

Industrialization and Structural Transformation

Part 3: Stalled Industrialization and Premature Deindustrialization

EE482 Industrialization: Role of Public and Private Sectors
(Section 046401)
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Faculty of Economics, Thammasat University

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(1) Stalled industrialization

Stalled industrialization

- While, on the whole, the industrialization process has **paused** or **frozen** at levels of **industrial income** and employment that are **too low** to **enable** the forces of **cumulative causation to work, specific variations exist**.
- In some countries, such as **India** and **Mexico**, **output** and **employment manufacturing** shares have **stagnated** for prolonged periods.
- In others, such as many countries in **sub-Saharan Africa**, there has been **very slow expansion of manufacturing** activity and employment even before a solid base for sustained industrialization could be established.

Stalled industrialization

- **India** provides an example of the **first** variant of **stalled industrialization**.
- In the 1950s and 1960s, its manufacturing sector went through the easier stages of diversification linked to a strategy of **import-substituting industrialization**.
- However, there was little subsequent momentum, as a result of which its **core manufacturing** (especially in capital goods sectors), which was developed in the **initial decades of industrialization**, remained **underutilized**.
- This is due to **lack of demand**, and later to an **absence of linkages characteristic** of the growth of manufacturing.
- The share of manufacturing in total employment increased by only 2 percentage points over four decades, from 9.4 per cent in 1970 to 11.6 per cent in 2011, while the share in **manufacturing value added stagnated** at 17–21 per cent over the same period.
- From 1980 onwards, low-technology, labour-intensive sectors in manufacturing, such as food and **beverages and textiles**, showed **marginal declines in output shares**, but continued to have **similar shares of employment**.
- Even the more dynamic **apparels** sector saw only a 1 percentage point increase in output share between 1980 and 2005, while the **employment share increased** by **6** percentage points .

Stalled industrialization

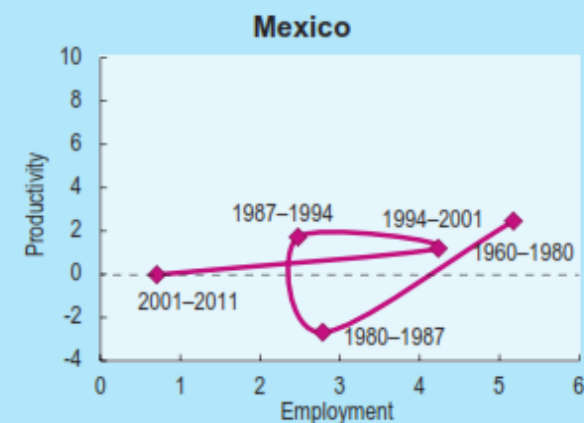
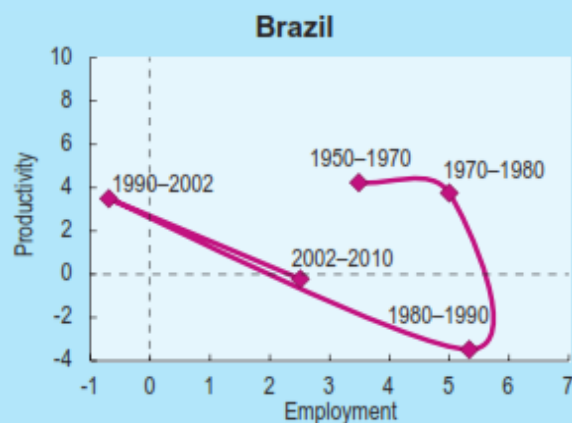
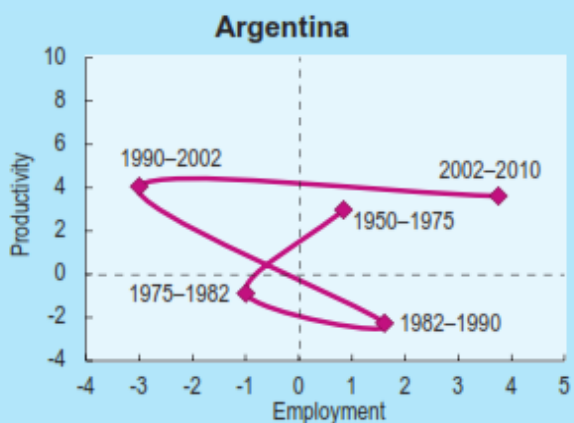
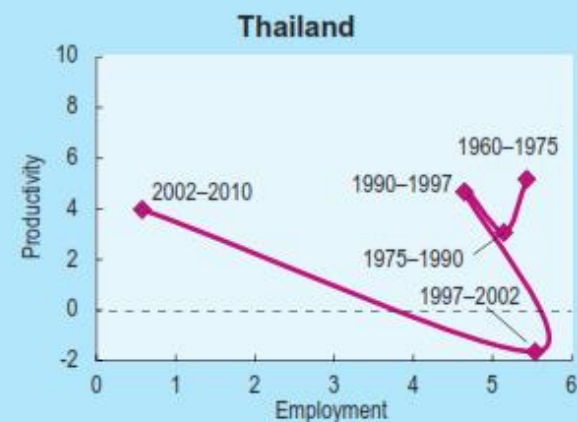
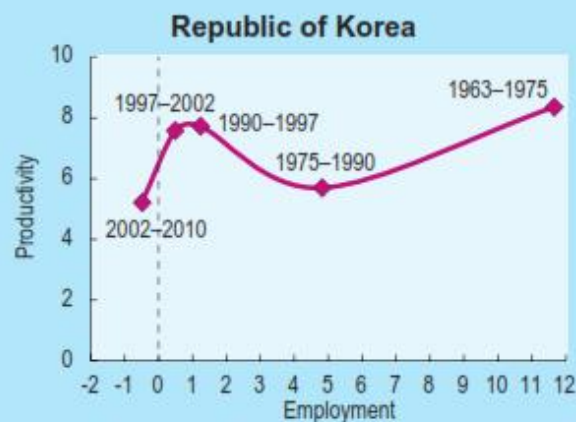
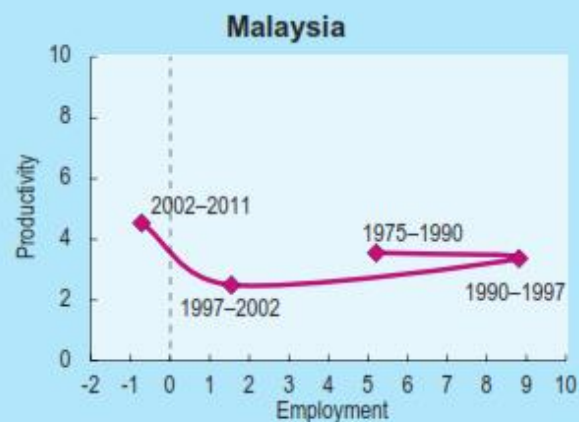
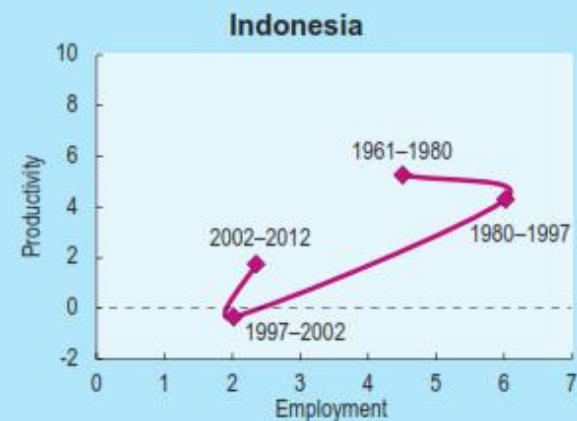
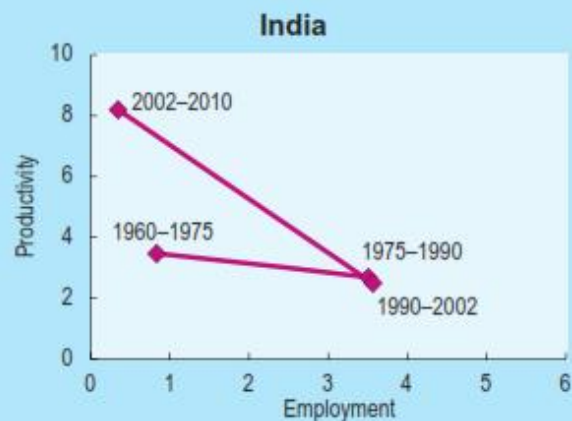
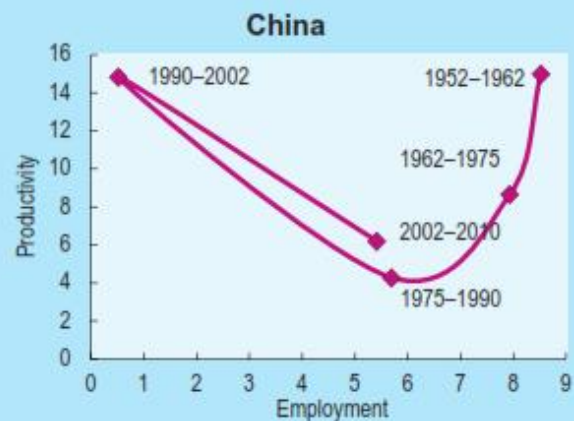
- In **medium-to high-technology** sectors, such as **motor vehicles** and other **transport equipment, chemical products** and rubber and plastic products, the shares of output and employment in 2014 **were similar to their levels in 1980**.
- **Weakening production linkages** within industry, as well as between **agriculture and industry**, which had been developed in the earlier period, **never reached** the **necessary threshold** to create **knock-on effects on employment, income and demand** in India.
- The **limited domestic market** (despite a large population), in turn, affected the ability to create the **economies of scale** needed for the country to become **more globally competitive**.
- Meanwhile, **linkages and activities** in other manufacturing **sub-sectors**, especially those related to **engineering and design and high-technology** products (e.g. for energy production), have been **relatively weak** (with the partial exception of the pharmaceutical sector).
- Thus, sectoral **gains in productivity** have **not been associated** with the creation of large and **high-quality employment** in the overall economy.

Average Annual Growth Rates of Total value Added, Value Added in Industry and Total Employment, 1970-2014

	<i>Total value added growth</i>					<i>Industry value added growth</i>					<i>Employment growth</i>				
	<i>1970– 1979</i>	<i>1980– 1989</i>	<i>1990– 1999</i>	<i>2000– 2007</i>	<i>2010– 2014</i>	<i>1970– 1979</i>	<i>1980– 1989</i>	<i>1990– 1999</i>	<i>2000– 2007</i>	<i>2010– 2014</i>	<i>1970– 1979</i>	<i>1980– 1989</i>	<i>1990– 1999</i>	<i>2000– 2007</i>	<i>2010– 2014</i>
Developed economies	4.1	2.7	1.5	3.4	1.2	3.6	2.3	0.6	3.5	0.2	1.0	0.9	-0.1	1.3	0.3
North Africa	6.1	4.5	3.4	4.5	2.4	7.3	4.3	2.9	4.1	1.1	2.8	2.2	2.4	3.3	1.6
Sub-Saharan Africa	5.0	3.5	2.9	5.2	5.6	5.2	3.0	1.7	5.5	6.3	3.1	3.3	2.3	2.3	3.0
South Africa	2.6	1.9	1.5	4.1	2.2	1.4	0.7	0.2	3.2	0.8	0.7	3.0	1.8	1.4	2.8
Latin America and the Caribbean	5.0	0.7	3.5	3.8	3.5	5.6	0.0	3.6	4.0	2.6	3.1	2.8	2.3	2.6	2.1
Argentina	2.6	-1.1	4.9	3.5	3.0	2.5	-2.2	5.1	4.2	1.8	1.4	1.7	1.2	3.2	0.8
Brazil	8.7	2.5	2.1	3.4	2.0	8.9	1.2	1.8	3.0	1.6	4.5	3.7	0.8	2.6	1.2
Chile	2.4	2.7	5.9	4.2	4.3	1.3	3.4	6.3	2.2	3.2	1.2	3.5	2.1	2.5	2.6
Mexico	6.4	1.7	2.9	2.6	2.8	7.1	1.5	3.2	1.7	2.1	5.1	3.3	2.9	1.8	1.5
East Asia	6.9	8.4	5.3	8.7	6.6	9.4	9.2	5.2	10.7	6.3	3.6	2.8	1.5	1.5	1.2
China	4.6	9.4	9.5	10.2	7.7	7.8	9.7	13.0	11.1	8.1	3.4	2.9	1.7	1.5	0.5
Republic of Korea	8.6	8.9	6.2	4.8	3.0	13.0	9.8	6.1	5.9	3.3	3.9	2.8	1.3	1.5	1.8
South-East Asia	7.3	5.4	4.9	5.1	4.8	8.8	5.4	5.3	4.4	3.9	3.6	3.0	2.3	2.3	1.6
Indonesia	7.4	5.4	4.0	4.7	5.6	9.5	5.4	5.3	3.7	4.8	3.7	3.5	2.2	1.5	0.7
Malaysia	8.6	5.6	6.6	4.8	5.2	8.2	6.4	7.1	3.7	4.1	3.8	3.1	3.1	1.8	3.3
Philippines	5.9	1.6	2.9	4.9	5.8	8.0	-0.1	2.2	3.9	6.2	4.0	2.7	2.8	2.8	1.0
Thailand	6.9	7.2	4.3	5.3	2.9	9.1	9.3	5.0	6.1	0.9	1.6	2.6	-0.1	2.1	0.2
South Asia	3.0	4.7	4.8	5.6	5.8	3.9	5.6	5.8	6.8	6.8	1.6	2.9	2.3	2.8	2.0
India	2.3	5.3	5.3	7.0	6.2	3.7	6.7	5.3	8.0	5.1	1.8	3.5	2.4	2.9	1.2

Average Annual Growth Rates of Investment, Total Labour Productivity and Total Labour Productivity in Industry, 1970-2014

	<i>Investment growth</i>					<i>Labour productivity growth</i>					<i>Industry labour productivity growth</i>				
	<i>1970–1979</i>	<i>1980–1989</i>	<i>1990–1999</i>	<i>2000–2007</i>	<i>2010–2014</i>	<i>1970–1979</i>	<i>1980–1989</i>	<i>1990–1999</i>	<i>2000–2007</i>	<i>2010–2014</i>	<i>1970–1979</i>	<i>1980–1989</i>	<i>1990–1999</i>	<i>2000–2007</i>	<i>2010–2014</i>
Developed economies	3.4	2.5	2.6	4.8	0.9	3.1	1.8	1.6	2.1	0.8	2.5	2.8	3.1	2.8	1.1
North Africa	11.5	1.1	4.4	6.1	-0.8	3.3	2.3	1.0	1.2	0.8	2.5	2.0	0.6	-0.1	-0.4
Sub-Saharan Africa	4.2	-0.8	1.9	9.1	7.4	1.8	0.3	0.6	2.9	2.3	0.0	-0.2	-0.7	0.5	2.7
South Africa	3.4	-1.5	1.7	9.0	4.0	1.9	-1.1	-0.3	2.7	-0.6	0.0	-1.8	1.7	1.3	-3.8
Latin America and the Caribbean	7.1	-2.8	5.2	5.9	5.4	1.9	-2.0	1.2	1.3	1.5	1.3	-1.7	2.2	1.5	0.0
Argentina	3.0	-7.0	9.7	6.6	2.0	1.2	-2.8	3.7	0.3	2.2	1.7	-1.4	6.9	-0.7	-2.5
Brazil	9.4	-1.6	1.8	2.6	1.8	4.2	-1.2	1.3	0.8	0.8	3.4	-2.8	2.9	0.0	-2.5
Chile	-1.0	4.4	7.3	8.3	5.2	1.3	-0.8	3.8	1.7	1.7	-0.3	-0.5	6.2	0.1	-1.8
Mexico	7.3	-2.7	4.8	3.0	3.2	1.3	-1.6	0.1	0.8	1.3	0.6	-1.7	0.4	0.6	3.7
East Asia	10.4	8.7	6.8	14.1	9.3	3.0	6.3	6.3	6.0	4.2	0.8	4.9	9.1	6.4	5.1
China	7.2	6.5	13.8	12.5	8.1	1.2	6.5	7.8	8.7	7.2	-1.6	4.8	10.4	7.1	6.9
Republic of Korea	16.3	11.0	4.5	3.7	1.7	4.7	6.1	4.9	3.3	1.2	3.2	5.0	7.7	5.6	4.3
South-East Asia	10.8	5.0	2.4	4.7	5.7	3.6	2.4	2.6	2.8	3.2	2.5	1.5	1.8	2.5	1.8
Indonesia	13.6	7.4	1.3	6.7	6.6	3.7	1.9	1.8	3.2	4.9	3.2	-0.4	2.3	2.4	0.8
Malaysia	14.2	4.7	4.0	3.7	9.1	4.8	2.5	3.5	3.0	1.9	0.2	2.0	0.9	4.0	1.6
Philippines	10.4	-0.5	1.7	3.1	7.0	1.9	-1.0	0.1	2.1	4.8	4.0	-2.9	-1.0	1.9	3.7
Thailand	6.5	8.6	-3.5	7.4	2.7	5.3	4.6	4.4	3.2	2.8	2.5	5.9	2.3	1.9	1.1
South Asia	6.5	3.1	5.6	8.1	4.7	1.3	1.8	2.6	2.8	3.8	1.8	1.2	3.1	1.3	3.0
India	3.9	6.3	6.8	12.5	3.8	0.5	1.8	2.9	4.1	5.0	2.3	1.3	0.7	3.3	0.5



Stalled industrialization

- **Mexico** provides another example of stalled industrialization, although at a **higher industrial share** in **GDP** than India.
- Its manufacturing grew at an average annual rate of around **7.5 per cent** in the post-war period, with **improvements in both employment** and, to a **lesser extent, productivity**.
- By 1970–1980, the shares of industry and manufacturing sectors in total value added were around 40 per cent and 19 per cent respectively.
- But they have barely changed since then.
- The **manufacturing sector** was **severely hit by the debt crisis** in the early 1980s, when its **growth stagnated** and **productivity shrank** until 1987.
- Policy reorientation and the process of joining the North American Free Trade Area (NAFTA) with the United States and Canada led to **some improvement in productivity** during the period 1987–1994,
- Also, it led a more significant recovery in employment growth in the second half of the 1990s, along with a **surge of production** by **assembly plants** (*maquiladoras*).
- However, **without an acceleration of investment**, neither **labour productivity** nor **employment creation** grew in the 2000s.

Stalled industrialization

- An inability to achieve sustained industrial growth is reflected in the **sluggish growth of manufacturing productivity**, at an average of only **0.2** per cent per annum between 1970 and 2012; indeed, the **overall economy** showed **no increase in productivity** during this period.
- **Rapid trade and financial liberalization** – which made the economy an important maquila exporter with only **limited domestic production linkages** – a recurrently **overvalued exchange rate** and the changing role of the public sector have all been factors contributing to the **poor growth performance** of Mexico's economy.
- A key feature of that economy has been the contrast between **rapid export growth and weak investment growth**.
- The period following the NAFTA agreement, characterized by trade and financial liberalization, led to a strong **increase in manufacturing exports**, from only 10 per cent of total exports in 1981 to more than 80 per cent in the early 2000s, decreasing only slightly thereafter.

Stalled industrialization

- However, as **exports increased, imports kept pace**, resulting in an increase in the imports-to-GDP ratio from 12.9 per cent in 1981 to 31 per cent in 2010.
- With **domestically produced intermediate goods** accounting for only **25 per cent of total value added**, few **backward and forward production linkages** could be established.
- The declining investment rate of the 1980s was reversed during the 1990s, but the **investment-to-GDP ratio** has been **stagnant at 20–21 per cent** since then.
- Thus, despite preferential **access to** the largest and most dynamic **market in the industrial world** and **large inflows of foreign investment**, the Mexican economy has been **unable to establish the linkages** needed to stimulate a dynamic process of **industrialization and economic growth**.
- This is largely due to **a delinking** of the **exporting sectors** from the **domestic economy**.

Stalled industrialization

- Some countries in South-East Asia, such as **Indonesia** and **Thailand**, experienced a **hybrid, stalled industrialization** process, with **positive structural transformation** between the 1960s and the 1997–1998 Asian crisis.
- Until the crisis, this transformation was accompanied by **rising investment rates** and **continuous increases** in **employment** and **productivity** across a broad range of industrial sectors, particularly manufacturing.
- The 1997–1998 crisis resulted in **slower industrial growth** and sluggish formal sector employment growth for these economies.
- **Investment rates** collapsed and have **never fully recovered**, and the industrial dynamics have been **altered quite profoundly**.
- Moreover, **similar to Mexico**, there has been an apparent **disconnect** between their **strong export performance** and production and **learning linkages**.
- Although growth gradually recovered after the crisis, the effects of the crisis on the key drivers of industrial growth have been profound, including a **significant fall in investment rates** from their very high levels and subsectoral shifts within manufacturing.

Per Capita Investment and Investment-to-GDP Ratio, 1970-2014

	<i>Per capita investment</i>					<i>Investment-to-GDP ratio at current dollars</i>									
	<i>In constant 2005 dollars</i>					<i>As a percentage of developed economies</i>					<i>Per cent</i>				
	<i>1970-1979</i>	<i>1980-1989</i>	<i>1990-1999</i>	<i>2000-2007</i>	<i>2010-2014</i>	<i>1970-1979</i>	<i>1980-1989</i>	<i>1990-1999</i>	<i>2000-2007</i>	<i>2010-2014</i>	<i>1970-1979</i>	<i>1980-1989</i>	<i>1990-1999</i>	<i>2000-2007</i>	<i>2010-2014</i>
Developed economies	4 135	4 683	4 901	6 806	6 687	100.0	100.0	100.0	100.0	100.0	27.5	24.7	22.2	23.4	21.0
North Africa	391	486	396	526	527	9.5	10.4	8.1	7.7	7.9	24.9	27.9	23.4	22.9	22.1
Sub-Saharan Africa	392	349	354	352	515	9.5	7.5	7.2	5.2	7.7	19.7	17.8	19.0	19.6	23.4
South Africa	921	849	637	841	1 195	22.3	18.1	13.0	12.4	17.9	28.1	24.8	17.5	16.9	19.4
Latin America and the Caribbean	830	1 020	1 284	1 707	1 578	20.1	21.8	26.2	25.1	23.6	22.2	21.3	22.6	23.1	21.3
Argentina	1 084	793	895	921	1 612	26.2	16.9	18.3	13.5	24.1	22.5	17.3	15.4	15.6	17.5
Brazil	964	960	836	838	1 251	23.3	20.5	17.1	12.3	18.7	21.4	21.2	19.0	17.7	20.3
Chile	377	422	968	1 404	2 433	9.1	9.0	19.7	20.6	36.4	16.9	18.9	24.4	20.6	22.7
Mexico	1 144	1 235	1 294	1 655	1 832	27.7	26.4	26.4	24.3	27.4	21.8	21.3	20.7	21.7	21.5
East Asia	723	1 379	2 581	3 423	4 538	17.5	29.5	52.7	50.3	67.9	24.7	26.8	30.1	27.6	28.0
China	54	104	235	595	1 538	1.3	2.2	4.8	8.7	23.0	27.4	29.0	31.5	37.1	44.4
Republic of Korea	642	1 610	4 320	5 631	6 544	15.5	34.4	88.1	82.7	97.9	27.4	30.6	36.1	31.0	29.8
South-East Asia	595	1 130	1 958	1 650	2 530	14.4	24.1	39.9	24.2	37.8	18.3	22.1	27.5	22.1	25.7
Indonesia	68	141	269	276	460	1.6	3.0	5.5	4.1	6.9	16.4	21.3	23.5	21.0	31.9
Malaysia	345	655	1 360	1 242	1 767	8.3	14.0	27.8	18.2	26.4	24.6	32.7	39.1	24.3	24.8
Philippines	183	224	224	238	320	4.4	4.8	4.6	3.5	4.8	24.3	24.7	24.5	20.6	20.0
Thailand	249	397	901	667	907	6.0	8.5	18.4	9.8	13.6	26.4	28.7	36.0	24.2	25.3
South Asia	172	184	208	356	532	4.2	3.9	4.2	5.2	8.0	18.7	22.5	23.7	26.3	27.8
India	52	70	112	206	405	1.3	1.5	2.3	3.0	6.1	18.7	23.3	25.4	29.9	33.3

Source: UNCTAD. (2016). The Catch-up Challenge: Industrialization and Structural Change. New York and Geneva: United Nations.

Stalled industrialization

- In **Indonesia**, the post-crisis period saw an increase in the output shares of **agriculture-based food** and **beverages** and **rubber products**, and **resource-based petroleum products**.
- In Thailand, the output share of **high-technology categories**, such as machinery, computing equipment and optical instruments, **grew from 0.2 per cent in 1982 to 8.1 per cent in 1996**, but was still around **8 per cent in 2006**.
- Thus, these countries still face the challenge of creating a **positive nexus** between **technological change**, **investment** and **demand** in the sectors that are already developed to some extent but have **yet to realize their full potential** for **expansion and growth**.
- These countries display the **dualism** of a dynamic “**modern**” **economy** coexisting with a **relatively stagnant** and more **informal economy**.
- For instance, **agricultural employment** shares in **Indonesia** and **Thailand**, are still **above 30 per cent**, and productivity varies considerably across the different sectors of their economies.
- This is indicative of **unexploited opportunities** to **boost economy-wide productivity** and growth by **shifting resources** from **low-productivity agriculture** to **higher productivity industrial** and **modern services sectors**.
- However, such shifts do not occur on their own; they require **proactive industrial policies to encourage them**.

(2) Premature deindustrialization

Premature deindustrialization

- Industrialization processes in **Argentina**, **Brazil** and **Chile** had **advanced significantly** since the **1930s and 1940s**.
- By the first half of the, their manufacturing sectors accounted for **34, 31 and 20 per cent of total value added**, respectively.
- However, by 2010–2014 these shares had dropped to **17, 13 and 12 per cent**, respectively.
- To some extent, a similar trajectory, though with differences in timing, was followed by countries in **North Africa**, as well as several transition economies following the collapse of the **former centrally planned system**, which **largely destroyed** the **bases of their significant industrial development**.
- Since this process of relative **shrinking of manufacturing** began at levels of **per capita income** that were **much lower** than the levels of income at which **developed economies started to deindustrialize**.
- This phenomenon has been termed “**premature deindustrialization**”.

Premature deindustrialization

- Such a contraction in countries that had achieved a significant level of manufacturing has often been associated with a **political shock** and a resulting **change in policy direction**.
- In Latin America as a whole, the **first stage of deindustrialization** in the 1980s saw a **steep fall in productivity**, as manufacturing firms initially **adjusted production** and **real wages rather than employment**.
- However, at the **second stage**, when it was clear that the previous **industrialization project** had been **abandoned**, there was a general adjustment aimed at **restructuring industrial activities and reducing employment**.
- Such a “**defensive strategy**” (which included the closure of many firms) led to a **recovery of productivity** between **1990 and 2002**, accompanied by **absolute declines of employment** in manufacturing in some countries.

Premature deindustrialization

- Economic recovery between 2003 and 2011 generated new employment in the manufacturing sector, but achieved only **mediocre gains in productivity** growth.
- With **investment-to-GDP ratios** remaining **low**, **Latin America's rate of capital accumulation** has been the **lowest among developing regions** in the post-1970 period.
- The **continuous decline** in **public investment** in the post-1980 period clearly, but only partly, contributed to this reduction.
- **Investment-to-GDP ratios** in **North Africa** and the **transition economies** have also been **stagnant**, at best, and **comparatively low** in per capita terms.
- Premature deindustrialization poses further challenges to successful transformation by **reducing** the **incentives to invest**, weakening the dynamics of employment generation in modern sectors of the economy, **reducing demand** and **income linkages** and **constraining the ability** to **benefit from economies of scale**.

Premature deindustrialization

- In particular, the **reduction** in aggregate demand for **domestically produced manufactured goods** as a result of **increased imports** (in the absence of a concomitant increase of manufacturing exports) acts as a **source of deindustrialization**.
- As the dynamics of employment generation in the modern sector of the economy weakens, **labour is often absorbed** by the **low-productivity primary sector**, auxiliary services and/or the **informal economy** characterized by **low quality jobs** and **low wages**.
- Hence, the economy is **further deprived** of possibilities to **build income linkages**.
- Under such conditions, **investment and domestic production linkages** to successfully substitute imported intermediary and capital goods are **severely weakened** if not completely destroyed.
- **Financial liberalization** becomes a **further source of deindustrialization** through its effect on the relative competitive position of the **exchange rate**.