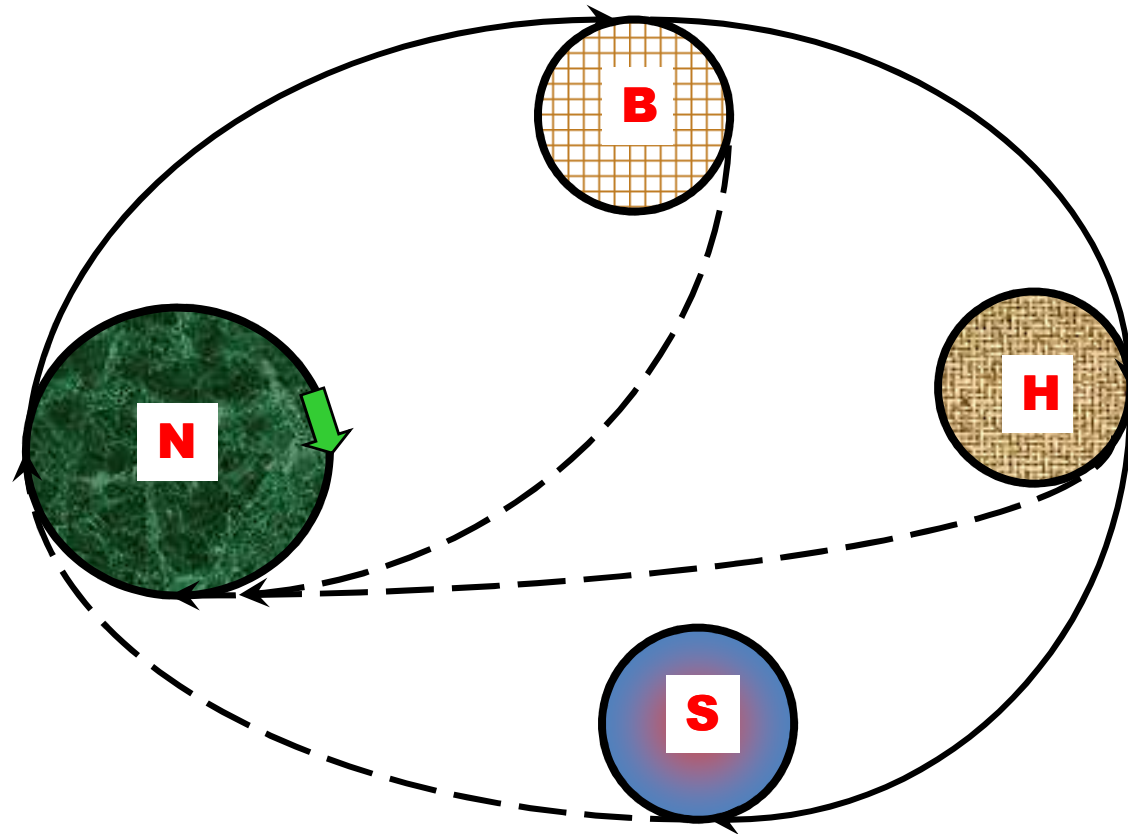
Cause and consequence?

*Without a cause, there is
no diagnosis; without
diagnosis, there can be
no cure.*

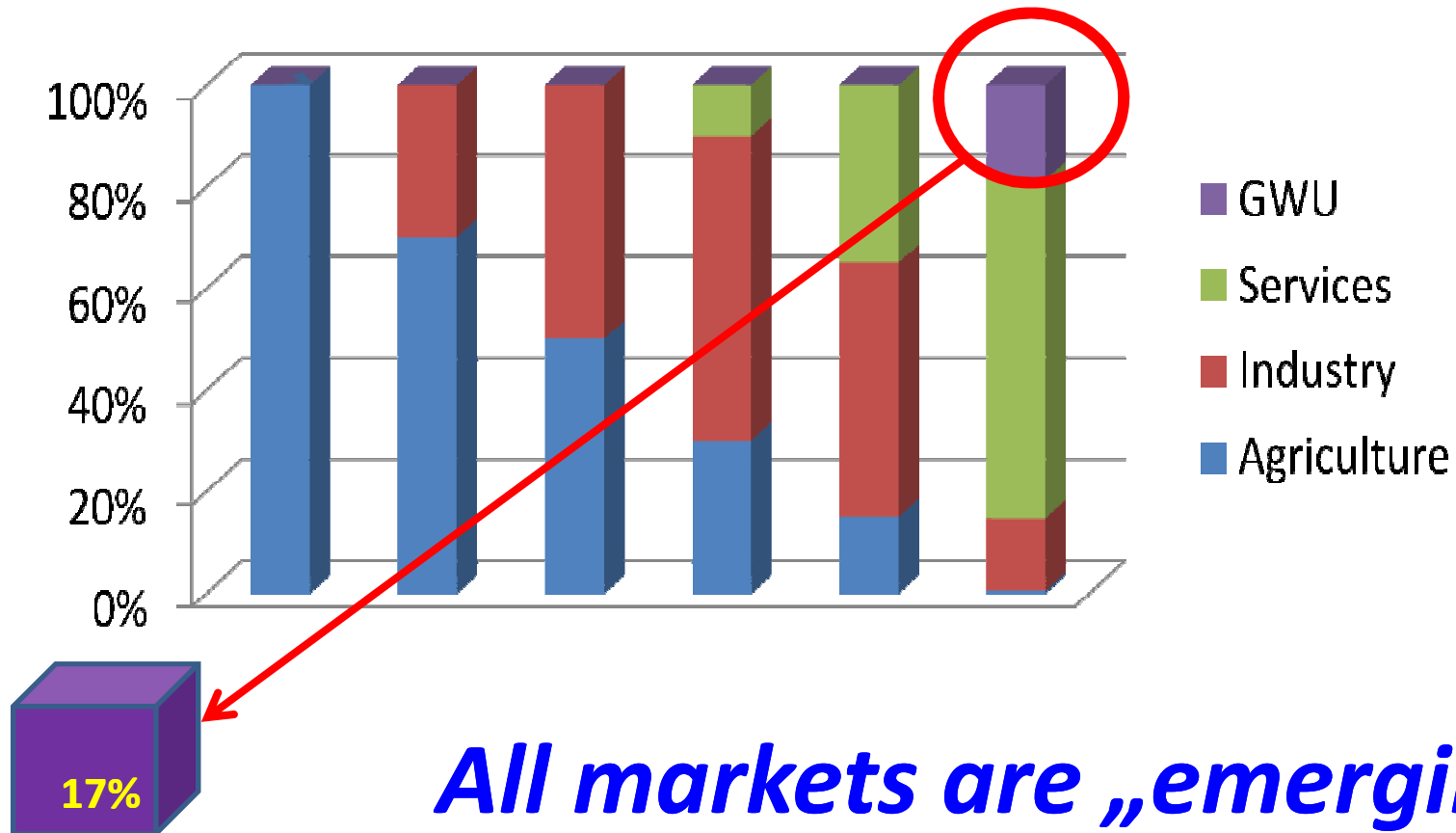
**Interest rates measure value of
money. There can be no true
economy without the true and
reliably signaling interest rates.**

Autopoiesis, Panarchy and Self-Sustainability

H/G → A → I → S → GWU



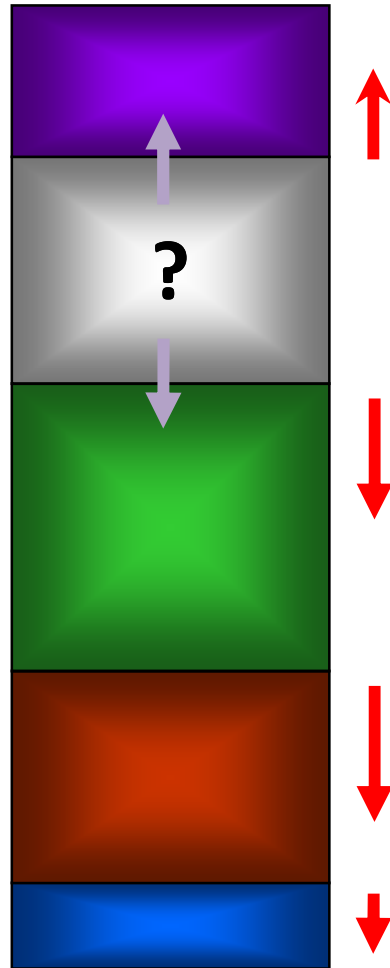
World under Transformation



***All markets are „emerging“
(through a series of transformations)***

Metamorphosis

Dilemma of advanced economies



A completed series of sector transformations brings forth qualitative metamorphosis of economic system towards localized, automated and integrated (sector-free) communities. The sector differentiation of globalization leads to sector integration of relocalization.

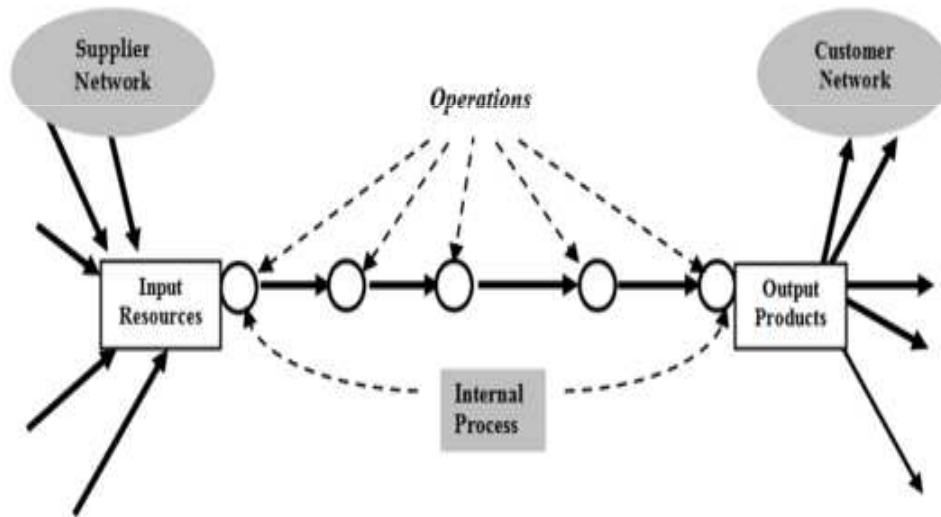
Mainstream Macroeconomics?

- One-sector growth model (Kuznets, 1973) predicts sustained growth in productivity and living standards
- Two-sector model: consumption and investment „sectors“
- Consumption is not disaggregated into agriculture, manufacturing and services
- Assuming the entire added value belongs to manufacturing
- Reallocation of economic activity across sectors coexists with „balanced growth“
- Labor homogeneous: can move across sectors without mobility costs
- Sector reallocation of economic activity is inefficient and calls for governmental intervention

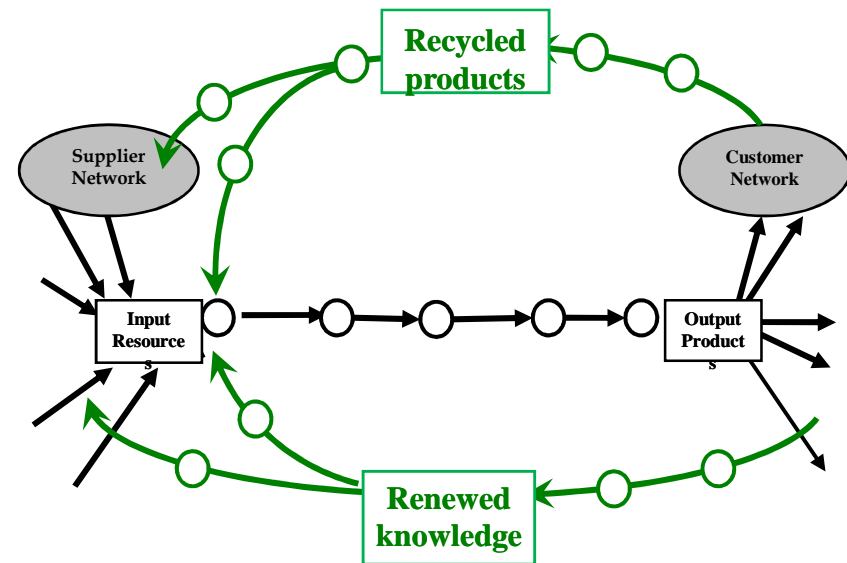
Why? Because multiple-sector dynamics cannot be handled by neoclassical mathematics (although quite easy for modern evolutionary simulation).

Mechanism vs. Organism

Linear input-output (physics; mechanical)



Circular autonomy (biology; organic)



Key Metamorphosis Drivers

(Relocalized Technologies)

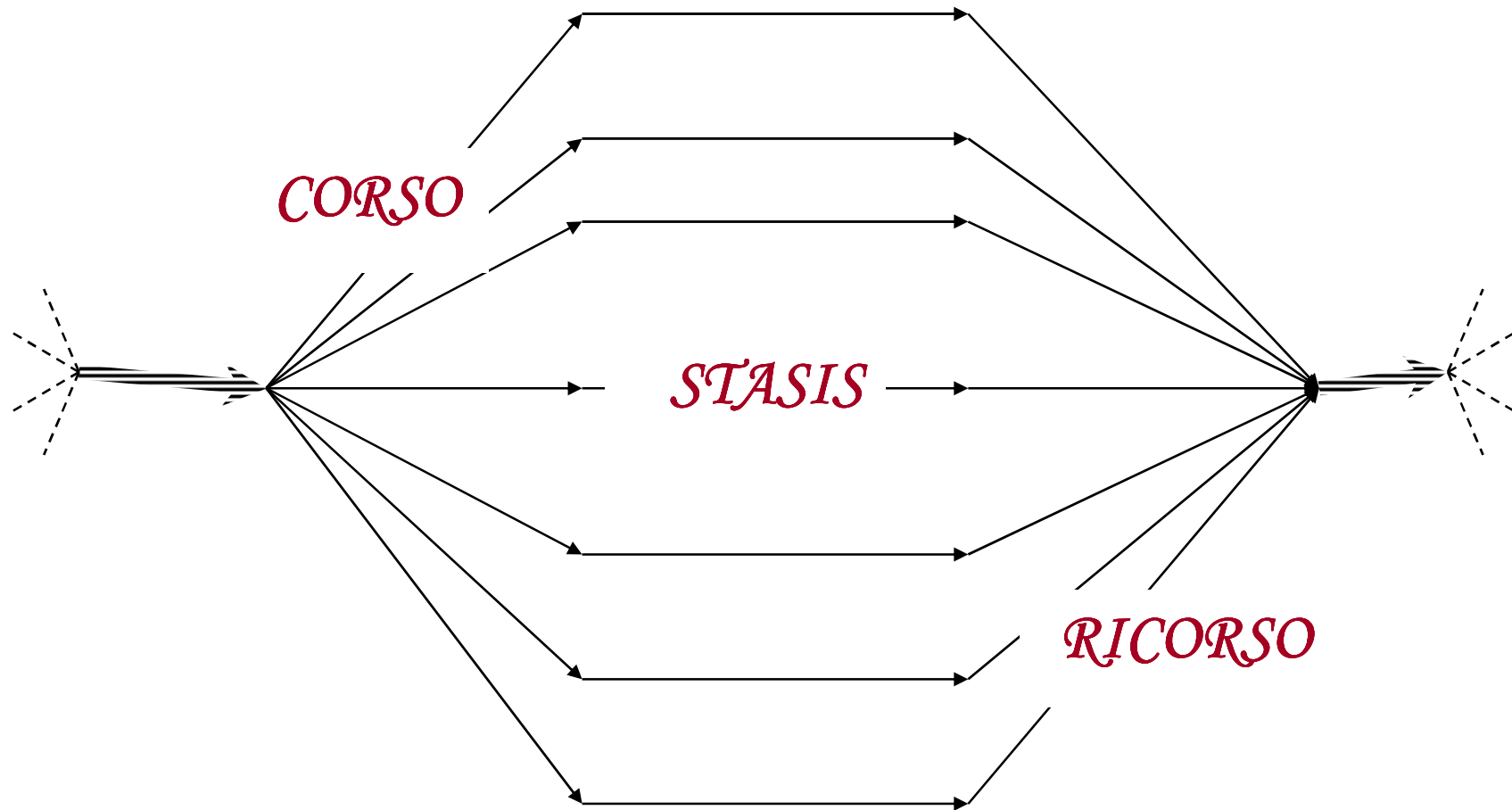
- 1. Self-Service (Outsourcing to Customer); Self-Help Empowerment**
- 2. Disintermediation (Elimination of the middleman; unbundling of services)**
- 3. Mass- and Self-Customization (Prosumer); massive individualization**
- 4. Information to Knowledge (From Description to Action)**
- 5. Reintegration of Labor, Task and Knowledge**

Additional Metamorphosis Drivers

- 6. From Supply chains to Demand chains (CIP)**
- 7. Digital and Virtual economy (Digital files + 3D = end of trad. industry)**
- 8. High-Technology Impact (Disruptive technologies; discontinuous improvement)**
- 9. Technology Support-Net Bypass**
- 10. From Linear to Cyclical Organization (Waste Elimination)**
- 11. Resource Substitution and Optimization**
- 12. Towards Entrepreneurial University**

Corsi e ricorsi storici

Giambattista Vico



Relocalization

Corso and Ricorso of socio-economic evolution

Globalization - restructuring of the initially distributed and localized world economy into spatially reorganized processes of production and consumption across the national boundaries, economies and political states on a global scale.

Relocalization - restructuring global knowledge and high-technology based expansion of the local experience and local producers and consumers. Global experience and knowledge is becoming *embodied* in local communities.

Localization → Globalization → Relocalization

Corso: localization → globalization

Ricorso: globalization → relocalization

From Globalization to Relocalization

Traditionally, growth rate of GDP is 3,5% and int. trade is 8% (2006) - about twice as high

Last years: **growth GDP > growth int. trade**
(2015: Jan -1.6%, Feb -0.9 %)

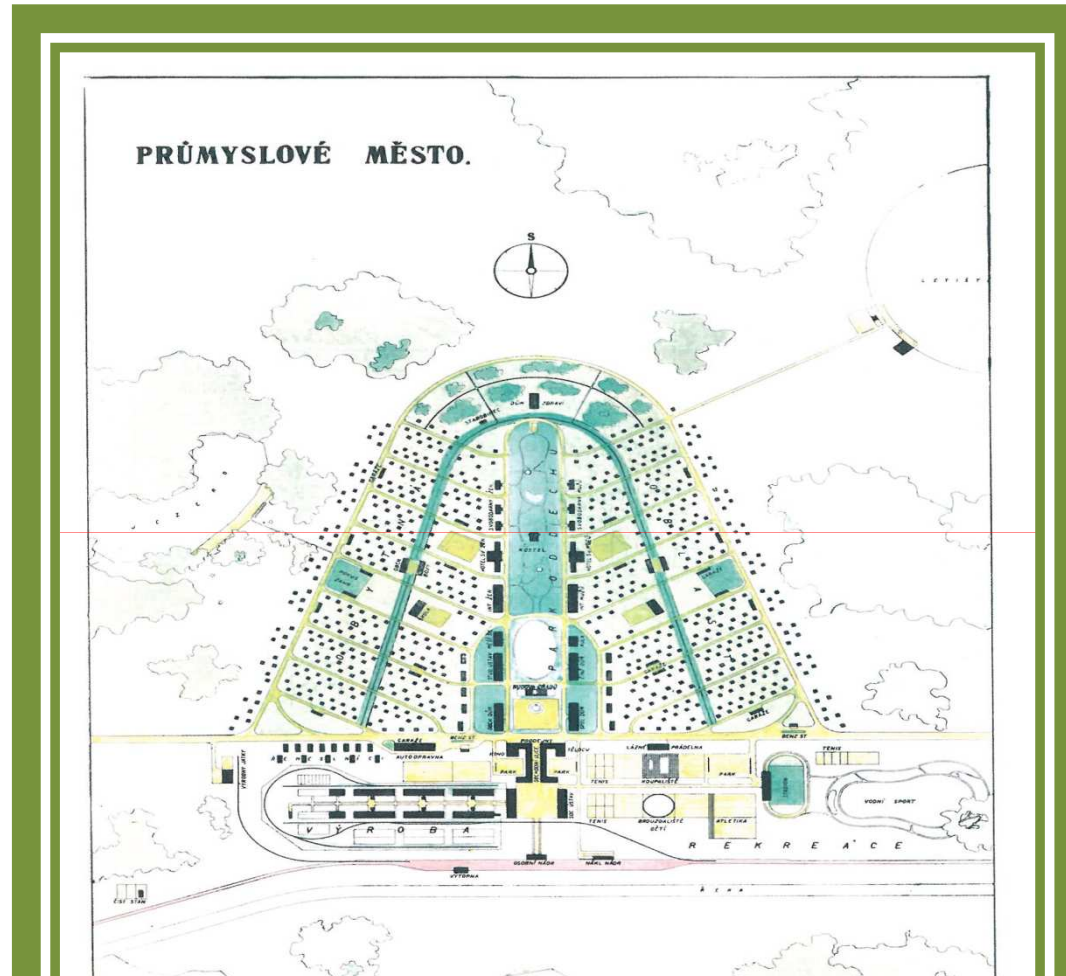
==> Deglobalization

Investment in foreign assets now falling *under* 40% (*over* 50% in 2008)

==> Relocalization

“The golden age of globalization has ended” (Beijing)

J. A. Bata's "Industrial City" (1939)



Today we would call it *Knowledge City*, with atmospheric satellite, total digitization, entrepreneurial university, custom-made production, vertical farming and additive manufacturing.

At the speed of light ...



Digitized information and knowledge (software, algorithms, recipes, programs, methods, etc.) travel to the points of *prosumption* more effectively than logistics of physical products and objects.



New World Strategy

- 1. Understand *the phenomenon***
- 2. Adapt *to the circumstances***
- 3. exploit new Opportunities**

Sources

1. http://en.wikipedia.org/wiki/Transformation_in_Economics
2. <http://www.financialsense.com/financial-sense-newshour/milan-zeleny/economy-complex-adaptive-organism>
3. “Machine/Organism Dichotomy of Free-Market Economics: Crisis or Transformation?” *Human Systems Management*, 29(2010)4, pp. 191-204.
4. “Crisis or Transformation: On the *corso* and *ricorso* of human systems,” *Human Systems Management*, 31(2012)1, pp. 49-63.
5. *Human Systems Management: Integrating Knowledge, Management and Systems*, World Scientific, 2005.