Repair activities as a post-growth compatible module of production

Fixfest
Berlin, 21-09-2019
Niko Paech
## Agenda

1. Growth and sustainability: Two challenges
2. The history and perspective of post-growth economics
3. Production theory, supply chain management, and prosumers
4. Including repair activities into an post-growth framework
Un monde de fakes!
Technology-based increases in labor productivity \( P_L \) have been and are the source of material wealth, but always conjured up a societal development on a knife edge.

- It is possible to produce more output \( Y \) based on the same labor input \( L \).
- With the increase in labor productivity, real wages rise.
- But it is also possible and may be optimal from a business perspective to dismiss workers which may end up in social crises.
- Through sufficient growth not only crises can be avoided, but full employment can be achieved on a higher average level of wages.
More intensive growth dilemma

- Dilemma: Industrial societies are increasingly dependent on growth and are simultaneously confronted with more relevant limits to growth.
- Therefore, new, less growth-dependent production systems are necessary.
- Supply practice in a context of less labor productivity may mitigate the dilemma as well.
Post-growth transformation and macroeconomics

Quelle: O’Neill (2012, S. 222)
A short (and incomplete) history of growth criticism

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<thead>
<tr>
<th>Old schools of growth critical thinking</th>
<th>New schools of growth critical thinking</th>
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<tbody>
<tr>
<td><strong>1. Is unlimited growth possible?</strong></td>
<td><strong>4. Is degrowth possible?</strong></td>
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<tr>
<td>– Quesnay (1758)</td>
<td>– Gronemeyer (1988)</td>
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<td>– Malthus (1798)</td>
<td>– Neirynck (1992)</td>
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<td>– Mill (1848)</td>
<td>– Sachs (1992)</td>
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<td><strong>2. Does growth increase welfare?</strong></td>
<td>– Sakar (2001)</td>
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<td>– Keynes (1941)</td>
<td>– Pallante (2005)</td>
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<td>– Erhard (1957)</td>
<td>– Layard (2005)</td>
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<td>– Gran (2017)/Lange (2017)</td>
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Post-growth economics

Growth criticism
- „Productivity trap“
- Failure of decoupling
- Peak everything
- Social inequality
- Peak happiness
- Financial crises

Growth drivers
- Demand side
- Supply side

Post-growth economy
- Sufficiency
- Self-supply
- Regional economy
- Steady-state industry
- Institutional change
A history of supply chain management (Bechtel/Jayaram 1997)

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<th>Chain Awareness School</th>
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<th>The Future: Integration of end costumers</th>
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<td>Installation</td>
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<td>Recycling</td>
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Post-growth compatible supply chain architecture?
Post-growth economy: Three dimensions of the supply side

- **20 hours of „normal“ weekly working time**
- **20 hours for non-market production**

### Commerzialized sector of the economy
- Global
- Long supply chains
  - Industrial Specialization
  - Global Sourcing
  - Offshoring
  - Durable Product Design
  - Modularity / Reparability
  - Aesthetic Durability
  - Efficiency / Closed Loops
- Medium supply chains
  - Repair Services
  - Maintenance / Optimization
  - Renovation / Conversion
  - Recycling of goods
  - Sharing Services
  - Hand-craft / Organic Farming
  - Regional Money
- Self-supply
  - Own Production
  - Maintenance and repair
  - Sharing goods

### Non-commerzialized sector
- Regional
- Local
- Output
- Labour intensity
- Capital intensity

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Interaction between prosumers and companies

Prosumers

- Manual production (self-supply)
- Intensification of usage (sharing)
- Increasing the durability of goods

New products
Used products

Time resources
Craft and manual skills
Social networks

Companies

Production of new goods and services
Second hand trade
- Rebuilding
- Maintenance/Repair
Part-time models to absorb output reduction
Prosumer management
- Repairable design

Interaction between prosumers and companies
Conclusion: A supply chain architecture that integrates prosumers

Supply chain orientated at service units \((s)\) instead of quantities of products \((y)\)

\[
y = f(x_1, \ldots, x_n)
\]

\[
z = h(w_1, w_2, w_3) \approx \frac{\text{yield}}{y}
\]

\[
s = g(y, z)
\]

- Post-growth companies substitute production \((y)\) by prosumer performance \((z)\).
- The more powerful prosumers, the less the need for production of goods.
  - Direct measures prosumer management: Providing self-supply resources \((w_1 = \text{time}, w_2 = \text{skills}, w_3 = \text{networks})\)
  - Indirect measures of prosumer management: Optimizing the design of products so that they are suitable as an input factor for prosumers.
Multifunctional regional repair center to bundle activities

- Municipal waste management
- Customers
- Employment office
- Craftsmen, mechanics
- Retail trading
- Municipal office for economic affairs
- IHK
- HWK
- Guilds