



Revisiting the case for industrial policy

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Why industrial policy?

- Policy intervention conditional on existence of market failures: What are the relevant ones?
- Scale economies (dynamic and/or external to the firm).
- Knowledge spillovers.
- Coordination failures.
- Informational externalities.

Infant industry argument: a precursor for modern IP?

- One of the oldest arguments for trade protection – not dismissed out of hand by economists.
- Most popular (and the simplest) version of the IIA argues for *temporary* protection on the basis of (dynamic) scale economies external to the firm.
- Informational disadvantage: Grossman and Horn (1988).

Harrison and Rodriguez-Clare (2010): external economies

- Consider a two sector small open economy with one sector subject to externalities – productivity increases with scale up to a point. Better to specialize in it but may not happen (market failure).
- *Sufficient condition* for welfare improving policy intervention: inducing specialization in the externality sector improves welfare if latent CA is in that sector – Ricardian flavor.
- If world relative price is endogenous, need externalities to be large as well.

H & R-C (2010): contd.

- Existence of latent CA in the externality prone sector is *not necessary*: existence of rents can also justify protection – strategic trade.
- Intervention can also be justified if spillovers accrue to the other sector.
- Trade protection is not first best but subsidies may be infeasible – IIA often premised on this.

Evaluation of policy

- Mill's test: simply requires that industry be able to survive in international markets – i.e. be profitable eventually.
- Bastable's test: discounted future benefits should at least offset the costs of intervention.
- Latent CA is enough to meet Mill's test but clearly not that of Bastable – should base policy on this.
- Melitz (2005): most recent analysis of IIA.

Baldwin (1969)

- A classic paper: remains relevant today.
- Why cannot firms borrow to cover initial costs?
- Almost all business have up-front costs. What makes the infant industry so special?
- Counter to above: capital market imperfections.
- What is the first-best policy?

Problems with IIA

- If the learning process is not idiosyncratic then foreign industry's experience is relevant and (foreign) investors should be willing to lend.
- If it is, then likely that *no one* really knows whether the domestic industry is profitable in the long run.
- Investors may not lend if expected returns fall short of up-front costs. But this is *not* a market failure.

More problems...

- Argument does not really specify *how* learning occurs – i.e. takes it as exogenous.
- But learning usually requires considerable effort and investment on the part of firms.
- If firms can appropriate the returns of their investment, there is no problem.
- But if there are knowledge spillovers, could justify the use of subsidies.

Implementation of subsidies?

- It *takes time* to discover whether a new idea or technology is socially valuable.
- *When* to subsidize?
- A policy of rewarding early entrants requires an accurate forecast of the social value of their investments.
- Speeding up is not necessarily optimal: under uncertainty “wait and see” can be socially optimal.

Informational disadvantage

- Foreign consumers may lack information about quality of domestic firms.
- Grossman and Horn (1988): if returns from reputation development are appropriable, no real case for IIA protection/support .
- Result contrasts with Mayer (1984) who assumed that foreign consumers do not learn the reputations of individual firms so each firm generates a positive externality by helping ‘cultivate’ the foreign market.
“Japanese” versus “Toyota’s” reputation.

Is all lost for the IIA?

- Perhaps not: financial sector may be underdeveloped or deficient.
- But should we then treat the financial sector also as an infant industry?
- Is there an end to this spiral?
- Deficiencies often result from prior policy interventions.
- In any case, policy ought to target the specific distortions in the financial sector (instead of creating them).

Knowledge spillovers and industrial targeting

- Can CA guide the pattern of specialization when learning opportunities or degree of spillovers generated *vary across goods or industries*?
- Under such asymmetries, can industrial targeting help? Two problems:
 - ◆ *Informational problem*: Which are the *right* industries?
 - ◆ *Evaluation difficulty*: How do we evaluate successes and failures? What are the correct counterfactuals?

Industrial targeting: the hope

- The ideal but rarely attained goal is to encourage investment in sectors that are likely to develop *general-purpose technologies*.
- DARPA, an small unit within the U.S. Department of Defense, an early contributor to the development of the internet.
- What hope of replication? By their very nature, GPT do not come along frequently! Cannot invent electricity and the internet every few years.

Lessons from models of targeting

- Can think of targeting as an *optimal experimentation strategy* of a government that lacks information about the set of industries in which the economy has CA.
- Literature shows that industrial policy can easily lead a country to specialize in sectors in which it does *not* have CA.
- The key parameter: beliefs of the policymaker -- may stop looking for better targets when the favored industries perform well enough.
- Why is private sector experimentation sub-optimal?

Rationale # 2: coordination failures

- Some projects require simultaneous investments in order to be viable and if these investments are made by *independent* agents, each agent may choose not to invest even though social welfare is higher if they all do.
- Okuno-Fujiwara (1988): models the coordination problem between an upstream and downstream industry. Multiple equilibria that can be Pareto ranked.

How tight is the coordination failure argument?

- The argument assumes that the organization of production activity is *exogenous and must occur via the market.*
- Why would industries whose profitability is so intimately intertwined not find ways to coordinate decisions? International supply networks, businesses engaged in international outsourcing, and multinational firms routinely do this over vast distances.
- Vertical integration or long term contracts between interdependent industries?

Other shortcomings...

- Coordination failures can arise only if (a) there exist scale economies in production and (b) there is highly imperfect tradability across national.
- Assumption (b) runs up against the core empirical fact underlying the 'new' trade theory – trade in intermediate goods dominates world trade!
- No small contradiction there!
Can rescue the story by interpreting intermediates as non-tradable services or labor skills a la Rodrik (1996).

And some more...

- Why cannot services be provided by multinationals?
- Rodriguez-Clare (1996): multinationals expand the range of non-tradable intermediates available and FDI creates (as well as displaces) vertical linkages.
- Growth in international supply chains and FDI are two highly visible features of industrial growth in the last decade.
- Policy often restricts FDI in services. Not a market failure.

Rationale # 3: Informational externalities

- Hausmann and Rodrik (2003): a country's true CA may need to be *discovered* via costly investments.
- No one really knows what to export whereas the neoclassical model assumes pattern of CA is known to all.
- Figuring out the pattern of CA requires costly investments – notion of *self-discovery*.

Informational externalities (contd).

- Like innovation, the process of self-discovery generates social benefits and returns to it may not be fully appropriable – nothing like IPR protection exists.
- If a niche is found to be profitable by an entrepreneur, it invites entry by others. If so, the level of investment and entrepreneurship delivered by the market falls short of the social optimum.
- Argument assumes minimal first mover advantage; quick subsequent entry; or large sunk costs of discovery.

Lin (2009): structural transformation

- Optimal industrial structure of an economy evolves over time and so do the underlying infrastructure needs.
- Investments in infrastructure need to be based on the needs of the local industrial structure.
- While the market is the fundamental agent of resource allocation, the government can play a facilitating role in diversification and upgrading – processes that generate spillovers.

Key role of infrastructure and FDI

- Lin (2009): should think of infrastructure as a part of an economy's set of endowments.
- Hard (roads, ports etc.) and soft (institutions, customs, culture etc). Government plays a central role in both.
- Need to invest in both – also Harrison and Rodriguez-Clare (2010).
- FDI preferable to other types of flows: technology and irreversibility.

If industrial policy is a must...

- How to design it? Rodrik (2008) offers three general principles:
 - ◆ *Strategic collaboration* between government and private sector. Incentives? Capture?
 - ◆ *Carrots and sticks*: learn from both mistakes and successes. Can governments pull the plug?
 - ◆ *Accountability* of responsible agency along with *autonomy* (like the Fed) and *transparency*.

Concluding remarks

- Rich literature on industrial policy.
- A variety of arguments have been made but each has its pitfalls and policy implementation is subject to serious challenges.
- A large body of case-study and econometric evidence has been collected – some weakly positive and some not.
- Rodrik (2008): “cannot settle it on the basis of statistical evidence.”
- Statistical problems and lack the relevant counterfactuals.