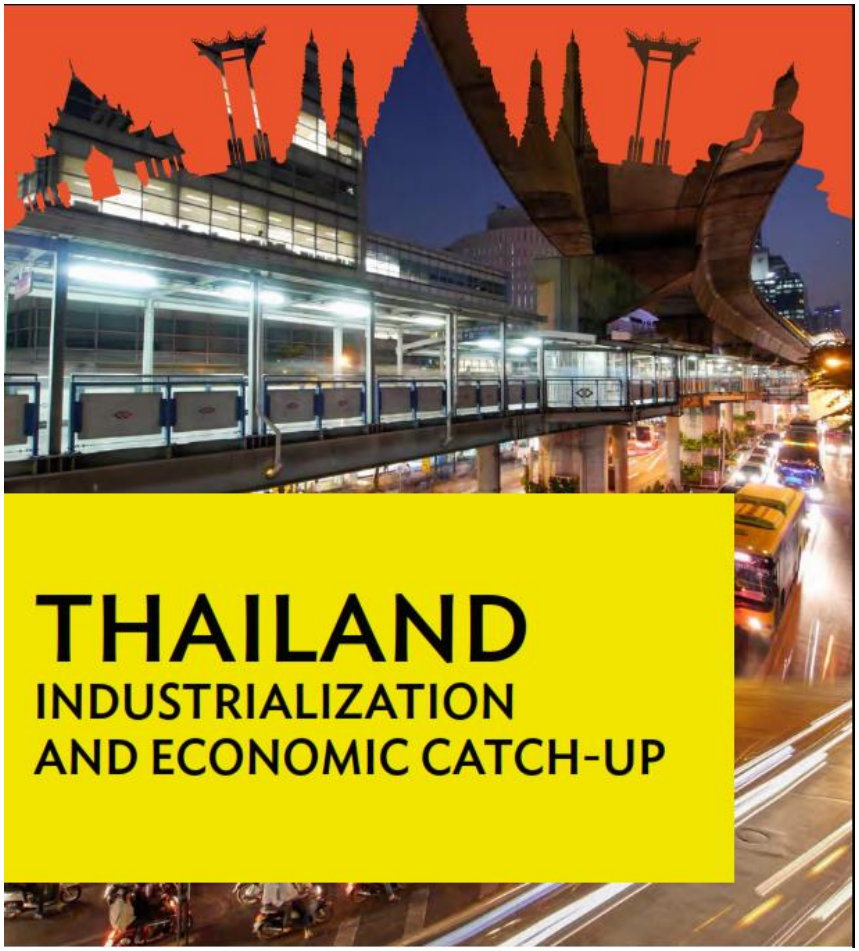
THAILAND: INDUSTRIALIZATION AND ECONOMIC CATCH-UP

ADB's Country Diagnostic Study

EE406: Contemporary Economic Issues
Semester 1/ 2021
Faculty of Economics, Thammasat University



THAILAND
INDUSTRIALIZATION AND ECONOMIC CATCH-UP

COUNTRY DIAGNOSTIC STUDY

ADB ASIAN DEVELOPMENT BANK

1. Overview: Economic Transformation and Industrial upgrade

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- Thailand has transitioned to an **upper-middle income** country, but **recent economic growth** has **lagged behind** low-and middle-income southeast Asian neighbors.
- Thailand has been a development success story, with sustained growth and impressive poverty reduction, particularly in the **1980s**, when gross domestic product (GDP) **grew 7.8%** a year on average, which was **the second highest** among comparators **after the Republic of Korea**.
- However, this high growth momentum was interrupted by the Asian financial crisis of 1997–1998, followed by the fallout from the global financial crisis of 2008–2009 and the devastating flood in 2011. More recently, during 2011–2014, GDP growth **has slowed to 2.5%** (Table 1.1).

Source: ADB(2015)

Table 1.1: Real GDP Growth Rates, 1971–2014 (%)

Year	Indonesia	Republic of Korea	Malaysia	Philippines	Taipei,China	Thailand	Viet Nam
1971–1980	7.9	9.0	7.8	5.9	7.4	**6.9**	...
1981–1990	6.4	9.7	6.0	1.7	7.6	**7.8**	4.6
1991–2000	4.2	6.5	7.1	2.9	6.2	**4.5**	7.6
2001–2010	5.2	4.4	4.6	4.8	3.9	**4.3**	6.6
2011–2014	5.7	3.0	5.4	5.9	3.0	**2.5**	5.7

Table 1.2: Per Capita Real GDP, 1985–2014 (in 2005 $)

Country	1985	1990	1995	2000	2005	2010	2014
Cambodia	...	...	263	329	471	605	745
Lao PDR	245	262	308	375	472	629	794
Viet Nam	268	301	410	532	699	900	1,078
Indonesia	655	840	1,129	1,086	1,273	1,570	1,866
Philippines	907	1,002	993	1,061	1,201	1,403	1,649
Thailand	**1,047**	**1,572**	**2,280**	**2,206**	**2,690**	**3,164**	**3,451**
Malaysia	2,609	3,147	4,348	4,862	5,554	6,319	7,304
Brunei Darussalam	30,806	26,831	27,294	25,926	25,914	24,589	25,140
Singapore	12,193	16,554	21,651	24,921	29,870	34,758	38,088

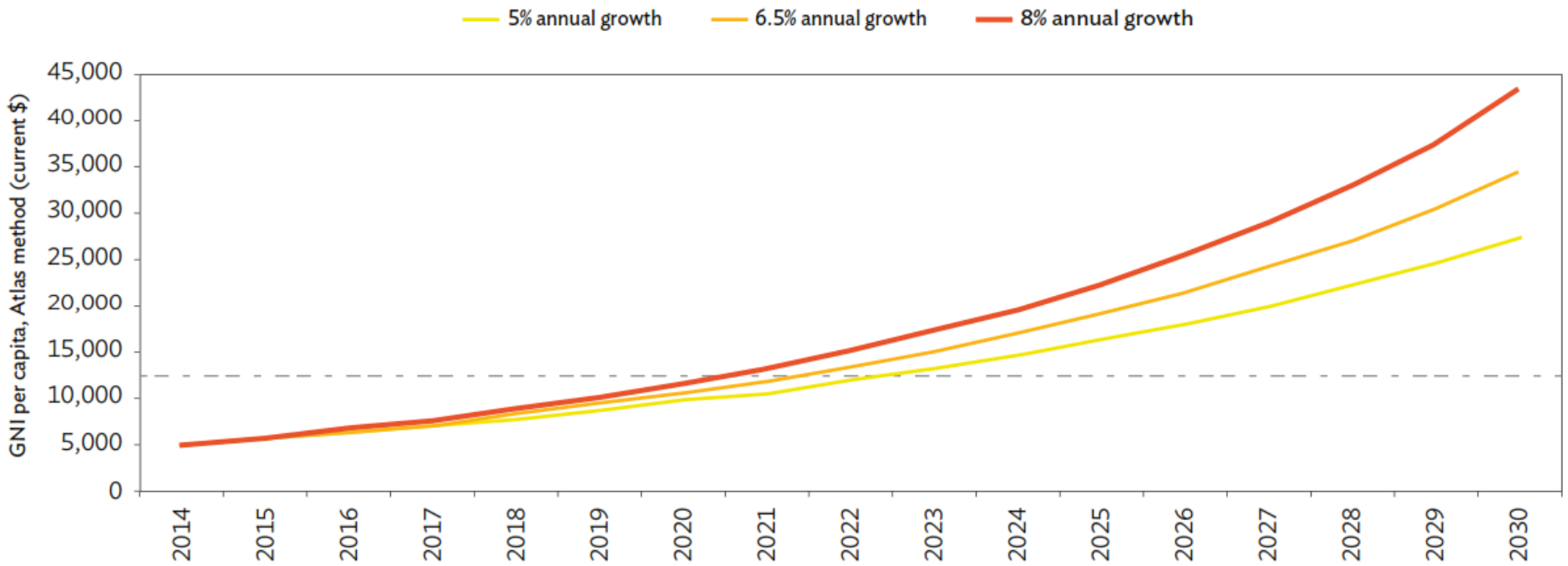
Source: ADB(2015)

1. Overview: Economic Transformation and Industrial upgrade

- Yet, simple projections based on possible growth rates suggest that Thailand has a lot of growing to do.
- Gross national income per capita grew an **average of 2.9%** during 2005–2014. Continuing at that pace, it would **take 11 years, or until 2025**, for **Thailand to become a high-in**come country.
- But with fewer negative shocks, the country could grow faster, at 5% it would take 9 years (by 2023) to reach that income level; at 8%, it would take 7 years (by 2021) (Figure 1.1).

Source: ADB(2015)

Figure 1.1: Thailand's Growth Path at Different Growth Rates, 2014–2030



GNI = gross national income.
Note: Thailand is an upper-middle-income country, with a per capita GNI of $5,340 in 2013 (the threshold for upper middle income is $4,125). The dashed line indicates the threshold for high income (and the upper boundary for upper middle income) at $12,736 per capita GNI. Income thresholds are based on World Bank classifications.

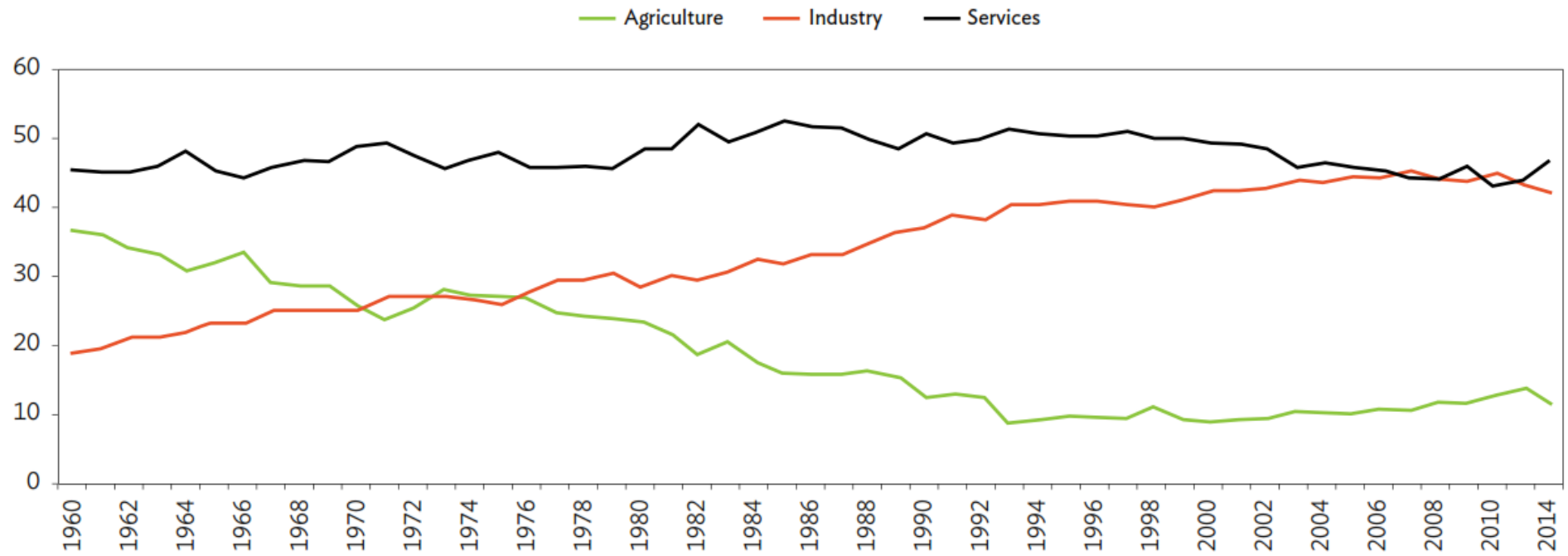
Source: ADB(2015)

1. Overview: Economic Transformation and Industrial upgrade

- The **industry sector** expanded rapidly in the past several decades, accounting for **42% of GDP in 2014**, from 30% in the early 1980s (Figure 1.2).
- Over the same period, **agriculture's share** of output has fallen significantly, from **about 25%** to just over **12%.**
- **Thailand's sectoral shares** are broadly **similar** to those of **other large developing economies** in Southeast Asia, notably Indonesia, Malaysia, the Philippines, and Viet Nam (Figure 1.3).

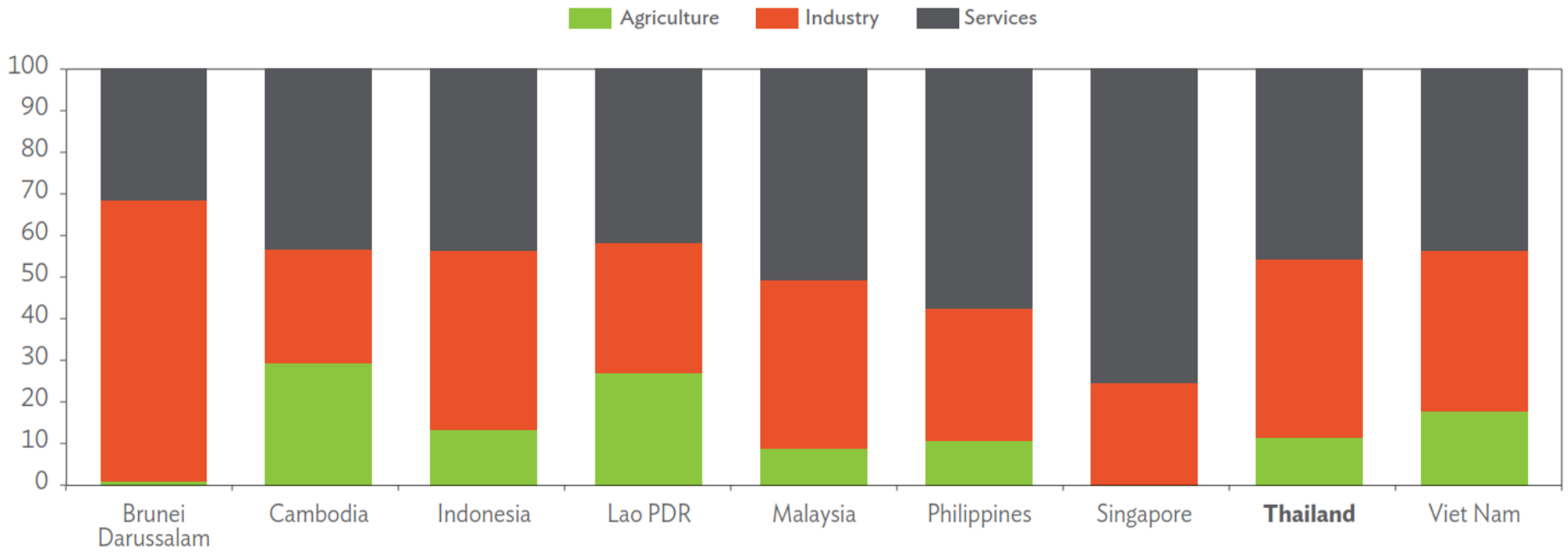
Source: ADB(2015)

Figure 1.2: Sector Shares in GDP, 1960–2014 (%)



Source: ADB(2015)

Figure 1.3: Shares of Major Production Sectors in GDP, 2014 (%)



Source: ADB(2015)

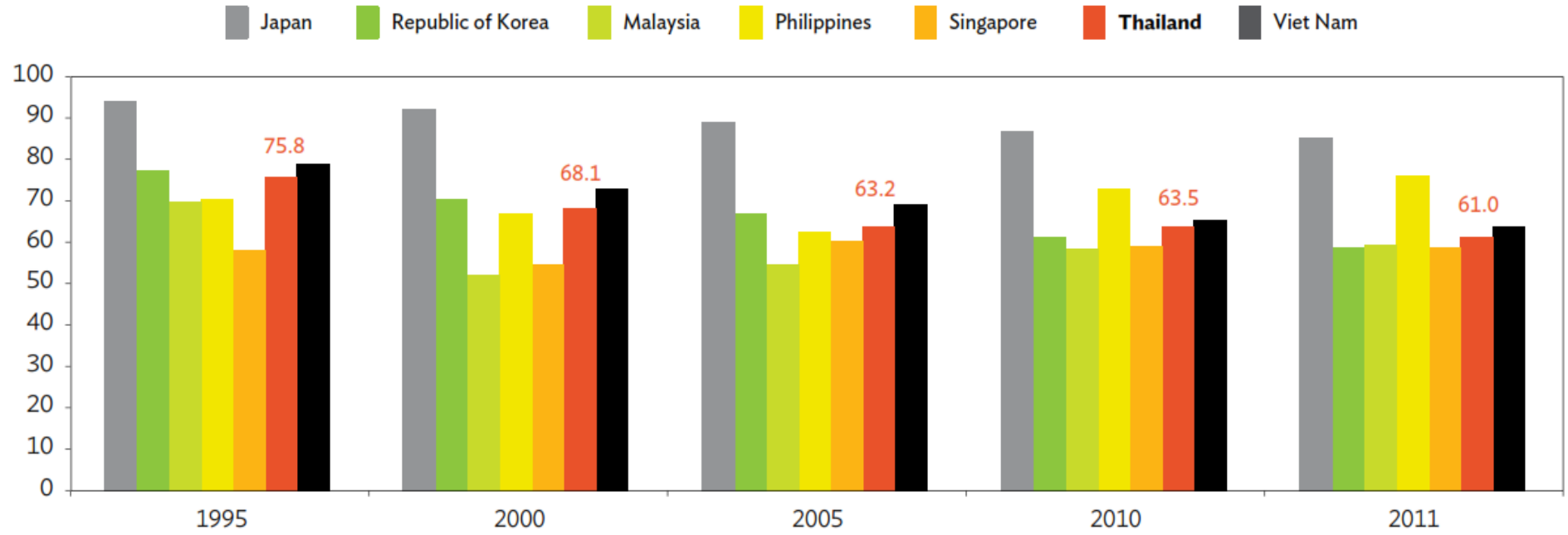
1. Overview: Economic Transformation and Industrial upgrade

- **Enhancing domestic value addition** will have **important implications** for the sustainability of economic growth and employment generation.
- Although until now Thailand has **attracted FDI quite successfully** to **move up the global value chain** and **join the camp of high-income economies**, particularly in export-oriented sectors, it needs to **upgrade industrial sophistication** and **increase domestic value addition** in its exports.
- The domestic-value-added content in total gross exports declined overall during 1995–2011, while the gross exports-to-GDP ratio increased from 33.0% in 1995 to 54.2% by 2011; **domestic value added** in **gross exports** during the same period declined from **75.7%** to **61.0%** (Figure 1.6).

Source: ADB(2015)

Figure 1.6: Domestic Value Added in Gross Exports, Selected Economies, 1995–2011

(% of total exports)



Source: OECD.iLibrary. OECD.Stat. http://www.oecd-ilibrary.org/economics/data/oecd-stat_data-00285-en (accessed August 2015).

Source: ADB(2015)

1. Overview: Economic Transformation and Industrial upgrade

- **Analyzing the disaggregated data gains more insight** into the domestic-value-added content in exports.
- Table 1.7 breaks down the different sectors by domestic value addition, showing that **total manufacturing** and **transport equipment**, along with **basic metals** and **machinery equipment**, are the major sectors **responsible for this decline**.
- This also reflects the **declines in the country's comparative advantage** and competitiveness in these sectors.
- A particular concern associated with this is a **fall in both FDI inflows** and **domestic value addition** after the global financial crisis.

Source: ADB(2015)

Table 1.7: Thailand Domestic Value Added in Exports by Industry, 1995–2011 (%)

Industry	1995	2000	2005	2010	2011
Total	**75.71**	**68.08**	**63.16**	**63.43**	**61.01**
Agriculture, hunting, forestry, and fishing	**90.44**	**86.76**	**83.53**	**83.64**	**81.91**
Mining and quarrying	**89.92**	**89.12**	**84.15**	**84.78**	**82.48**
Total Manufactures	**68.23**	**60.35**	**55.52**	**55.16**	**51.66**
Wood, paper, paper products, printing, and publishing	75.52	75.90	70.28	66.49	61.40
Chemicals and non-metallic mineral products	71.24	64.14	59.32	60.05	55.41
Coke, refined petroleum products, and nuclear fuel	70.44	53.37	38.51	44.02	40.56
Rubber and plastics products	72.76	67.68	64.79	66.05	62.60
Other non-metallic mineral products	74.88	70.69	61.51	65.24	59.90
Basic metals and fabricated metal products	52.94	56.54	43.89	42.46	37.23
Machinery and equipment, nec	51.69	53.28	47.95	51.59	44.38
Electrical and optical equipment	51.40	40.66	39.88	41.68	37.51
Computer, electronic, and optical equipment	51.05	39.09	37.36	39.27	34.75
Electrical machinery and apparatus, nec	52.90	45.87	46.78	50.02	46.58
Transport equipment	51.81	48.75	49.44	50.58	45.12
Electricity, gas, and water supply	**82.54**	**77.39**	**63.23**	**67.21**	**62.49**
Construction	**71.80**	**64.17**	**54.27**	**58.04**	**52.67**
Total Business Sector Services	**88.53**	**84.25**	**80.72**	**82.12**	**80.44**
Transport and storage, post, and telecommunication	83.86	75.18	69.45	71.58	68.96
Community, social, and personal services	**80.15**	**75.72**	**74.74**	**75.00**	**71.30**

...nec = not elsewhere classified.
Source: OECD iLibrary. OECD.Stat. http://www.oecd-ilibrary.org/economics/data/oecd-stat_data-00285-en (accessed August 2015).

Source: ADB(2015)

1. Overview: Economic Transformation and Industrial upgrade

- To strengthen competitiveness, and sustain high and inclusive growth, Thailand needs to develop sectors with **high value-adding activities** and employment generation potential.
- Growth and employment potential therefore depend on how well the country can **diversify into new sectors** and activities and **move up the global value chain into high-value added manufacturing** and, eventually, **high-skill services sectors**.

Source: ADB(2015)

2. Technological Progress: Limited International Technology Transfer

Source: ADB(2015)

The Automobile Sector

Source: ADB(2015)

2. Technological Progress: Limited International Technology Transfer

- **The automobile sector in Thailand has several characteristics.**
- Thailand has **18 automobile assemblers**, all foreign owned, and **no national car company** (Thailand Board of Investment 2015).
- The **Japanese automobile manufacturers** account for **about half** of the approximately **1.5 million** vehicles produced annually, and about **half** of production is **exported**, with the rest serving the **large domestic market** (Thailand Automotive Institute and Ministry of Industry 2012).
- The **main niche** (about 54% of units produced) is in **pickup trucks** (Tractus Thailand 2014).

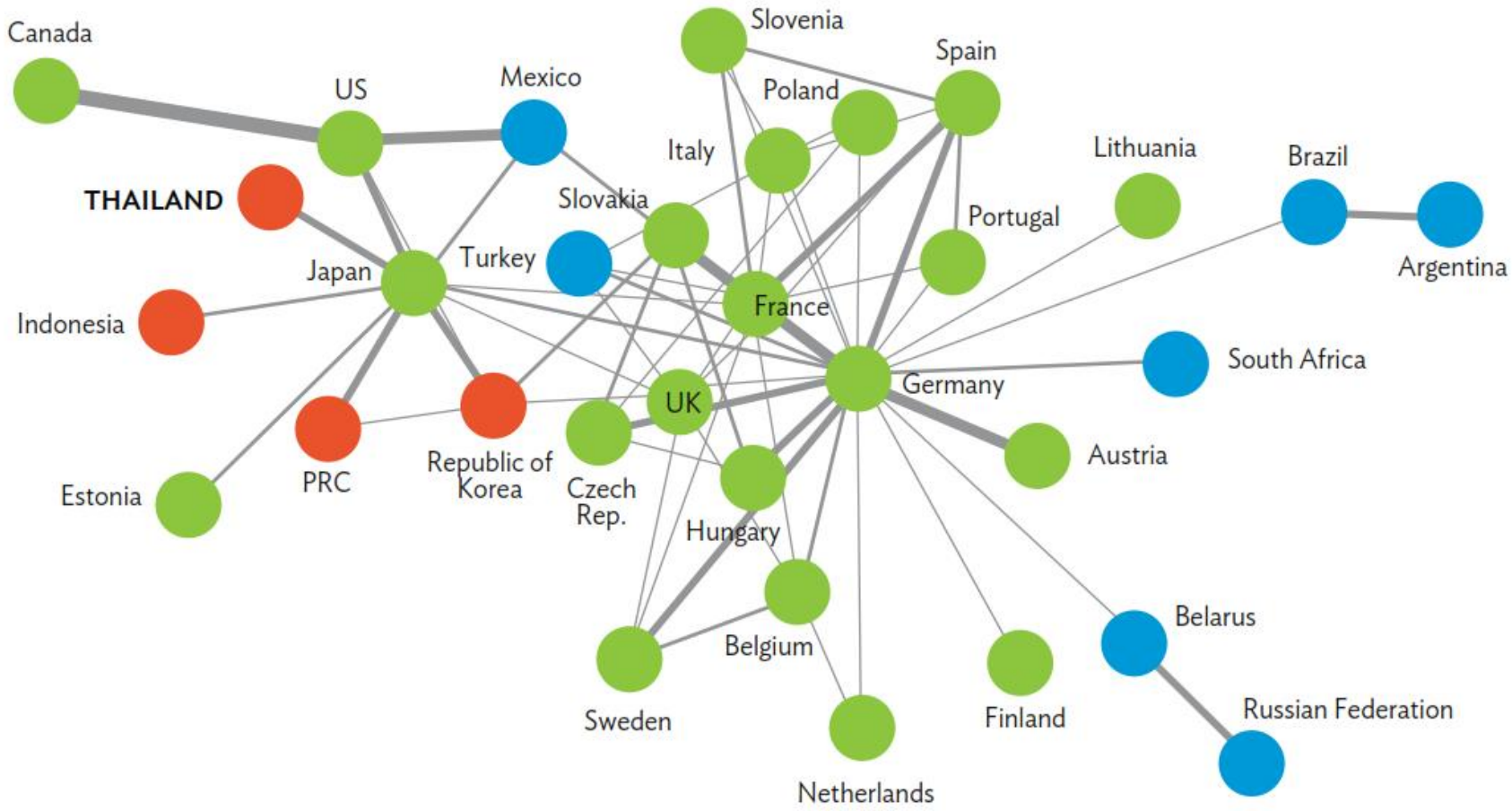
Source: ADB(2015)

2. Technological Progress: Limited International Technology Transfer

- The country has also emerged as an **assembling hub** for the multinational global automobile companies, supported by government efforts to promote export industries and FDI.
- The automobile industry uses parts procured outside as well as manufactured within the country.
- This **differs from the electrical/electronics industry**, in which Thailand is both a supplier and **producer** of **parts and components** and **less** of an **assembler of final goods**.
- Figure 2.14, based on Ferrarini (2011), shows the **country's place** in **global and regional production networks** for the automotive industries.
- The **thickness** of the lines represents **the strength** and extent of the **relationships**, with the **connection to Japan**.

Source: ADB(2015)

Figure 2.14: Global Network Trade Index—Automotive Industries



PRC = People's Republic of China, UK = United Kingdom, US = United States.
Source: B. Ferrarini. 2011. Mapping Vertical Trade. *ADB Economics Working Paper Series* No. 263. Manila: Asian Development Bank.

Source: ADB(2015)

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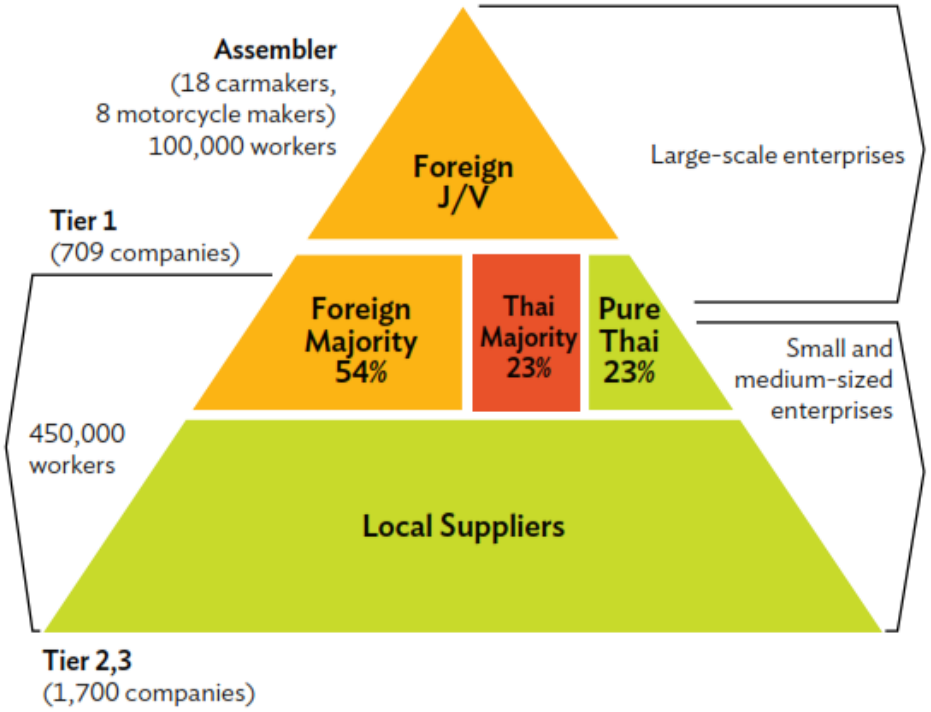
- As **vehicles** are complex, **multicomponent goods**, the quality and reliability of **suppliers are critical** for the complete product.
- In Thailand, the **Tier 1** auto parts suppliers are **predominantly foreign controlled** or foreign directed (Figure 2.15).
- About **54%** of the almost **709 supplier**s are **foreign-majority joint ventures**, while another 23% are Thai-majority joint ventures, although in these companies the foreign partners still tend to be the **source of technology**, which is **channeled from the parent company**.

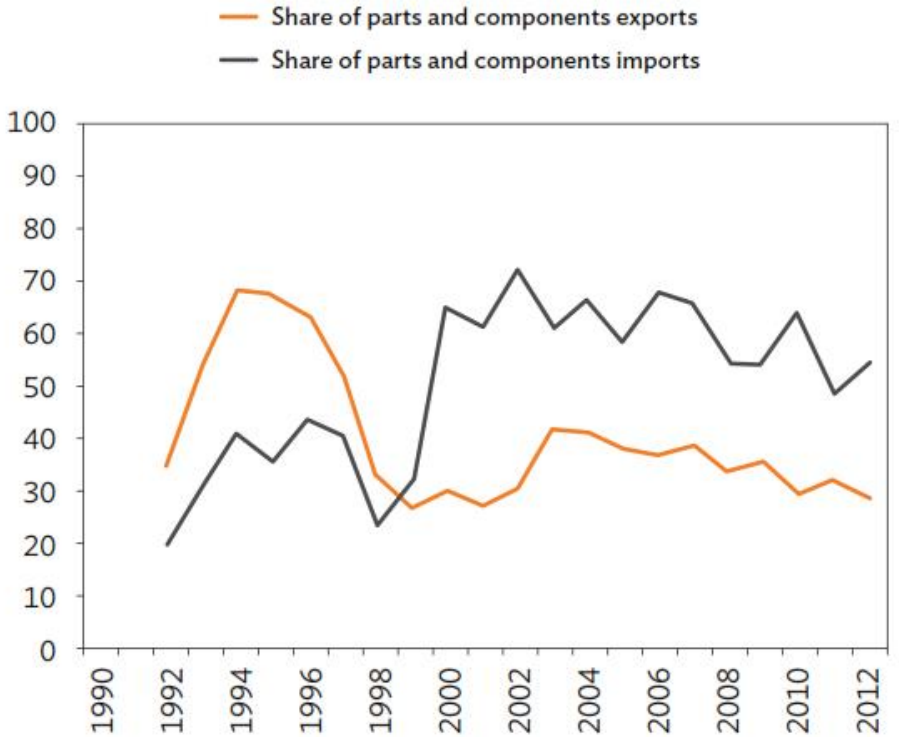
Source: ADB(2015)

Figure 2.15: Structure of Thailand's Automobile Industry in 2014



J/V= joint venture.
Source: Thailand Board of Investment. 2015. Thailand: Global Green Automotive Production Base. http://www.boi.go.th/upload/content/BOI-brochure%202015-automotive-20150325_70298.pdf

Figure 2.16: Share of Parts and Components in Motor Vehicle Exports and Imports



Note: Parts and components for each manufactured product type follow P. Athukorala and A. Kohpaiboon. 2009. Intra-Regional Trade in East Asia: The Decoupling Fallacy, Crisis, and Policy Challenges. *ADBI Working Paper Series* No. 177. Tokyo: ADB Institute.
Source: Estimates using data from UN Comtrade Database. http://comtrade.un.org/ (accessed June 2013).

Source: ADB(2015)

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- The remaining **23%** are **fully owned Thai firms**, some of which have been able to break through and become **respected Tier-1 suppliers**, such as **AAPICO Hitech** and the **Summit Group**, and have exported to other countries.
- The technologically **less sophisticated Tier-2 companies** that supply basic rough components to Tier-1 firms for further processing are all Thai-owned.
- The nature of Thailand's auto industry is that assemblers prefer to **link with a limited number** of high-quality suppliers **located in the same or near their industrial parks**.
- Product development tends to be a **top-down system** in which suppliers seek to satisfy the requests for the assembler or a higher-tier supplier, resulting in relatively **little joint development** or **within-firm innovation**.

Source: ADB(2015)

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- As a result, **research and development** in the sector **is very limited** and assemblers or **higher-tier foreign firms** make **little attempt** to **share or develop** the **technological capacity of local firms**.
- There is **technological lending**, but **little technological transfer**.
- This **lack of indigenous technological capacity** is well recognized and **various supplier-linkage programs** have been promoted to **integrate domestic firms with foreign-controlled producers**.
- These programs were begun in the early 1990s and applied to the automobile sector, but they have generally been **unsuccessful.**
- They include the Industrial Linkages Development Program (1991), National Suppliers Development Program (1994), and 1995 Master Plan for the Development of Supporting Industries (with the Japan International Cooperation Agency).

Source: ADB(2015)

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- More recently, partnerships between the sector and the Ministry of Industry established the **Thailand Automotive Institute** supporting **human resources development** and the **transfer of technology** to develop Thai-owned suppliers.
- The institute had a major role in formulating the Thailand Automotive Sector Master Plan (2007–2011), which also focused on human resources and technology transfer to domestic firms.
- Under its framework, the Thailand Automotive Human Resources Development Program (2006–2010) was initiated with a lead role by Japanese producers Denso, Honda, Nissan, and Toyota.
- It aimed to improve the quality, cost, and delivery performance of Thai-owned component suppliers through human resources development, although **the impacts** of this program are **not yet clear**.

Source: ADB(2015)

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- Over time, the Thai automotive industry seems to have **upgraded from exporting parts and components** to **exporting finished goods**.
- In the 1990s, the country was mainly exporting parts and components, suggesting a place on the relatively lower rungs of the automotive industry value chain (Figure 2.16).
- But in the 2000s, the share of parts and components in motor vehicle exports decreased and the share of completely built- up auto mobile exports increased.
- Likewise, the share of **imports** of **motor vehicle parts and components increased** during this period.
- These findings indicate that, since starting in the 2000s, Thailand has been **importing motor vehicle parts** and **assembling them** into built-up automobiles for **export**.

Source: ADB(2015)

The Electronics Sector

Source: ADB(2015)

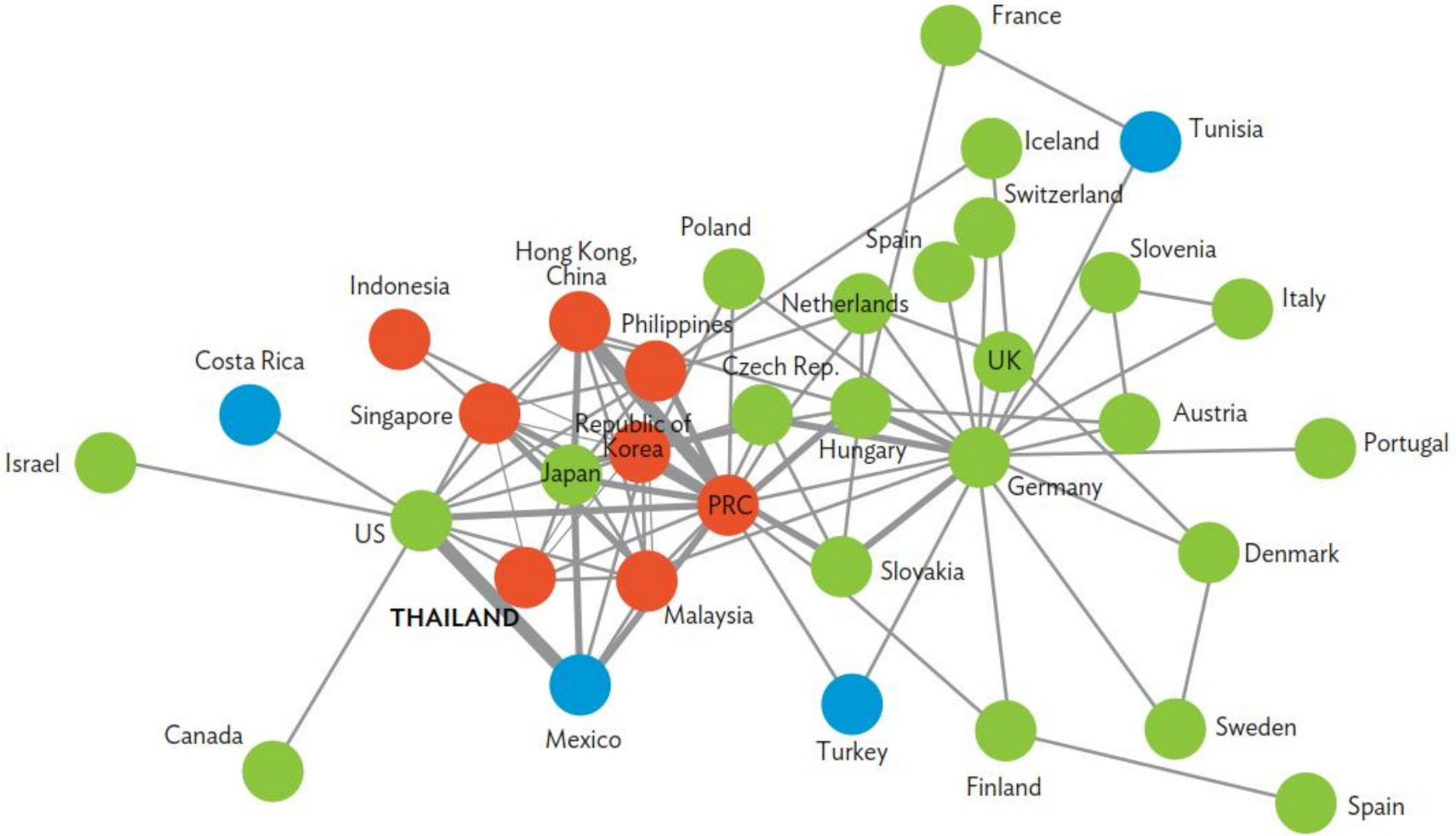
2. Technological Progress: Limited International Technology Transfer

- **Thailand's electronics sector has similarities to the automobile sector**

  - **Foreign dominance** in the development of the electronics industry is **similar to the auto industry**, in that they **have provided the technology** for advanced production in Thailand.
  - Electronic products are also **complex, multicomponent goods** that provide considerable opportunity for structuring along **regional and global production networks** (Figure 2.17), as well as the inclusion of **domestic component suppliers**.
  - In electronics, similar to the automotive industries, **Thailand is integrated with regional production processes**. This time, the linkages are clear, with **the PRC** and **Japan**, and to a lesser extent with the Republic of Korea, Malaysia, Singapore, and the United States.
  - Thailand has been able to **increase the complexity** of the tasks for electronics over the past 3 decades as **more technology has been "lent"** through **intra-firm channels**.

Source: ADB(2015)

Figure 2.17: Global Network Trade Index—Electric/Electronics Industries



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Source: B. Ferrarini 2011. Mapping Vertical Trade. *ADB Economics Working Paper Series*. No. 263. Manila: Asian Development Bank.

Source: ADB(2015)

2. Technological Progress: Limited International Technology Transfer

- The higher-value components of the chain are produced elsewhere and imported, however.
- Furthermore, like the auto sector, domestic firms **are located in the low-tech tiers**.
- The main electronics subsector is the manufacture of **hard disk drives**, for which Thailand is known as a **leading global production site**, hosting **the world's major players**.
- The hard disk drive industry in Thailand was effectively founded when **Seagate Technologies** moved its labor-intensive head stack assembly operations from **Singapore to Thailand in 1983** to take **advantage of lower wages**.
- With other multinational companies following suit, the number of operations **grew from 5** in the mid-1980s to **74** by the mid-2000s (Kohpaiboon and Poapongsakorn 2011).

Source: ADB(2015)

2. Technological Progress: Limited International Technology Transfer

- **Unlike the automobile sector**, the government **did not attempt to apply local content requirements** to the electronics sector, and **gradual tariff reductions** have allowed for a **relatively free flow of parts and components** into and out of the country.
- **High-value components** are **produced elsewhere**, notably in areas near Singapore (such as Johor, **Malaysia**), and then **imported to create the completed drives**, which are **then exported** for placement in computers and other finished products.
- While accurate figures are hard to come by, the value of **local content** is **about 30%–40%.**
- Thai producers inhabit the **lower technological levels** of the value chain and **contribute little** to **innovation** and **design** (ADB 2013).

Source: ADB(2015)

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- Concern is emerging about **the minor role of Thai owned firms**, and that increased participation would be beneficial, with efforts made in this regard through private sector collaboration.
- The **Hard Disk Drive Institute** was established in 2005 and counts among its members the leading industry players.
- The institute works to **support skill development** among small- and medium-sized Thai enterprises to reach the quality standards needed for supplying large foreign firms.
- Yet, while there is recognized interest in fostering innovation so that Thai firms can participate fully in the hard disk drive value chain, **little evidence yet shows that it is bearing fruit**.

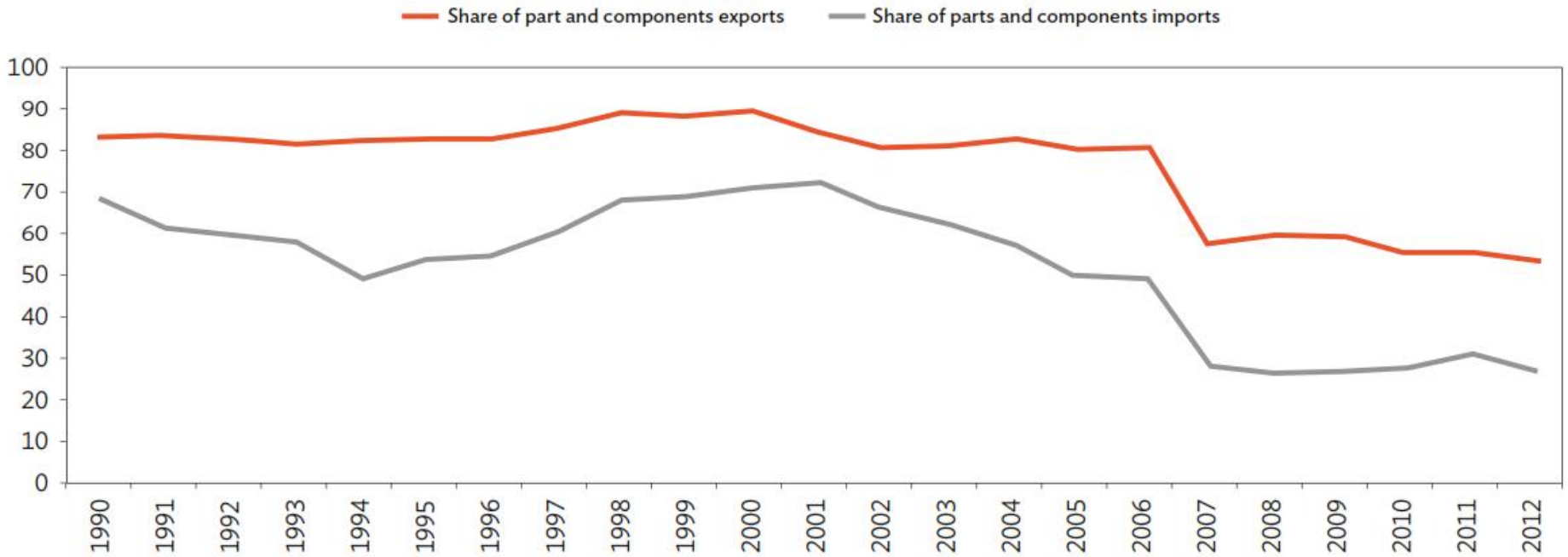
Source: ADB(2015)

2. Technological Progress: Limited International Technology Transfer

- Also similar to the auto industry, the **share of parts and components** in information and communication technology exports **has been going down** since the 1990s, indicating a **higher concentration on exporting finished information and technology products**.
- Imports of related parts and components have also been declining (Figure 2.18).

Source: ADB(2015)

Figure 2.18: Share of Parts and Components in Information and Communication Technology Exports and Imports (%)



Note: Parts and components for each manufactured product type follow P. Athukorala and A. Kohpaiboon. 2009. Intra-Regional Trade in East Asia: The Decoupling Fallacy, Crisis, and Policy Challenges. *ADBI Working Paper Series* No. 177. Tokyo: ADB Institute.
Source: Estimates using data from UN Comtrade Database. http://comtrade.un.org/ (accessed June 2013).

Source: ADB(2015)