

Industrial policy from a systems of innovation perspective

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Why industrial policy should be = innovation policy

- **Policy** = action by public organisations
- Public resources are limited
- Public action should **not duplicate** private action – but supplement it (will return to this later)
- Private actors are weak where **uncertainty** is large
- **Innovation** is plagued by uncertainty
- Uncertainty is largest for innovation in **new** fields
- Hence innovation policy should focus mainly on **new** fields: it should serve as a **midwife** – not provide support towards the end of life

Systems of innovation (SI)

- The SI approach is about **determinants** of innovation processes – **not** about their consequences
- Innovation processes develop over time and involve the influence of many factors and feedback processes, and they can be characterized as **evolutionary**. Therefore, **an optimal or ideal SI cannot be specified**
- The notion of **optimality** is **irrelevant** in a SI context

Components in SI's

- **Organisations** and **institutions** are the main components of SI's
- **Organisations** = are formal structures that are consciously created and have an explicit purpose = **players**
- **Institutions** = habits, norms, routines, rules or laws = the **rules** of the game

10 important activities in SI's (1)

Provision of **knowledge inputs** to the innovation process:

1. Provision of **Research and Development** (R&D), creating new knowledge, primarily in engineering, medicine and the natural sciences.
2. **Competence** building (provision of education and training, creation of human capital, production and reproduction of skills) in the labor force to be used in innovation and R&D activities.

10 important activities in SI's (2)

Demand-side factors:

3. Formation of new product **markets**.
4. Articulation of **quality requirements** emanating from the demand side with regard to new products.

10 important activities in SI's (3)

Provision of constituents for SI's:

5. **Creating and changing organizations** e.g. enhancing entrepreneurship and intrapreneurship, research organizations, policy agencies, etc.
6. **Networking** through markets and other mechanisms, including interactive learning between different organizations
7. **Creating and changing institutions** - e.g. IPR laws, tax laws, environment and safety regulations, R&D investment routines, etc

10 important activities in SI's (4)

Support services for innovating firms:

8. **Incubating activities**, e.g. providing access to facilities, administrative support, etc.
9. **Financing** of innovation processes and other activities that can facilitate commercialization of knowledge and its adoption.
10. Provision of **consultancy services** of relevance for innovation processes, e.g. technology transfer, commercial information, and legal advice.

Activities vs. Components

- The ten activities are actually hypothetical **determinants** of innovation processes.
- The increased emphasis on ‘activities’ does not mean that we can disregard or neglect the ‘**components**’ of SIs.
- We need to focus on both **activities** and **components** to understand innovation processes – and to design innovation **policy**.

Reasons for policy intervention

Two conditions must be fulfilled for public intervention to be motivated in a market economy:

- (1) Private actors and markets must fail to achieve the objectives formulated; i.e. a '**problem**' must exist.
- (2) Public actors must have the **ability** to solve or mitigate the problem.

Problem identification

- A **problem** occurs when private actors and markets do not automatically realize objectives
- Problems can only be identified through **comparative** analyses between **existing** systems of innovation (over time and space)
- Comparisons cannot be made between existing systems and optimal systems
- This is **contrary** to most policy analysis

Comparative analyses

- The comparisons must be genuinely **empirical** and very **detailed**. If so, they can identify "problems" that should be subject to policy intervention.
- When the "problems" have been identified, we also need to know the main **causes** or determinants behind the "problems"
- This is the same as pursuing the analysis in terms of the ten **activities**

Policy = division of labour

- Policy analysis can be seen as analyses of the division of labour between private and public actors with regard to the ten activities – one by one
- We can analyze the existing division of labour as well as how it should be changed to mitigate a certain "problem"
- We are currently pursuing such analyses of ten national SI's in Europe and Asia

Uncertainty and timing

- Markets and firms perform least efficiently with regard to new activities, where uncertainty and risk are large.
- Large-scale and radical technological shifts rarely take place without public intervention.
- A minor intervention at an early stage in the innovation process may have a very large impact. A major effort at a mature stage may have only a small impact.

Conclusion

- The policy discussion at each point in time should focus upon **changes** in the division of labour between the public and the private spheres or upon **changes** in those activities **already** carried out by public agencies
- This includes **adding** new public policy activities as well as terminating others. **Terminating** activities is not least important

References:

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