Industrial Strategy and Economic Transformation

Akio Hosono
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Former studies of IPD emphasized:
Societies’ learning and accumulation of knowledge and capabilities

- Cimoli, Dosi and Stiglitz (2009, p.2): ‘Great transformation’ entails a major process of accumulation of knowledge and capabilities, at the level of both individuals and organizations. Capabilities have to do with the problem solving knowledge embodied in organizations – concerning, for example, production technologies, marketing, labor relations, as well as ‘dynamic capabilities’ of search and learning.

Two types of dynamic change of endowments, including capabilities

- Incremental changes of endowment, especially by accumulation of knowledge and capabilities which enhance factor endowments and/or improve other basic conditions. Accumulation of knowledge and capabilities in general, absorptive capabilities and organizational capabilities, in particular, human resource development, basic and applied R&D, among others, are key.
- Drastic changes of endowment, especially by a new large-scale infrastructure, technological innovations (local and/or foreign), etc.
- Both types of dynamic changes generate new industries, new ways of doing business, which produce economic (structural) transformation
This presentation highlights: Outstanding cases of industrial strategy and economic transformation

- Cases of outstanding economic transformation, which appear to be relevant for current discussion on industrial strategy and economic transformation, are selected
  - Cerrado agriculture: Miracle of Cerrado in Brazil
  - Eastern Seaboard and “Detroit of Asia” in Thailand
  - Salmon industry: Chile’s salmon miracle
  - Transformation of Singapore: From quality, productivity to innovation
  - Bangladesh apparel industry
  - El Salvador: International air transport hub enabled by a competitive airport

Selected cases and research question

- Selected cases are those that produced outstanding economic transformation
- Purpose of the study is to discuss (a) how the transformation was triggered (initiated) and how factor endowments dynamically changed; (b) how accumulation of knowledge and capabilities was achieved; (c) what kind of drivers (driving forces) kept the momentum of transformation; (d) what kind of strategy/vision was behind and promoted the process

Triggers, drivers, incremental changes

- Triggers: drastic change of endowments and/or other conditions (breakthrough by a new large-scale infrastructure, technological innovations, external shocks, etc.) These changes trigger economic transformation
- Readiness: Incremental changes of endowment: especially accumulation of knowledge and capabilities which enhance factor endowments and/or improve other basic conditions. Accumulation of knowledge and capabilities in general, absorptive capabilities and organizational capabilities, in particular, human resource development, basic and applied R&D, among others, are key.
- Drivers: capable actors, individuals, enterprises, organizations and others, which are driving forces to keep momentum of the dynamic process. These drivers are created and strengthened by the accumulation of capabilities

Case 1: Cerrado agriculture

- Cerrado agriculture could be considered as a case of a “new industry” which transformed a vast unused land of Brazil’s tropical savannah called “Cerrado”
Cerrado agriculture as a new industry

- The nature of Cerrado agriculture becomes clearer if it is regarded as a newly established industry, rather than a new regional development in Brazilian agriculture. This is because Cerrado agriculture differs greatly from conventional Brazilian agriculture in two aspects:
  - First, because this form of agriculture became possible in areas that used to be sterile and unfarmed; and
  - Second, because crops generally produced in temperate regions were put into production in a tropical region for the first time in the world. This new type of production was only enabled by applying technological and institutional innovations for the establishment of a new industry.

What is Cerrado?

- Cerrado refers to “closed land”, land that was regarded for many years unfit for agriculture
- “The cerrado was regarded as unfit for farming”. Norman Borlaug, the father of the Green Revolution, told the New York Times that “nobody thought these soils were ever going to be productive.”

Why Cerrado was considered unfit for agriculture?

- Cerrado biome was considered unfit for agriculture due to a low level of rainfall
- But studies discovered that the Cerrado biome was not caused by a low level of rainfall, but due to its soil: extremely high acidity, lack of nutrients and damage caused by aluminum which hinders crop growth
- These constraints of soil have been overcome
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Comments on “Cerrado Agriculture”

“Cerrado Miracle: Breakthrough for Cerrado Agriculture as a “New Industry”

- Brazil, with its strong ownership, established EMBRAPA (Empresa Brasileira de Pesquisa Agropecuária, or the Brazilian Agricultural Research Corporation) in 1973
- “EMBRAPA Cerrado” (CPAC) started its research since 1974
- JICA and JIRCAS supported “EMBRAPA Cerrado” from its beginning: Soil improvement and development of varieties of grains adapted to tropical climate; first soybean variety fit for Cerrado developed by Dr. Plinio
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Technological Innovation: Soil Improvement

2006 World Food Prize Laureates

World Food Prize Founder Dr. Norman E. Borlaug, who is credited with saving more than one billion lives as the Father of the Green Revolution, called the development of the Cerrado “one of the great achievements of agricultural science in the 20th century,” which over the past 40 years, “has transformed a wasteland into one of the most productive agricultural areas in the world.”


President Geisel visited the soybean pilot field of CPAC.

出所: Courtesy of Tokyo Newspaper, “Nihon heno chokugen by Toshio Doko”

Institutional Innovations:

• PADAP
• PRODECER
• EMBRAPA
• CPAC
• CAMPO

Japanese-Brazilian Cooperation Program for Cerrados Development
Aiming for a balance between agricultural development and environmental protection, a project was carried out. (Executing agencies: CAMPO, EMBRAPA, and CPAC)

Continuing process of confirming the technology generated in Phase I.

Phase II: 1985–1990

- Project structure: pilot
- Project area: 80,000 ha
- Farms settled: 52 households
- Amount invested: Japan: 5 billion 100 million yen; Brazil: 5 billion 100 million yen

Phase III: 1990–2000

- Project structure: pilot
- Project area: pilot 60,000 ha, full-fledged
- Project sites: 15 sites in 5 states
- Farms settled: 545 households
- Amount invested: Japan: 23 billion 100 million yen; Brazil: 23 billion 100 million yen

Agricultural planning and rural administration and financial analysis, agronomy, pathology, entomology, cultivation system, meteorology, agricultural machinery, agro water resources, agricultural planning and development, agricultural development of tropical zones.


Figure 2.2 Dissemination of technology has been also important

PRODECER: Lucas do Rio Verde
Impact of Cerrado agriculture on food supply and food security in Brazil and in the world

- Infrastructure was constructed in this process
- Reduction of food price in Brazil
- From net importer to net exporter of grains
- One of the world top exporter of soybeans

**Progress of Inland Region Development through Soybean Cultivation**

**Evolution of Brazil's Exports of Major Grains**

Source: Authors based on FAOSTAT, USDA, and IBGE statistics.
Development of agro-industry value chains

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The Change in Exported Volume of Soybeans (grain)
by Brazil and the US (unit: 1,000 tons)

Source: USDA/FAS

Four Major Exporters of Soybeans
(Average of five years of each period)

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<tbody>
<tr>
<td>1st</td>
<td>USA</td>
<td>6,571</td>
<td>USA</td>
<td>13,926</td>
<td>USA</td>
<td>20,377</td>
</tr>
<tr>
<td></td>
<td>Brazil</td>
<td>2,815</td>
<td>Brazil</td>
<td>4,832</td>
<td>Brazil</td>
<td>7,957</td>
</tr>
<tr>
<td>2nd</td>
<td>China</td>
<td>1,250</td>
<td>China</td>
<td>4,619</td>
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<td>6,426</td>
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<td></td>
<td>Argentina</td>
<td>1,042</td>
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<td>2,031</td>
</tr>
<tr>
<td>3rd</td>
<td>Brazil</td>
<td>1,042</td>
<td>Brazil</td>
<td>1,467</td>
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<td>Argentina</td>
<td>1,042</td>
<td>Argentina</td>
<td>1,467</td>
<td>Argentina</td>
<td>2,031</td>
</tr>
<tr>
<td>4th</td>
<td>Canada</td>
<td>81</td>
<td>China</td>
<td>1,042</td>
<td>Paraguay</td>
<td>1,450</td>
</tr>
<tr>
<td></td>
<td>Argentina</td>
<td>1,042</td>
<td>Argentina</td>
<td>1,467</td>
<td>Paraguay</td>
<td>2,031</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>39</td>
<td>174</td>
<td>1,048</td>
<td>1,708</td>
<td>2,453</td>
</tr>
</tbody>
</table>

World total: 7,411 17,495 26,891 31,297 63,423 90,892
World top exporter’s share of total: 88.5% 79.6% 75.8% 68.6% 43.6% 40.6%
World top four exporters’ share of total: 99.5% 98.0% 96.1% 94.5% 96.1% 92.9%

* Projection for 2011/12 by USDA/FAS

Source: Authors based on USDA/FAS statistics

Value chain of Soybean Products in the Western Part of Bahia

Source: Tetsuo Mizobe, 2011
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Basic Distribution Flow of Main Crops in the Western Part of Bahia

<table>
<thead>
<tr>
<th>Crops</th>
<th>Upstream</th>
<th>Middle</th>
<th>Downstream</th>
<th>Mode of transaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soybeans /Oilseeds</td>
<td>by Grain majors</td>
<td>Processing (oil, meal)</td>
<td>Domestic brokers Expert</td>
<td>Signed contract/Barter</td>
</tr>
<tr>
<td>Soybeans /Oilseeds</td>
<td>by Agricultural Cooperatives</td>
<td>Processing (oil, meal)</td>
<td>Spinning companies</td>
<td>Bought deal</td>
</tr>
<tr>
<td>Cotton</td>
<td>by producers</td>
<td>Processing (oil, meal)</td>
<td>Domestic brokers Expert</td>
<td>Signed contract/Barter</td>
</tr>
<tr>
<td>Cotton</td>
<td>by Agricultural Cooperatives</td>
<td>Processing (oil, meal)</td>
<td>Spinning companies</td>
<td>Bought deal</td>
</tr>
<tr>
<td>Coffee</td>
<td>by producers</td>
<td>Processing (oil, meal)</td>
<td>Domestic brokers Expert</td>
<td>Signed contract/Barter</td>
</tr>
<tr>
<td>Coffee</td>
<td>by Agricultural Cooperatives</td>
<td>Processing (oil, meal)</td>
<td>Spinning companies</td>
<td>Bought deal</td>
</tr>
</tbody>
</table>

Breakdown of Brazil's Major Agribusiness Products

Ratios of Brazil's Major Agricultural Products Exports, 2000

Source: Prepared based on Ministry of Agriculture (2011) chart, “Major categories of 450 items exported by Brazil

Ratios of Brazil's Major Agricultural Products Exports, 2010

Source: Prepared by the author

Connections between Government, Agri-business, and Farmers in the Western Part of Bahia

Analytical Perspective

Strategy of industrial development, vision, awareness of challenges, leadership, and policy support/

Driving forces to keep momentum of development:

Incremental changes of endowments and changes of other basic conditions:

Economic transformation as a dynamic process

Source: Prepared by the author

Tables and charts provide insights into the distribution and processing of major crops in Bahia, highlighting the involvement of various stakeholders and modes of transaction. Graphs illustrate the breakdown of Brazil's major agribusiness products in 2000 and 2010. The analytical perspective emphasizes strategic development, awareness of challenges, and policy support to drive economic transformation.
Key factors for economic transformation

**Triggers that change endowments and/or competitiveness**
- new infrastructure, new technology, external shocks (strong appreciation of yen; sudden increase of energy price; new drastic regulation, etc.)

**Incremental changes that prepare endowments and other basic conditions**
- accumulation of capabilities, particularly formation of human capital, especially industrial personnel (engineers and middle-level technical personnel); agricultural productivity; rural women’s preparedness to work in urban areas; awareness regarding environment conservation up to threshold

**Driving forces to keep momentum of development**
- private enterprises, dissemination of technology, etc.

**Roles of government and market (private sectors’ spontaneous activities)**
Generally speaking, government could play an important role in enabling decisive triggers, preparing conditions, leadership, strategy formulation, etc.

**Industrial development strategy, vision, strong leadership**

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**Case 1: Brazil’s Cerrado Agriculture**

**Trigger**
- Soil improvement technology for Cerrado
- Tropical varieties of soybeans

**Institutional/Organizational Innovations:**
- PRODECER

**Principal Trigger**
- Farmers and workers mainly from southern states and northeastern states

**Case 2: Thai Eastern Sea Board and “Detroit of Asia”**

- Infrastructure construction triggered the new dynamic industrial development focusing on automobile industry
- Formation of automobile industry cluster has been the base for the Plan of “Detroit of Asia”, which maintained the momentum of transformation of Thai manufacturing sector
Core Projects of the Eastern Sea Board

- Between the 1980s and the first half of the 1990s, development of Eastern Seaboard was positioned as Thailand’s highest priority.
- (1) construction of an industrial park and industrial port in the Map Ta Phut district aimed at promoting the development of heavy and chemical industries,
- (2) construction of Leam Chabang Port and an industrial estate in the Leam Chabang district.
- Other projects are water resource development and water conveyance projects to meet the demand for industrial use, and development of railway and expressway networks to meet transportation needs in these districts located in the Eastern Sea Board.

Impact of the Eastern Sea Board Development Plan on Thai Industry

- Created export hub and the center of technology intensive industries; 14 industrial estates; 360,000 workers; 1300 factories; 516 automobile related factories (around 25 years)
- The explosive emergence and concentration of the new machinery, metal and non-metal industries (with FDI inflows) in the early 90s occurred around Leam Chabang had become possible only by the completion of such a large-sized infrastructure as the Eastern Sea Board Development, capable as the synergetic production nexus and for the shipment of the products. (Shimomura and Mieno (2008), pp.14-16)
- The Leam Chabang is where Thailand’s automobile industry is most heavily concentrated, with many automakers’ and parts manufacturers’ operations set up in the area. At present, the automobile industry is the principal engine for growth in Thailand’s economy. In addition, the Leam Chabang Port has been expanded to become Thailand’s largest port and nowadays plays a large part in increasing trade in Thailand. (Japan’ ODA White Paper 2005)

Accumulation of capabilities for industrial development in Thailand

- Human resource development
- Strong supporting industries through SMEs promotion (SMEs promotion law 2000 and Master Plan of SMEs promotion 2003)
Vision of “Detroit of Asia”

- First basic plan of automobile industry 2002-2006; second plan 2007-2011
- Production of 1 million cars achieved in 2005 and 2 million cars to be achieved in 2012
- It is estimated that there are about 640 first layered parts maker and 1700 second and third layered parts makers supporting the automobile industry

Case 3: Chilean Salmon Industry

- Long-standing vision among Chileans has been the establishment of a new industry for development of the Southern region of Chile
- Salmon sea farming industry developed from scratch
- Government started the Salmon project in 70s and Fundacion Chile, a public-private entity, achieved 1000 ton production scale, confirming the salmon culture’s commercial feasibility in the Southern region of Chile
- Today, Chile and Norway are the largest exporters of salmon and salmon products in the world
Evolution of the World Production in Salmon and Trout Farming (millions of tons)

<table>
<thead>
<tr>
<th>Year</th>
<th>World Production</th>
<th>Norwegian Production</th>
<th>Chilean Production</th>
<th>Chile's % in the world</th>
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<tbody>
<tr>
<td>2015</td>
<td>6.12</td>
<td>262</td>
<td>128</td>
<td>13</td>
</tr>
<tr>
<td>1990</td>
<td>926</td>
<td>387</td>
<td>258</td>
<td>27.8</td>
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<tr>
<td>2001</td>
<td>1.127</td>
<td>476</td>
<td>450</td>
<td>14</td>
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<tr>
<td>2004</td>
<td>1.586</td>
<td>603</td>
<td>403</td>
<td>37.9</td>
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<td>2005</td>
<td>1.637</td>
<td>632</td>
<td>614</td>
<td>38</td>
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<tr>
<td>2006</td>
<td>1.820</td>
<td>709</td>
<td>709</td>
<td>39</td>
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**Case 3: Chile’s Salmon Industry**

**Strategy of industrial development, vision, awareness of challenges, leadership,**

- **Trigger**: M&A to Foundation Chile; International bidding to Union Carbide/Domsea Farms (foreign private company) → (public-private joint institution) → Union Carbide/Domsea Farms (foreign private company) → Union Carbide/Domsea Farms (public-private joint institution) → Salmónes Antártica,
- **Trigger**: Japanese private companies in sea farming, e.g., Nissui (Salmones Antártica),
- **Trigger**: Union Carbide/Domsea Farms (foreign private company),
- **Trigger**: Union Carbide/Domsea Farms (public-private joint institution),
- **Trigger**: Union Carbide/Domsea Farms (Chilean and Japanese public institutions’ international cooperation),
- **Trigger**: [Chilean and Japanese public institutions’ international cooperation] → [Chilean public institutions] →

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<td><strong>1979</strong> - <strong>SERNAP-JICA</strong></td>
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<td><strong>1988</strong> - <strong>IFOP-JICA</strong></td>
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<td><strong>1969</strong> - <strong>Salmon Project</strong></td>
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<tr>
<td><strong>1976</strong> Dr. Shiraishi</td>
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<td><strong>1988</strong> - <strong>Union Carbide/Domsea Farms</strong></td>
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<td><strong>1990</strong></td>
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**Case 4: Singapore’s approach to economic transformation**

- Cross-cutting industrial strategy from cheap-labor based manufactured exports to technology and high skilled labor based exports
- Strategy to strengthen transport and logistics hub

**Country without natural resources and with large number of unemployed: Background of Productivity Initiative in Singapore**

- Singapore, a country without natural resources and of large number of un-employed when it got independence, is one of the first South East Asian countries to promote export-led growth instead of import substitution-led one. However, in late 70s, faced with increasingly stronger competition from late comers whose wage rate was lower, Singapore decided to transform cheap-labor-based export economy into skilled labor/knowledge-based and higher value-added export one. For this transition, it was considered essential to increase productivity.
- Economic Development Board (EDP) accomplished the leading role and promoted “knowledge based FDIs”. But, FDIs would not have invested in Singapore if the country did not have high productivity labor and other outstanding advantages.
Economic Development Board (EDB)

- EDB was an agent and catalyst of the development of a broader set of capabilities that Singapore has displayed over the decades (Schein (2001), p.2).
- The initial leadership team assumed that the government had to play a lead role and be business oriented. If economic development was to succeed, the key resource would be Singapore’s own people. (Ibid., p.236)
- The primary function of EDB was to promote the establishment of new industries in Singapore and to accelerate the growth of existing ones (Ibid., p.38).

Vision of Lee Kuan Yew

- Productivity initiative was strongly promoted by top leaders of the country, especially, the first Prime Minister Lee Kuan Yew: “The shift to knowledge-intensive industrial structure with strong international competitiveness is only possible by human-resource development of 2.6 million people, the only resource Singapore has”, according to Memories of then Prime Minister Lee Kuan Yew. Japan Productivity Organization (1990, p.1)
- Through Singaporeans and Japanese mutual learning, with strong ownership of Singaporeans, Singapore Style Productivity Movement was born. For details, see JICA (2011)
- The institution in charge was developed vigorously adapting itself to the changing position of the country in the world.

Experiences of creation of jobs with higher wage, productivity and international competitiveness in Singapore

- In April, 1981, the Singaporean Committee on Productivity was formed by representatives of enterprises, workers’ organizations, government officials, and academia. The Committee reviewed the experiences of productivity movements in Japan, another country without natural resources but with abundant labor, and presented a report to the President of the National Productivity Board (NPB) of Singapore. NPB was designated as the main body for promoting productivity development in Singapore and in June 1983, the Singapore Productivity Development Project (SPDP) was launched with the support of the Japanese government. (JICA/IDCJ/IDJ (2010 p.4/30))
Garment industry in Bangladesh: drastic change occurred when Government established Board of Investment in 1989. Government implemented three policies to help the industry:

- In 1990
- Today, the garment industry has more than 5000

Government invested in SSC/NSTB: National Science and Technology Board

The role of product accreditation and measurement standards have been privatized since 2002.

SISIR: Singapore Institute of Standards and Industrial Research
SPA: Singapore Productivity Association (affiliate of NPB)
NPB: National Productivity Board

Singapore: 1990
Singapore: 1988
JAPAN

Scientific Research and Development
Standardization Activities
Accreditation of Products
Productivity Development
Supporting small and medium-sized enterprises (SMEs)

Project from 1983 to 1990 (NPB and JICA)
Singapore Productivity Development Movement (annual campaign) in 1981
Inauguration of the National Productivity Board (NPB) in 1972
Establishment of National Productivity Association (affiliate of NPB) in 1973
Establishment of National Productivity Board (NPB) in 1972
Establishment of Singapore Institute of Standards and Industrial Research in 1965

Outcome of SPDP

- Some 15,000 Singaporean engineers, managers, and other professionals participated in the project. Two hundred engineers, managers, and other professionals from Singapore took part in training courses in Japan. More than 200 Japanese experts were dispatched to Singapore.

- In 1990, when SPDP ended, 90 percent of workers in the country were involved in productivity development activities, compared with 54 percent in 1986. In 2001, 13% of the total labor force was participating in Quality Control Circles (QC Circles), in comparison with 0.4% in 1983 when SPDP started. QC Circles are considered to be the most effective vehicle for improving quality and productivity with the active participation of workers. Through this participatory approach, workers’ ideas are incorporated into the production process with innovative solutions. Hence SPDP became one of the driving forces for productivity gains in Singapore.

Source: JICA/IDCJ/IDJ(2010), p.16 of Part 4 and p.22 of Part 4

Case 5: Bangladesh Garment Industry

- Garment industry in Bangladesh: drastic change occurred when 126 workers of Desh Garments received OJT in Daewoo’s actual export production line in Busan, Korea, and Desh’s factory was completed in Chitagong in 1980

- Today, the garment industry has more than 5000-6000 factories with 7-8 million workers using assembly-line method of production. Garments account for 82% of Bangladesh’s total exports. (2011) (Increase of 24 times in 20 years)

- Government invested in Industrial estate with stable provision of electricity (Export processing zone in 1983 in Chitagong)

- Government implemented three policies to help the industry: duty-free importation of machines, bonded warehouses, and back-to-back credit facilities.

- Government established Board of Investment in 1989
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Case 5: Bangladesh garment industry
Strategy of industrial development, vision, awareness of challenges, leadership.

- 126 workers of "Desh Garments" received OJT in Daewoo's actual export production lines; Desh’s factory (completed in 1980)
- Duty-free importation of machines; bonded warehouse; credit facilities
- Garments account for 82% of Bangladesh’s total export (2011)
- Principal Trigger: Duty-free importation of machinery

Economic transformation as a dynamic process
Source: Prepared by the author

Advantage of El Salvador’s international airport as an endowment

- Less than one hour from the capital city, but not near to urbanized areas
- Large unused space for industrial development
- Located at almost zero meter above sea level which allow airplanes take off with full capacity (compared with other airports of Central America)
- Neither fog nor mountains nearby

Case 6: El Salvador’s initiatives to be hub of Central America

- Basic feasibility study started in 1972
- Construction started in 1977
- New international airport was inaugurated in 1980
- Peace accord in 1992 to cease the armed conflict
- TACA, El Salvador’s local airline strengthened its competitiveness to absorb neighbor countries’ airlines (Guatemala, Honduras, Nicaragua, Costa Rica and others) (horizontal scale-up) and expanded related business (such as airplane maintenance: functional scale-up)

Economic transformation as a dynamic process
Source: Prepared by the author
Concluding remarks

Successful industrial strategy

- Accumulation of capabilities for years of efforts and learning by doing is, generally, essential for successful industrial strategy aiming at economic transformation: with gradual change of factor endowments
- Government, often with other actors (including private actors and international cooperation), could trigger transformation process by investment in infrastructure, technological and/or institutional innovation, etc.: with rapid and drastic change of factor endowments
- Once transformation started, drivers (investors, both local and foreign; increasing demand, etc.), are necessary to keep the momentum of transformation

From strategy to policies and practices

- Generally, strategy, shared vision with strong ownership and awareness regarding challenges to address are crucial
- Strategy should be translated into policies and pragmatic measures and practices
- Roles of government evolve over phases of process of transformation: They are crucial particularly in early phases (as seen in the cases of cerrado agriculture and Chile’s salmon industry)
- Singapore established SME business assistance schemes for every stage of growth: start up, growth, expansion and going overseas stages (Schein (2001), p.57)
Government’s initiative and independent public institutions

- Governments’ initiatives with strategy or vision, generally shared with the society as a whole, including private enterprises, served as a basic guideline
- Public institutions, or public-private institutions, played an important role
- These institutions are generally independent or insulated from short-term political changes and close public-private relationship is maintained

Examples of key public institutions

- EMBRAPA, in Brazil’s Cerrado development, insulated from short-term changes of the government (EMBRAPA Model) and public-private bi-national entity, CAMPO, insulated as well (Hosono and Hongo (2012));
- Fundacion Chile, a public-private entity, in Chile’s salmon industry development;
- Eastern Seaboard Development Committee and technocrats of National Economic and Social Development Board (NESDB), etc. in Thailand (Shimomura and Mieno (2008) p.24);
- In Singapore, Economic Development Board (EDB) became the instrument for developing an economic strategy and putting it into practice. (Schein (2001), p. xi) Government build a partnership between public and private sectors for productivity movement in Singapore (Ohno and Kitaw (2011), p.59);

Thank you very much

- This presentation is preliminary and personal
- Comments welcome
- Not to be cited