How to Avoid the Middle-income Trap in China: A New Structural Economics Perspective and Approach

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- The nature of modern income growth is a process of structural change, i.e., continuous technological innovation and industrial upgrading, which increase labor productivity, and continuous improvements in soft and hard infrastructure, which reduce transaction costs.
- Developing countries have the advantage of backwardness in technological innovation, industrial upgrading and institutional innovation, potentially can grow faster than advanced countries, and achieve convergence.
- China is a middle-income country now and has the ambition to become a dynamically growing high-income country.
- However, among 110 middle-income countries in 1960, only thirteen have moved from middle-income to high-income by 2008
- With recent growth deceleration, avoiding the middle-income trap is a big concern in China
- In the talk, I will provide a New Structural Economics perspective on the cause and the ways to avoid middle-income trap

THE MIDDLE INCOME TRAP: A NEW STRUCTURAL ECONOMICS ANALYSIS

New Structural Economics

- **The main hypothesis of new structural economics**. A country's industrial structure is endogenous to the country's endowment structure, which is given at any specific time and changeable over time
- **Endowments** and **endowments structure** at any specific time determine the economy's total budgets and relative factor prices at that time, which in turn determine that specific time's:
  - The country's comparative advantages, i.e., industries that have the lowest factor costs of production in the world, at that specific time
  - Optimal industrial structure at a specific time is endogenous to the endowments structure at that time
- **Dynamics**. Income growth depends on:
  - Upgrading industrial structure to increase labor productivity, which in turn depends on
  - Upgrading of endowments structure, that is, accumulation of capital
  - Improvements in "hard" and "soft" infrastructure to reduce transaction costs
- The middle-income trap in a country is the result of the country's inability to have a dynamic structural change, which makes the county to grow slower than the high-income countries

Comparative Advantage following strategy and development success

- *Following an economy's comparative advantage (determined by its endowment structure) to develop the economy's industries is the best way to achieve dynamic growth and convergence:*
  - *The economy will be most competitive, produce the largest surplus, have the highest possible returns to capital and thus savings, ensure the fastest upgrading of endowments structure, and achieve the rapidest industrial upgrading and income growth*
  - *In this process, a developing country can have the latecomer advantages and thus have a faster technological innovation and industrial upgrading than high-income countries, which lead to convergence to high-income countries*

The Market and the State

- Firms maximize profits…choice of technology and industries based on relative factor prices…

➡ ***Need for a competitive market system***

- Industrial upgrading and diversification needs to:
  - Address externalities for the first movers
  - Solve coordination problems in hard and soft infrastructure improvements

➡ ***Need for a facilitating state***

Industrial Policy is an essential tool for a Facilitating State

- Contents of coordination may be different, depending on industries.
- The government’s resources and capacity are limited. The government needs to use them strategically.

Most Industrial Policies fail

- The sad fact is that almost all governments in the world attempted to use industrial policies to play the facilitating role, but most failed.
- The reason is that the government's targeted industries went against the country's comparative advantages.
  - For developing countries, the targeted sectors are often too capital intensive
  - For developed countries, the targeted sectors are often too labor intensive
- Consequence of the comparative advantage-defying industrial policy
  - The firms in the industrial policy's targeted sectors were **non-viable** in the competitive market. The factor costs of production are higher than those in countries with comparative advantages in those sectors.
  - To support its investment and to ensure the firms' continuous operation, governments supported the non-viable firms through all kinds of subsidies and protections.
  - Those measures led to misallocation of resources and rent-seeking.
  - As a result, the attempts to pick winners ended up picking losers.

Latent Comparative Advantages and Picking Winners

- For an industrial policy , including the smart specialization strategy, to be successful, it should target sectors that confirm to the economy's latent comparative advantage:
  - The latent comparative advantage refers to an industry that has competitive, low factor costs of production internationally, i.e., consistent with the country's comparative advantage, but the transaction costs are too high, due to inadequate hard and soft infrastructure, to be competitive in domestic and international markets
  - Firms will be viable and the sectors will be competitive once the government helps the firms overcome coordination and externality issues in the improvement of hard and soft infrastructure to reduce the risk and transaction costs.
- But how can the government pick the sectors that are in line with the economy's latent comparative advantages?

Types of Effective Industrial Policies for a middle-income Catching-up country

- From the perspective of new structural economics, depending on a targeted industry's distance to the global technology frontier, according to new structural economics, there are five types of industrial Policy in a middle-income country:
  - Industrial policy for catching up higher-income countries' industries
  - Industrial policy for maintaining the leading- edge industry's technology leadership globally
  - Industrial policy for helping firms exit from comparative-advantage losing industries
  - Industrial policy for leapfrogging high-income countries in short innovation-cycle industries
  - Industrial policy for developing comparative advantage-defying, national defense-related industries

INDUSTRY POLICY FOR CATCHING UP INDUSTRIES

What Can Be Learned From History?

- Historical evidences show that successful countries in their catching-up stage all used industrial policies to facilitate their industrial upgrading and their industrial policies targeted industries existing in dynamically growing countries with a similar endowment structure and moderately higher per capita income:
  - Britain targeted the Netherlands' industries in the 16^{th} and 17^{th} centuries; its per capita GDP was about 70% of the Netherlands'.
  - Germany, France, and the USA targeted Britain's industries in the late 19^{th} century; their per capita incomes were about 60% to 75% of Britain's.
  - In Meiji restoration, Japan targeted Prussia's industries; its per capita GDP was about 40% of Prussia's. In the 1960s, Japan targeted the USA's industries; its per capita GDP was about 40% of the USA's.
  - In the 1960s-80s, Korea, Taiwan, Hong Kong, and Singapore targeted Japan's industries; their per capita incomes were about 30% of Japan's.
  - In the 1970s, Mauritius targeted Hong Kong's textile and garment industries; its per capita income was about 50% of Hong Kong's.
  - In the 1980s, Ireland targeted information, electronic, chemical and pharmaceutical industries in the USA; its per capita income was about 45% of the USA's.
  - In the 1990s, Costa Rica targeted the memory chip packaging and testing industry; its per capita GDP was about 40% of Taiwan's, which was the main economy in this sector.
- Unsuccessful industrial policies, in general, targeted industries in countries where their per capita GDPs were less than 20% of the targeted countries

Why did successful catching up industrial policies target industries in dynamically growing countries with a similar endowment structure and somewhat higher income?

- Countries that have a similar endowment structure should have similar comparative advantages.
- Industrial upgrading is based on changes in comparative advantages due to changes in endowment structure.
- A dynamically-growing country’s industries should be consistent with the country’s comparative advantages. Some of its industries will lose comparative advantage as the country grows and its endowment structure upgrades. Those “sunset” industries will become the latent comparative advantage of the latecomers that have a similar endowment structure.
- For countries with a similar endowment structure, the forerunners’ successful and dynamic industrial development provides a blueprint for the latecomers’ industrial policies.

Growth Identification and Facilitation

Step 1

Find fast **growing countries** with similar endowment structures and with about 100% higher per capita income, or 20 years ago had a similar per capita income. **Identify dynamically growing, tradable industries** that have performed well in those countries over the last 20 years. Alternatively identify major imports that are produced in countries with about 100%-200% of per capita income

Avoid the government doing the wrong things or being captured by vested groups for rent seeking

Incorporate the idea of tacit knowledge

Step 2

See if some **private domestic firms** are already in those industries (existing or nascent). Identify constraints to quality upgrading or further firm entry. Take action to remove constraints

Growth Identification and Facilitation

Import or cultivate tacit knowledge

Step 3

In industries where no domestic firms are currently present, **seek FDI** from countries examined in step 1, or **organize new firm incubation programs**.

Benefit from opportunities arising from new technologies

Step 4

In addition to the industries identified in step 1, the government should also pay attention to **spontaneous self discovery** by private enterprises and give support to **scale up successful private innovations** in new industries.

Growth Identification and Facilitation

Play the coordination function in a pragmatic way

Step 5

In countries with poor infrastructure and bad business environments, **special economic zones or industrial parks** may be used to overcome barriers to firm entry, attract FDI, and encourage industrial clusters.

Address the externality issue

Step 6

The government may **compensate pioneer firms** identified above with:

- Tax incentives for a limited period
- Direct credits for investments
- Access to foreign exchange

INDUSTRY POLICY FOR GLOBALLY LEADING EDGE INDUSTRIES

- A developing country, especially for a middle-income country, may have some sectors which are on the global technology frontier, such as household electronic appliances in China, due to the exit of high-income countries from those sectors
- To maintain technological leadership in those sectors, the firms need to have indigenous innovations in new technologies and products, which rely on R&D
- The government should support universities or research institutions for basic research related to the innovation of new technology in those sectors. Based on the breakthrough in basic research, the firms in those sectors should develop new technologies/products
- The government can also use procurement to support the new products from the sectors so the firms can reach economic scale of production quickly

INDUSTRY POLICY FOR FACILITATING EXIT FROM COMPARATIVE ADVANTAGE-LOSING INUDSTRIES

- Due to the rise of wage, a middle-income country may lose comparative advantages in some existing labor-intensive sectors
- The government may adopt policies to
  - Support some firms to shift to higher value-added activities such as branding, product design, and market channel management
  - Help other firms to relocate their production to lower wage regions/countries
  - Train existing workers for jobs in other sectors

INDUSTRY POLICY FOR LEAPFROGGING IN SHORT INNOVATION-CYCLE INDUSTRIES

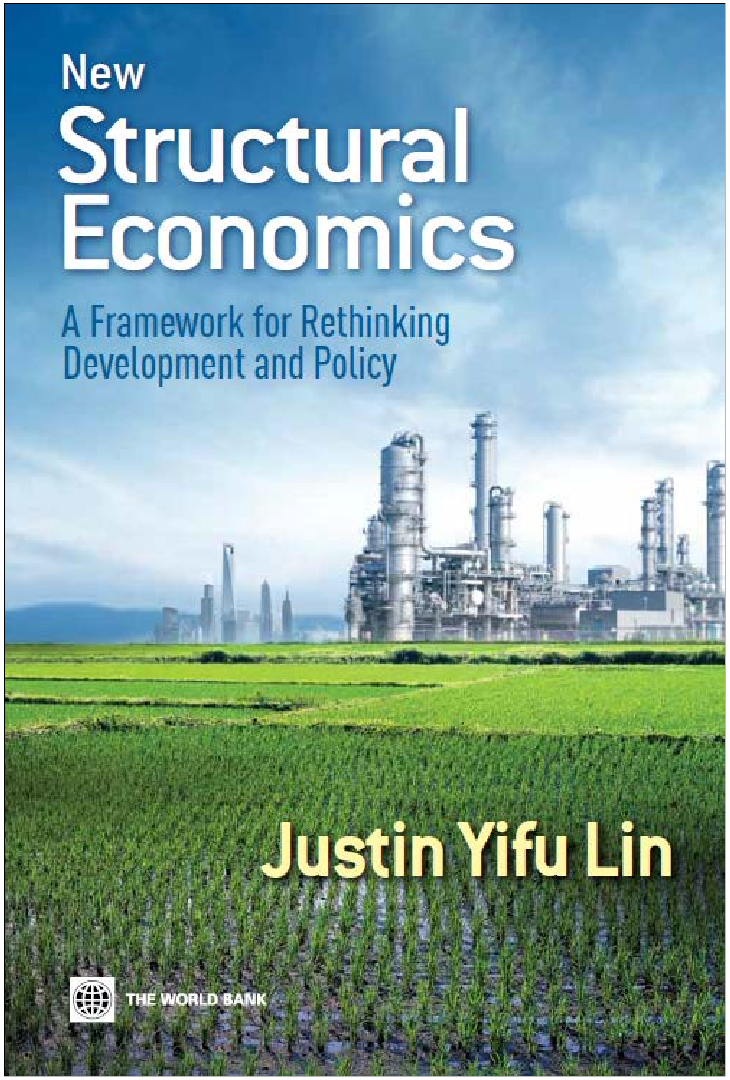
- New products and technologies in some modern industries, such as internet and mobile handsets, have short innovation cycle and require primarily human capital for innovation
- Such properties make a middle-income country, especially that with sufficient human capital and a large domestic market, a possibility to compete with high-income countries in such type of innovations
- The government in a middle-income country may encourage leapfrogging in such sectors by
  - Setting up incubation park
  - Encourage venture capitals
  - Strengthening intellectual property protection
  - Procurement of new products

INDUSTRY POLICY FOR COMPARATIVE ADVANTAGE-DEFYING NATIONAL DEFENSE INDUSTRIES

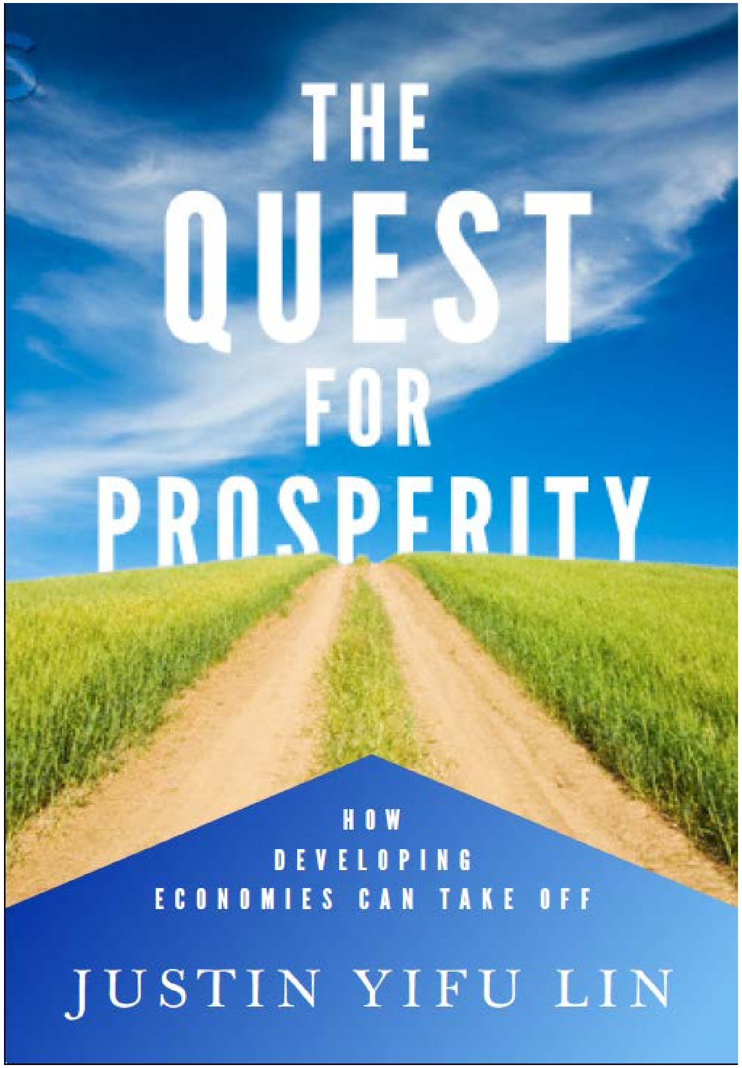
- For the national security reason, China like other middle-income countries, may have to develop indigenously some national defense industries, which are capital-intensive, require long innovation cycle and are against the country’s comparative advantages.
- The government needs to subsidize firms in such industries, no matter they are owned by the state or by the private.
- The subsidies are made either directly from fiscal appropriation or indirectly by prices/market distortions.
- It is better to provide subsidy directly as direct subsidy is more transparent, easier to supervise than indirect subsidies through distortions, and less costly to the economy.

Concluding Remarks

- **China as a middle-income country can still benefit from the advantage of backwardness in industrial upgrading. However, with the increase in per capita income, China's industries will increasingly move toward global technological frontier.**
- **China has the potential to grow dynamically and become a high-income country, as long as the government has the right industrial policy to facilitate the private sector to specialize on sectors of the country's comparative advantages and help latent comparative advantage to become the nation's competitive advantages.**
- **The New Structural Economics provides a useful framework for the governments in China and other middle-income countries to design industrial policies, depending on the targeted industry's distance to global technological frontier, to perform their facilitating functions for industrial upgrading in their catching-up to high-income countries**



The *New Structural Economics* can be downloaded for free from the World Bank: http://go.worldbank.org/QZK6IM4GO0



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