

Future of Industrial Policies

Part 3: Should Industrial Policy in Developing Countries Conform to Comparative Advantage or Defy it?

EE 482: Public Policy and Industrialization
Semester 2 / 2020
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- Author of 16 books, and in 2007 gave the Marshall lectures at the University of Cambridge, on themes related to this debate, published as *Economic Development and Transition: Thought, Strategy, and Viability* (Cambridge University Press, 2009).

Ha-Joon Chang

- Ha-Joon Chang, Reader in the Political Economy of Development, Faculty of Economics, University of Cambridge.
- Author, inter alia, of *Kicking Away the Ladder: Development Strategy in Historical Perspective* (Anthem Press, 2002), and *Bad Samaritans: Rich Nations, Poor Policies, and the Threat to the Developing World* (Random House, 2007).

The case for a state role: market failures that block innovation

Justin Yifu Lin

- **Developing economies** are **ridden with market failures**, which cannot be ignored simply **because we fear government failure**.
- One such market failure is caused by **important information externalities**.
- **Economic innovations** – whether they **succeed or fail** – **yield information** about **profitable and unprofitable market opportunities**.
- But because much of this information is available **not only** to the **innovators** themselves **but also** to **competitors** and potential imitators, who **do not bear any of the costs of the innovation**, it will tend to be undersupplied by the market.
- **Government subsidies** are one possible mechanism for **encouraging innovation** and **offsetting** this **first-mover disadvantage**.

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- A **second market failure** is caused by **co-ordination problems**.
- Developing countries lag behind more developed countries, not only in technology and industrial structure, but also in human capital, infrastructure and institutions.
- For a country to **climb up** the **industrial and technological ladder**, a host of other changes also need to take place.
- Technologies become more complicated, **capital requirements** increase, the **scale of production** increases, the **size of markets** increases, and market exchanges increasingly take place at arm's length.
- **Individual firms** clearly **cannot internalise all these changes cost-effectively**, and **co-ordination among many firms** to achieve these changes will often be **impossible**.
- For this reason, **it falls to government** either to introduce such changes itself or to co-ordinate them.

The case for a state role: market failures that block innovation

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- These cases, the **positive externalities** of firm **entry** and **experimentation** and **needs for co-ordination** can justify **government intervention**, and do so in a way that is **perfectly compatible** with **neoclassical economic theory**.
- It is true that the force of this argument is lessened by the **high risk of government failures**, but **fear of poor governance does not absolve us** of responsibility for trying to design effective strategies for facilitating development.
- During the past half-century, it remains true that **there are few** if any examples of governments that have **succeeded with a purely laissez-faire approach** that does not try to come to **grips with market failures**, and far **more examples** of **rapid growth** in countries whose **governments have led effectively**.

The facilitating state: helping the private sector exploit comparative advantage

Justin Yifu Lin

- The **optimal industrial structure** is endogenous to the **country's endowment structure** – in terms of its **relative abundance** of **labour and skills, capital, and natural resources**.
- Upgrading the industrial structure requires **first upgrading** the **endowment structure**, or **else** the resulting industrial structure will become **a drag on development**.
- The role of the **facilitating state** is to **encourage** the emergence of firms, industries, and sectors that, once launched, will make **effective use** of the country's **current comparative advantage**.

The facilitating state: helping the private sector exploit comparative advantage

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- The **facilitating state** provides the **necessary co-ordination** to **remove the barriers** to the emergence of these firms and their related industries.
- Also the state gives them a **helping nudge to overcome externalities**, but then is able to let them **grow and advance organically because of** their **comparative advantage**.
- As the competitive industries and firms grow, they will **claim larger market share** and **create** the greatest possible **economic surplus**, in the form of **profits and salaries**.
- When the **surplus is reinvested**, it earns **the highest return possible** as well, because the industrial structure is **optimal for that endowment structure**.

The state as midwife, not permanent nursemaid

Justin Yifu Lin

- Over time, this strategy allows the economy to **accumulate physical and human capital, upgrading the endowment structure** as well as the industrial structure and making domestic firms more competitive over time in more capital- and skill-intensive products.
- While this **comparative advantage-following approach** sounds gradual, **firms** in developing countries **can at each stage** in their development **acquire the technologies** and enter into industries **appropriate** for their **endowment structure, rather than having to do frontier innovation** themselves.
- This ability to use off-the-shelf technology and to **enter into existing industries** is what has made possible the **sustained annual GDP growth** rates of **8%** and even **10%** achieved by some of the **East Asian NIEs**.

The state as midwife, not permanent nursemaid

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- **Industrial strategies** of the often **newly-independent developing countries** in the **1950s** and **1960s** were informed by **incorrect perceptions** of the binding constraints on development.
- These countries adopted development strategies that placed a **priority on capital-intensive heavy industries**, that is, industries that made **intensive use** of a factor that **they largely lacked**, and **neglected to use** many of **the factors** that they had in great **abundance**, such as **unskilled labour** and **natural resources**.
- In effect, these policy-makers took the **optimal industrial structure** as something that they could **impose exogenously, rather than** something that results **from the characteristics of the economy** and changes over time.

The state as midwife, not permanent nursemaid

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- This approach can be thought of as **comparative-advantage-defying**, and it has **high costs**, both **financially** and in terms of **governance quality**.
- To implement this strategy, governments have to provide **substantial protection** and **subsidisation** to firms that are not viable without government subsidies and protection and cannot quickly become internationally competitive.
- Such firms **cannot generate** any **real surplus for society**.
- **Without a continuous flow of surplus**, it will be **far harder to finance improvements** in the **factors of production** – notably, capital and skilled labour – that are in turn necessary to make a more advanced industrial structure viable over the **medium term**.

The state as midwife, not permanent nursemaid

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- By **distorting market signals and shifting resources** from **competitive to noncompetitive** sectors, **high levels of protection** and **subsidies slow** the country's **accumulation** of **physical** and **human capital**.
- They also **encourage firms** to divert their energies from productive entrepreneurship **into rent-seeking**, which **corrupts institutions** and further **slows capital accumulation**.
- Rather **than serving as midwife** to **healthy new industries**, it is likely to find itself becoming a **long-run nursemaid** to **sickly infant** industries that **never mature**.
- The culture of **rent seeking** that is **likely to emerge** will **calcify the web of protection** even more and make later reforms more difficult.

Comparative vs. competitive advantage

Justin Yifu Lin

- Putting domestic firms in a position to **exploit** the country's **comparative advantage** may **sound sensible**.
- How does **exploiting comparative advantage compare** with the promotion of '**competitive advantage**', a strategy popularised by **Michael Porter** (1990) over the past two decades?
- In that literature, the **four key sources** of competitive advantage are:
 - sectors/industries that make **good use** of **factors** that are **abundant domestically**;
 - **large domestic markets**, to enable firms to achieve scale;
 - **industrial clusters**;
 - **vibrant** domestic **competition**, to encourage **efficiency** and **productivity** growth.

Comparative vs. competitive advantage

Justin Yifu Lin

- These requirements can be simplified.
- Consider domestic competition: if a country's strategy **defies comparative advantage**, it will generally be **unable to enforce competition**, because **non-viable firms** will **need to be protected**.
- Industrial clusters will also be hard to build and sustain, because, unless the government gives subsidies and protection, firms will not enter into this industry.
- However, the government will **not be able** to give **subsidies** and **protection** to many firms in an industry **at the same time** so as to **form an industrial cluster**.

Comparative vs. competitive advantage

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- If the country **follows its comparative advantage**, **large domestic markets** become **unnecessary**, because the industries and firms should be **able to compete on global markets**.
- Thus these **four requirements boil down** largely to a **single prescription: exploit your comparative advantage**.

Comparative vs. competitive advantage

Ha-Joon Chang

- **What makes some countries developed and others not** – namely, their differential abilities to develop and use technologies, or what is known as **‘technological capabilities’**.
- In the end, the rich countries are rich and the poor countries are poor because the former can use, and develop, technologies that the latter cannot use, let alone develop.
- Of course, Justin is absolutely right in saying that **deviating too much from one’s comparative advantages is to be avoided**.
- **Comparative advantage** does offer a useful guideline in telling us **how much the country is sacrificing by protecting its infant industries**.
- The more you **deviate** from your **comparative advantage**, the more you **pay in order to acquire capabilities** in **new industries**.

Comparative vs. competitive advantage

Ha-Joon Chang

- However, this **does not mean** that a country **should conform** to its **comparative advantage**, as Justin puts it.
- As I have argued, given the nature of the process of factor accumulation and technological capability-building, it is simply not possible for a backward economy to **accumulate capabilities** in **new industries without defying comparative advantage** and actually **entering the industry before** it has the **'right' factor endowments**.
- In the theory of **neoclassical comparative advantage** that Justin uses, the issue of **limited factor mobility is neglected**, resulting in the **systemic underestimation** of the costs of trade liberalisation and hence the need for good redistribution mechanisms.

Comparative vs. competitive advantage

Ha-Joon Chang

- More importantly, **technological capabilities** are **missing** from the **theory**, when they are really **what distinguishes developed countries from developing ones**.
- Once we realise that a lot of **technological capabilities** are **acquired** in an industry-specific manner **through actual production experiences**, we begin to see that it is by definition **necessary to defy comparative advantage** if a country is going to **enter new industries** and **upgrade its industrial structure**.
- And the **length** and the **strength** of such **protection** can be very large, as the examples of Toyota, Nokia, and countless other examples of successful infant industry protection show, and also inherently difficult to predict.

Comparative vs. competitive advantage

Justin Lin

- Ha-Joon summarises well our key areas of agreement: **government** has a role to play in **promoting technological** and **industrial upgrading**, but there are **risks in deviating too far from a country's comparative advantage**.
- Our differences lie in **how to define 'too far'** – how to interpret trade models and historical evidence, and how to promote technological learning cost-effectively.
- Ha-Joon argues that, because of **imperfect factor mobility** (in effect, adjustment costs) and **simplified assumptions** about **technology**, arguments against infant-industry protection that are based on standard trade models (such as Baldwin, 1969) **do not provide good guidance for policy**.

Comparative vs. competitive advantage

Justin Lin

- Clearly, there are **frictions in labour-market** adjustment to **changes in industrial competitiveness**, and **physical capital** is often **industry-specific**.
- Workers **cannot move costlessly** from one industry to another, or from one region to another, and many developing-country **governments do little** to **compensate the losers**.
- However, when **a country loses comparative advantage** in the **existing industry**, the **industry-specific capital** can be **relocated** in the form of **foreign direct investment** to other countries, in what has been called a **flying-geese pattern** of economic development in East Asia and many other parts of the world

Comparative vs. competitive advantage

Justin Lin

- Thanks to the dramatic reduction in information and transportation costs, **countries at different stages of development** could even **concentrate on different segments of the same industry**, each **using different technologies** and producing different products **according to comparative advantages**.
- Take the **information industry** as an example: high-income countries, like the **US**, specialise in **product/technology development**; middle-income countries, like **Malaysia**, concentrate on the **fabrication of chips**; and lower-middle-income countries, like **China**, focus on the production of **spare parts** and the **assembly of final products**.

Comparative vs. competitive advantage

Justin Lin

- Yet we **should not overstate** the extent to which **Korea pushed ahead** of its **comparative advantage**.
- In the **automotive sector**, for example, early in its growth period, Korean manufacturers concentrated mostly on the **assembly of imported parts** – which was **labour-intensive** and **in line** with their **comparative advantage at the time**.
- Similarly, in **electronics**, the focus was **initially on household appliances**, such as TVs, washing machines, and refrigerators, and **then moved on** to **memory chips**, the least **technologically complex** segment of the **information industry**.

Comparative vs. competitive advantage

Justin Lin

- Equally important, the Korean government had a record of **managing the protected sectors** in ways that kept them **subject to market discipline**, which made **large-scale deviation from the economy's comparative advantage impossible**.
- Industries **benefiting from protection** and **subsidisation** were required to **prove on export markets** that their **competitiveness was increasing** over time.
- In addition, the government worked hard to make sure that Korean manufacturers could **access intermediate inputs** at **world prices**, for example through duty-drawback and exemption schemes and export-processing zones.
- So the government clearly recognised that **comparative advantage mattered**, and that successful **technological upgrading** depended on firms being **influenced by world prices** for **both inputs and outputs**.
- The evidence indicates that **Korea's government** served as a **facilitating state**.

Comparative vs. competitive advantage

Justin Lin

- When a government chooses to **provide protection** or **incentives** to firms in sectors that **may be viable only in twenty or more years**, it will inevitably have to **draw resources from** firms in areas of **current comparative advantage**.
- This will **reduce the surpluses they earn**, and will therefore **slow capital accumulation** and the upgrading of the country's endowment structure and comparative advantage, making the **infant industry stay as an infant much longer** than otherwise.
- Excessive **protection risks institutionalising** a culture of **rent-seeking**.
- Given how important the quality of institutions and governance is to development, the **indirect effects of protection through poor governance** may be **even more damaging than the direct effects**.

Comparative vs. competitive advantage

Ha-Joon Chang

- There is the challenge of deciding how much to deviate from comparative advantage.
- Using the Korean and Finnish examples, Justin argues that **these countries succeeded** because **they did not deviate from their comparative advantages too much**.
- He is right in saying that **Korea's move along the 'ladder' of international division of labour** has often been carried out in small, if rapid, steps.
- Although I do not fully agree with this characterisation (for example, the moves into industries like **steel** and **shipbuilding** were **big leaps**, with virtually **no 'intermediate' steps**), I also agree that **making excessive leaps** can result in **excessive learning costs**.

Comparative vs. competitive advantage

Ha-Joon Chang

- Thus seen, we could suppose some kind of **inverted-U-shaped relationship** between an **economy's deviation** from **comparative advantage** and **its growth rate**.
- If it deviates **too little**, it may be **efficient in the short run**, but its **long-term growth** is **slowed down**, as it is not upgrading.
- Up to a point, therefore, **increasing deviation** from **comparative advantage** will **accelerate growth**.
- After a point, **negative effects of protection** (for example, excessive learning costs, rent-seeking) may **overwhelm the acceleration** in productivity growth that the 'infant' industries generate, resulting in **negative growth overall**.

Comparative vs. competitive advantage

Ha-Joon Chang

- In 1960, the **per capita income of Finland** was only **41% that of the US**, the frontier country in electronics and overall (\$1,172 vs. \$2,881).
- This **does not look like** the case of a country **sticking closely to comparative advantage**.
- If Finland's decision regarding Nokia does **not look 'wrong' enough**, how about Japan?
- In 1961, the per capita income of Japan was a mere **19% that of the US (\$563 vs. \$2,934)**, but Japan was then **protecting and promoting all sorts of 'wrong' industries** – automobiles, steel, shipbuilding, and so on.

Comparative vs. competitive advantage

Ha-Joon Chang

- In the case of South Korea, the state-owned steel mill, **POSCO**, which had been set up in 1968, started production in 1972, when its per capita income was **merely 5.5% that of the US** (\$322 vs. \$5,838).
- In the same year, South Korea decided to **deviate even further** from its **comparative advantage** by launching its ambitious **Heavy and Chemical** Industrialisation programme, which promoted shipbuilding, (home-designed) automobiles, machinery, and **many other 'wrong' industries**.
- In 1983, Samsung decided **to design its own semiconductors**, Korea's income was only **14% that of the US** (\$2,118 vs. \$15,008).

Comparative vs. competitive advantage

Ha-Joon Chang

- I think that, deep down, **Justin and I actually agree**.
- **We agree** that countries **should deviate from comparative advantage** to **upgrade their economy**, although **Justin** thinks this deviation should be **fairly small** and **I think** it can be **big**.
- However, because Justin is **too faithful to neoclassical** economics, he has to say that a country with an income level that is only 5% of the frontier country moving into one of the most capital intensive industries (Korea and steel) is consistent with the theory of comparative advantage.