Major Characteristics of The Progress of Vietnam's Labor Productivity in Three Decades of Reform and Integration, 1990-2020

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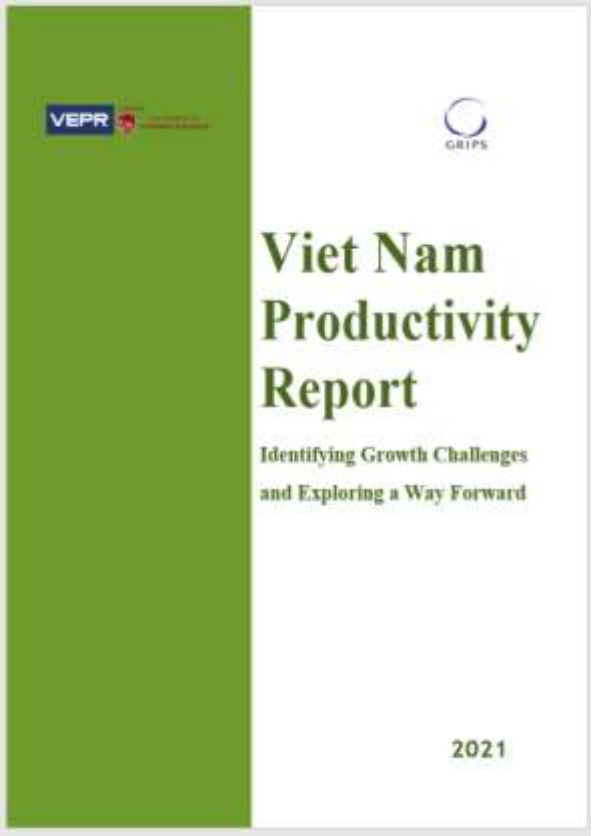
The Viet Nam Productivity Report

- Vietnamese leaders are interested in productivity. Yet, data & situation analyses are insufficient and policy discussion is not deep or pragmatic enough.
- To fill this gap, VEPR and GDF cooperated to draft the VN Productivity Report. All data work was done by VEPR while GDF advised & prepared policy part.
- We worked with PM Office and the Party Central Economic Commission, but not continuously. VCCI and Japanese Embassy assisted us consistently. METI and JICA each provided partial financial support.
- Advice was received from Prof. Tran Van Tho (Waseda) and Dr. Vu Minh Khuong (Singapore LKYS).
- The Report is forthcoming as a book in 2021.



Content

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PART I

CHARACTERISTICS OF LABOR PRODUCTIVITY PROGRESS IN VIET NAM, 1990-2020

Definition and Measurements

Definition and Measurements

We focus on:

- **Labor productivity—**it is the ratio of output of goods and services to labor input to produce such output.
- **Total factor productivity (TFP**)—it is the amount of output that is not explained by the quantity of various inputs used in production, showing effectiveness in the utilization of inputs. This is a comprehensive efficiency indicator, but sensitive to model assumption and data.

Measuring Labor Productivity

Labor productivity is a partial productivity indicator, reflecting the amount of goods and services generated per unit of labor input.

$$Labor\ productivity = \frac{Output}{Labor\ input}$$

- *Output* is measured in GDP (or value added for each sector)
- *Labor input* is measured by the total number of employed persons

Decomposition of Labor Productivity Growth

- **Growth accounting method** was initiated by the neoclassical growth model of Solow (1957). Labor productivity growth is divided into TFP (true efficiency) and capital deepening (K/L).
- **Shift-share analysis method** decomposes labor productivity growth into three components: (i) within effect, (ii) shift effect, and (iii) interaction effect.

$$\frac{P_m^t - P_m^0}{P_m^0} = \frac{\sum_{j=1}^{n}\left[\left(P_j^t - P_j^0\right) * S_j^0\right]}{P_m^0} + \frac{\sum_{j=1}^{n}\left[P_j^0 * \left(S_j^t - S_j^0\right)\right]}{P_m^0} + \frac{\sum_{j=1}^{n}\left[\left(P_j^t - P_j^0\right) * (S_j^t - S_j^0)\right]}{P_m^0}$$

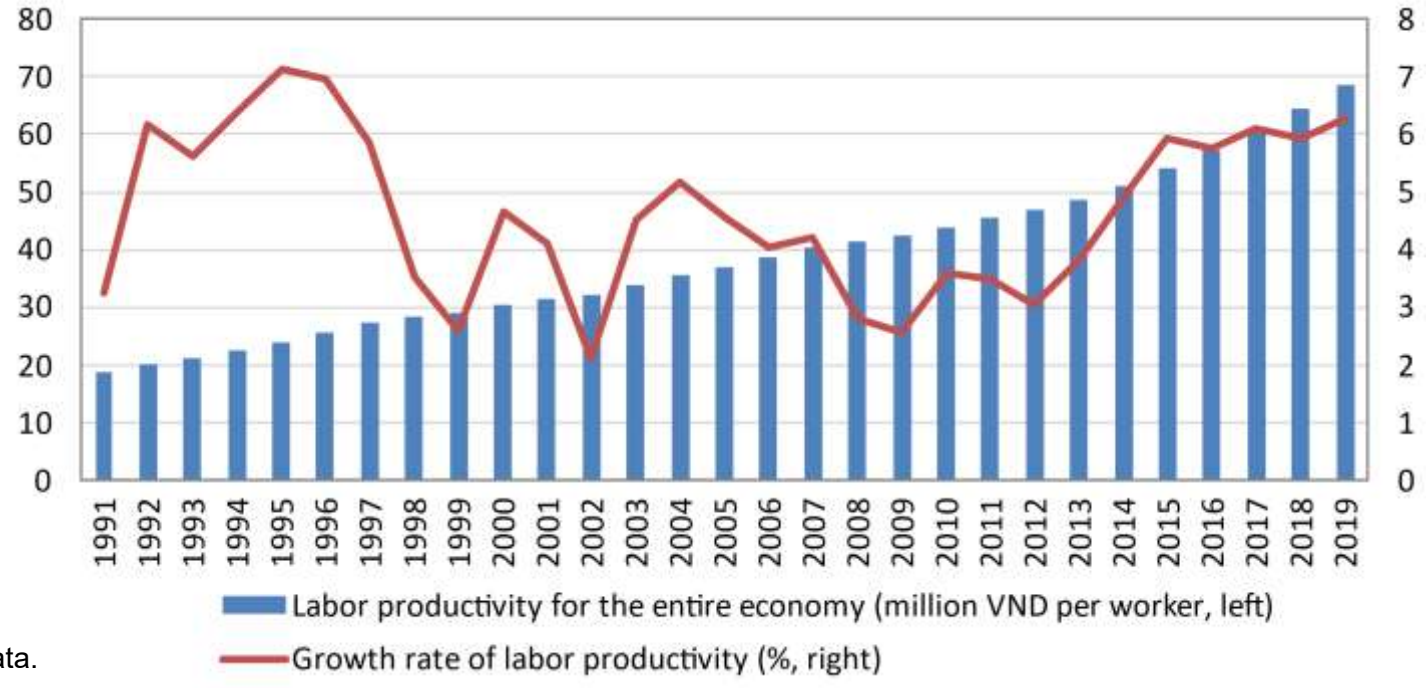
  - **Within effect**: productivity growth in each sector
  - **Shift effect**: impact of labor mobility across sectors with different productivity
  - **Interaction effect**: capturing the relationship between changing labor shares and changes in sectoral labor productivity

Major Trends of Labor Productivity in Viet Nam

Economy-wide Labor Productivity: Growth & Level

- Average growth was 4.65% (1991-2019), which is moderate by East Asian standard. There was no productivity breakthrough to catch up and overtake other countries (unlike China).
- Starting from a very low position, the absolute level is still low. Relative position within ASEAN has not changed much. To move up from current lower middle income ($2,590, WB 2019 data), acceleration of productivity growth is necessary, not slowdown.

The level and growth rate of Viet Nam's labor productivity



Source: authors' calculation based on GSO data.

Economy-wide Labor Productivity: Three Phases

High growth (1991-95) Average growth 5.7%

One-time catchup to normal position as the suppressed economy was liberalized and opened up. Investment grew strongly but the quality and quantity of labor were largely unchanged.

Slowdown (1996-2012) 4.0%

Growth was driven by large but inefficient investment. TFP and labor productivity growth were not satisfactory. Growth was more quantitative than qualitative.

Recovery (2013-19) 5.5%

Labor productivity growth and TFP growth picked up again. The cause(s) are still unknown (data too short), but may include (i) strong trade and FDI performance thanks to many FTAs and trade agreements, and diversion from China; (ii) continued business effort for efficiency; and (iii) sound policy management of fiscal deficit, COVID, etc. It is not clear whether these are lasting factors. The spurt may be only temporary.

Economy-wide Labor Productivity: Three Phases

Decomposition of GDP growth into labor productivity and employment growth

		Growth rate (%/year)		
		Labor productivity	Employment	GDP
All period	1991-2019	4.65	2.26	6.91
Period of high productivity growth	1991-1995	5.70	2.48	8.18
Period of productivity stagnation	1996-1999	4.73	2.26	6.99
	2000-2007	4.18	3.02	7.19
	2008-2012	3.10	2.69	5.79
Period of productivity recovery	2013-2019	5.53	0.92	6.46

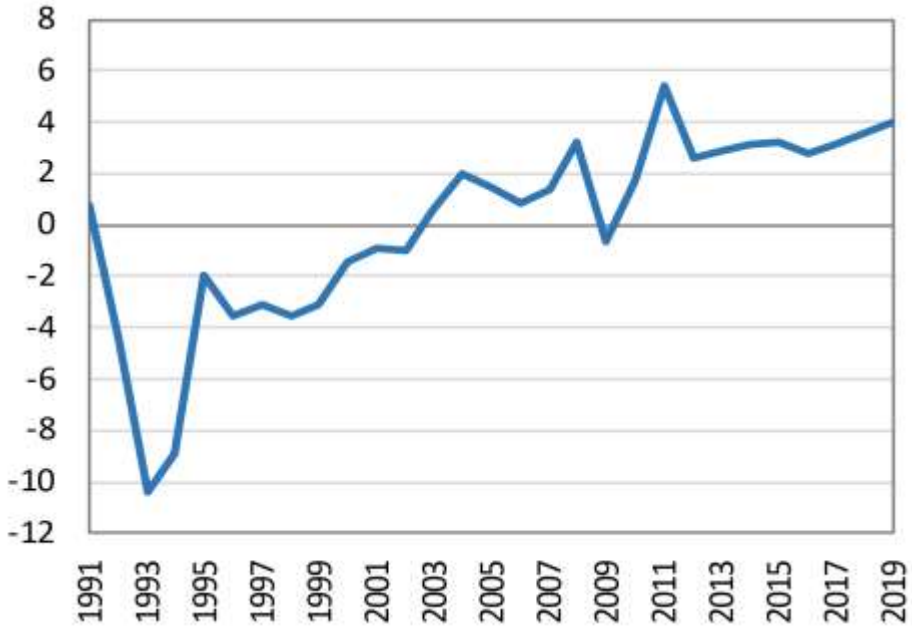
Source: authors' calculation based on GSO data.

Incremental Capital Output Ratio (ICOR) and TFP

- ICOR shows how much investment is needed to push GDP by 1%. Higher the ICOR, less efficient is investment. Viet Nam's ICOR was high (5 to 7) but fell to a more reasonable level in recent years.
- TFP growth was negative until 2002 but became mostly positive since then.

ICOR

TFP growth (%)

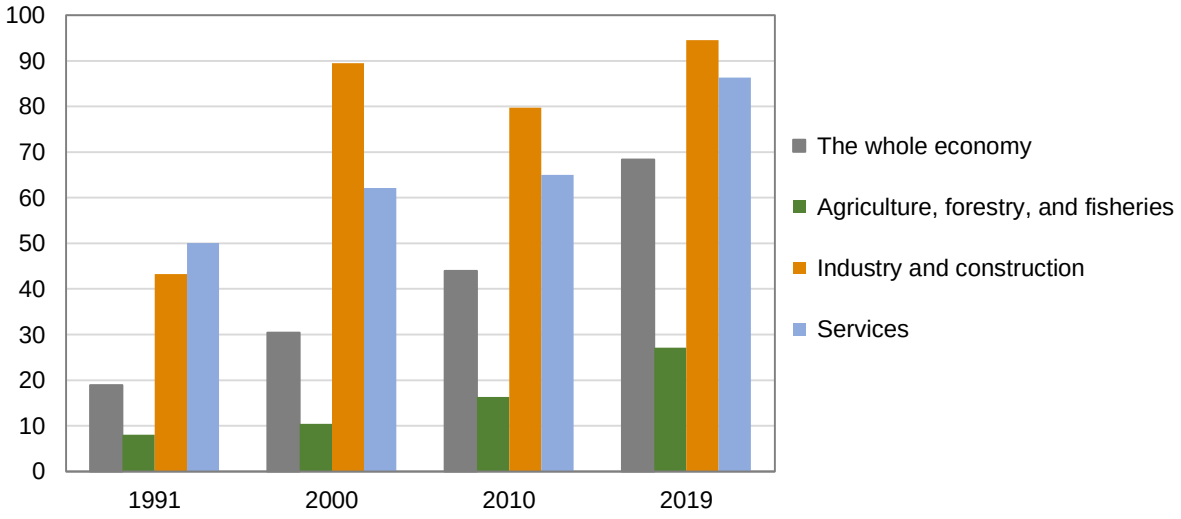


Source: authors' calculation based on data from IMF and GSO.

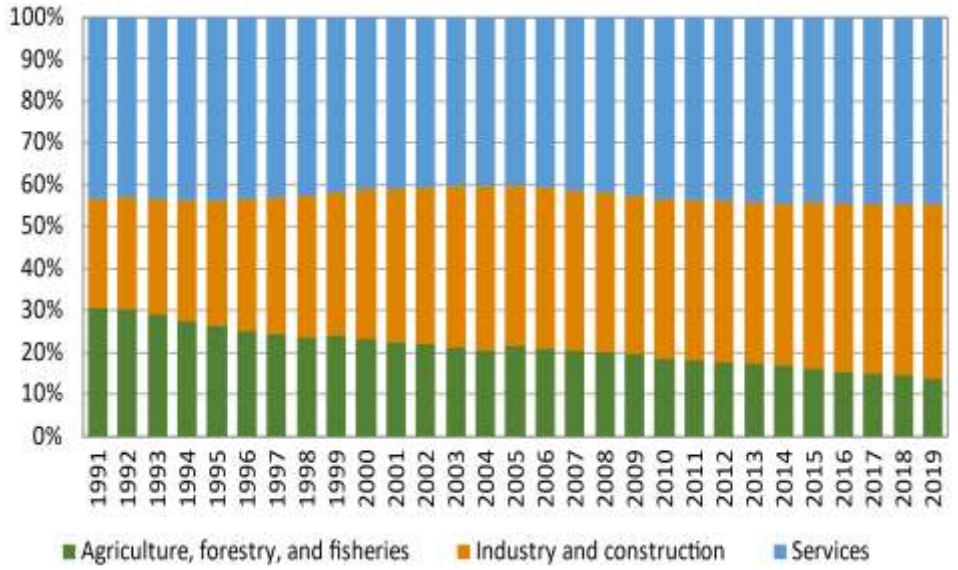
Labor Productivity by Economic Sectors

- In 2019, the average labor productivity of industry and construction was 1.1 times higher than that of services and 3.49 times higher than that of agriculture, forestry, and fisheries.
- This pattern of labor productivity across broad sectors is consistent with the expected dynamism in a developing country such as Viet Nam in which industry is the main driver of structural transformation.

Labor productivity of broad economic sectors
(In VND million per worker, at constant 2010 price)



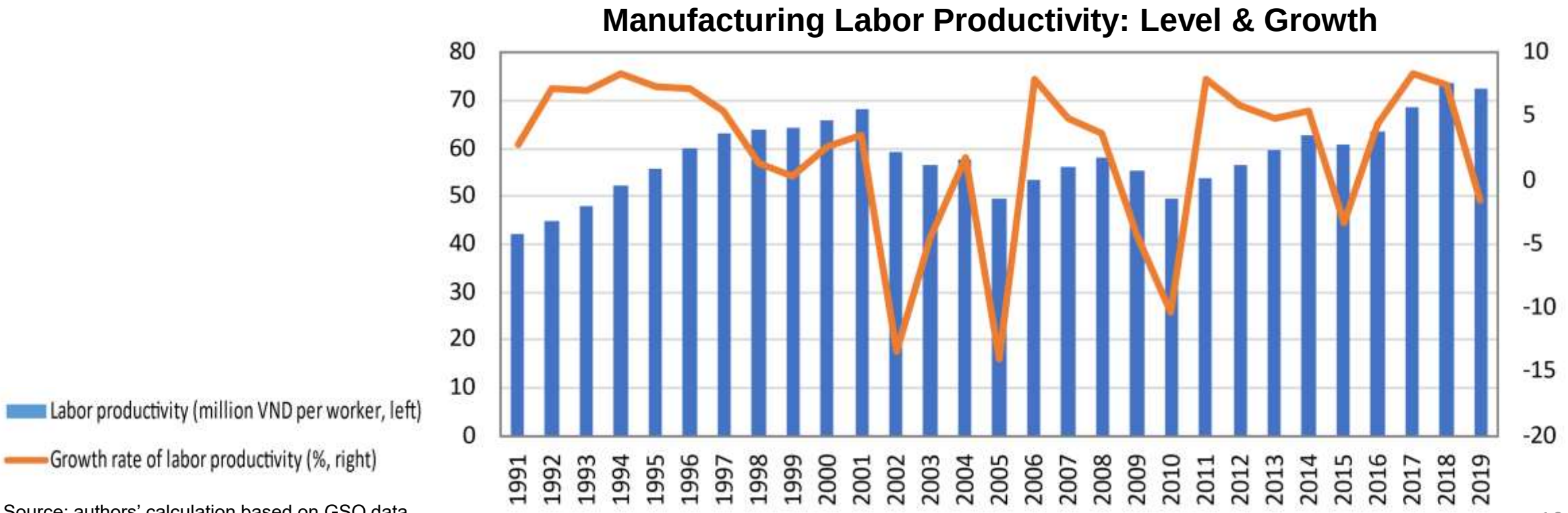
Contribution to GDP by economic sectors



Source: authors' calculation based on GSO data, with adjustment for the 2010 data gap.

Manufacturing Labor Productivity Stagnates

- In 2019, labor productivity was highest in Secondary Sector (construction & industry), second in Tertiary Sector (services) and lowest in Primary Sector (agriculture, forestry & fishery). However, LP of Secondary Sector stopped growing after 2000.
- Within Secondary Sector, manufacturing clearly shows stagnation in the 21st century (below). This is puzzling in a rapidly industrializing economy such as Viet Nam.



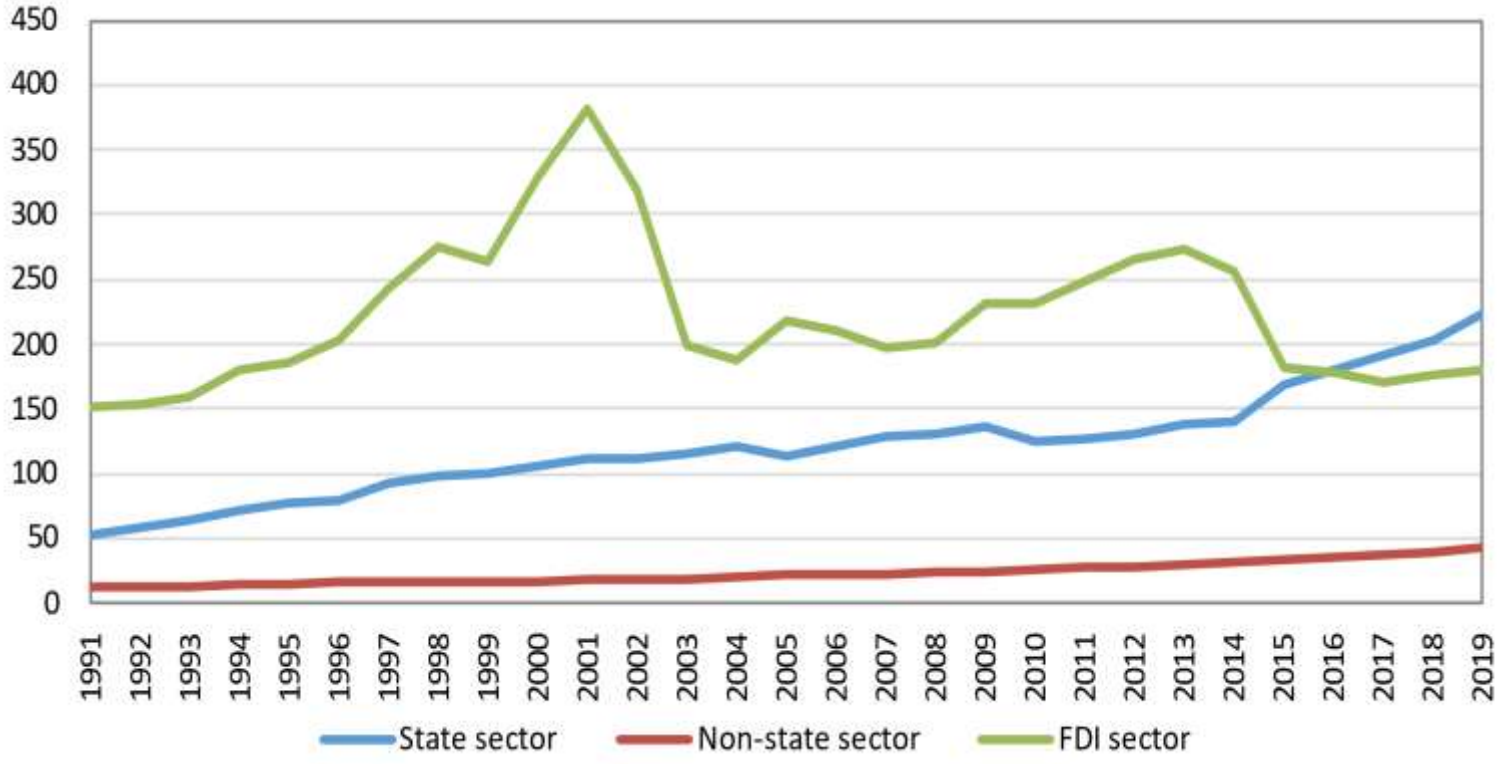
Source: authors' calculation based on GSO data, with adjustment for the 2010 data gap.

Labor Productivity by Type of Ownership

From 1991 to 2019, labor productivity of the FDI sector increased 1.19 times, that of the non-state sector 3.34 times, and that of the state sector 4.24 times.

Growth 1991-2019: **State > Non-state > FDI**

LP level in 2019: **State > FDI > Non-state**



Labor productivity by ownership
(VND million per worker, at constant 2010 price)

Source: authors' calculation based on GSO data, with adjustment for the 2010 data gap.

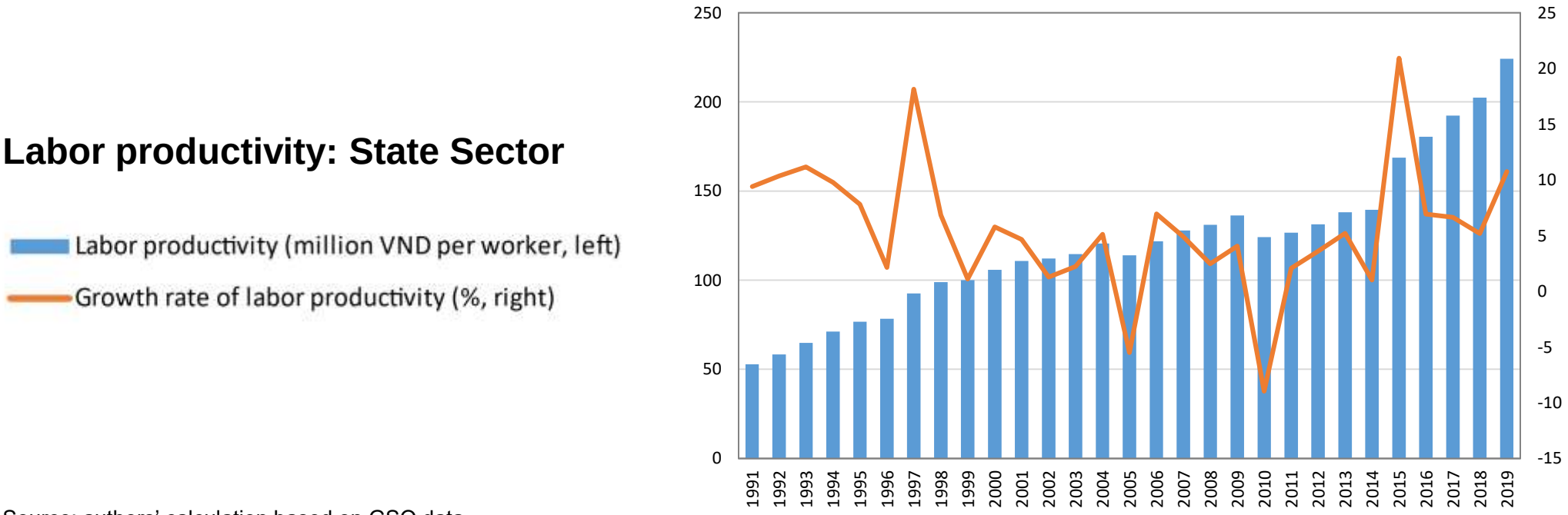
State Sector: Labor Productivity Continues to Rise

The increase in labor productivity may come from the following reasons.

(i) A series of state enterprise reform which streamlined and equitized many of low performing enterprises, retaining only good performers in the state hand and thus pushing up their average productivity.

(ii) A high capital-labor ratio, and various privileges and protection offered by the government.

Labor productivity: State Sector

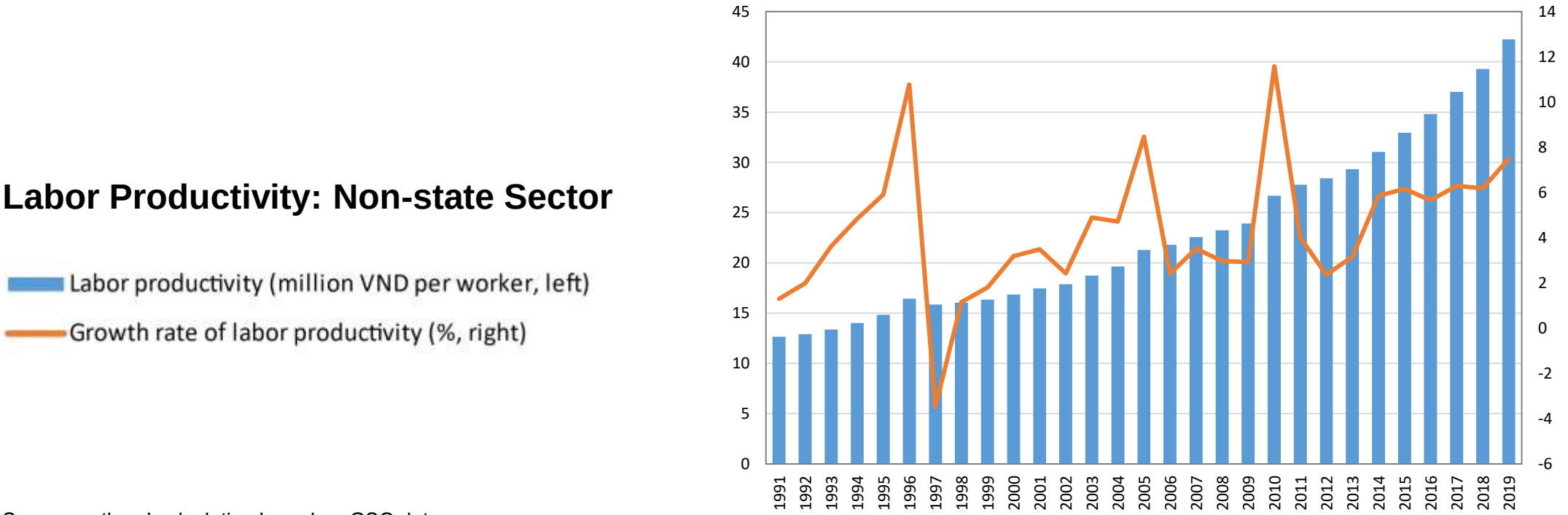


Source: authors' calculation based on GSO data, with adjustment for the 2010 data gap.

Non-state Sector: Rising but Level is Still Low

Labor productivity of the non-state sector increased steadily. Even so, it remains low in absolute terms in comparison with the other two sectors.

Labor Productivity: Non-state Sector

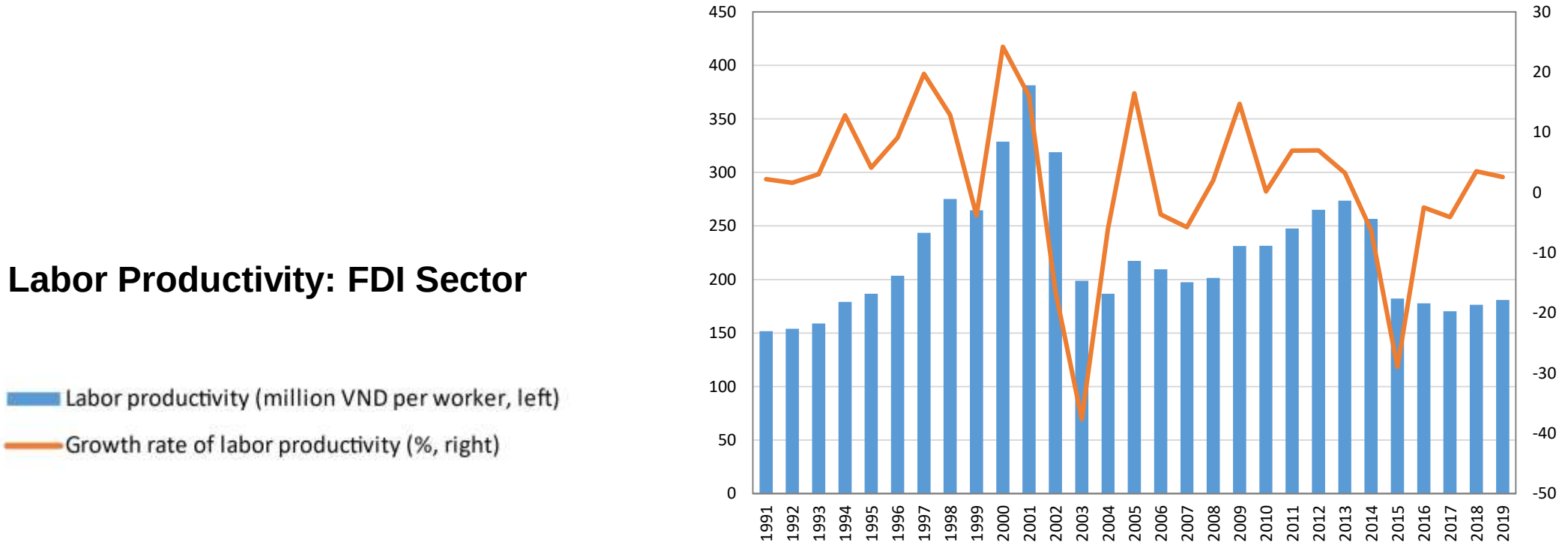


Source: authors' calculation based on GSO data, with adjustment for the 2010 data gap.

FDI Sector: Decline & Stagnation

Labor productivity of the FDI sector strongly rose up to 2001, then fell greatly, and stagnated. This is strange because we normally expect FDI to be productive and competitive.

Labor Productivity: FDI Sector



Source: authors' calculation based on GSO data, with adjustment for the 2010 data gap.

Why LP of Manufacturing and FDI Sectors Stagnate?

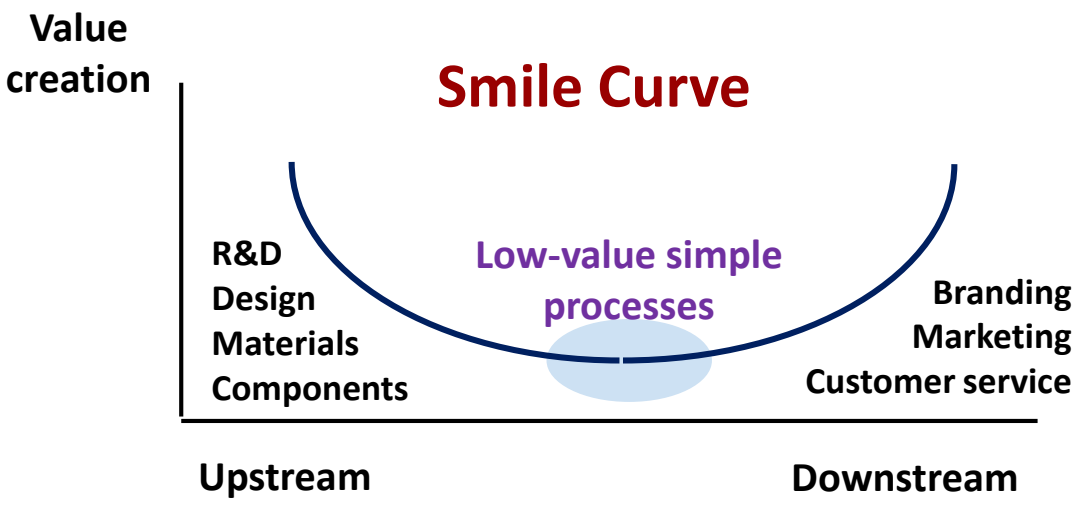
- Manufacturing sector and FDI sector overlap. The main reason for their stagnation is changing content of their activities.
- Prior to 2000, capital- and technology-intensive FDI abounded (mining, energy, motorcycle, automobile, die & mold, etc.) After that, export-oriented labor-intensive large-scale FDI dominated (garment, footwear, electronic assembly, etc.) These activities have low domestic value-added and low labor productivity.
- The problem is that government failed to upgrade them toward higher productivity, quality and competitiveness—unlike Malaysia's Manufacturing++ strategy (1990s) or Thailand's new FDI policy (2015).
- FDI firms also consider Viet Nam to be a place for simple works and have no reason to revise this strategy. Policy failure and FDI's such attitude are two sides of the same coin.
- If wages continue to rise, FDI will not upgrade but simply leave Viet Nam—a typical "middle income trap" situation.

Persistence of Unskilled Labor

- In the mid 1990s, Vietnamese workers were praised as young, skillful and diligent. After a three-and-half decades of Doi Moi and a quarter century of global integration, some of these traits are being eroded. Moreover, these advantages are not enough to take Viet Nam above middle income.
- Viet Nam failed to educate and train high-level human resources who generate high value (scientists, managers, engineers). They are in acute and chronic shortage.
- Workers are becoming shortsighted and unwilling to learn. Untrained workers are not declining but increasing (56→66% in industry and construction; 31→56% in services: from 2007 to 2013).
- Viet Nam must overcome such negative mindsets if it is to advance in industrialization.

Limited Participation the Global Value Chain

- FDI attraction does not automatically strengthen domestic firms or activate participation in global value chains. Host nations must prepare necessary conditions first.
- Khoi & Chaudhary（2019）calculated Viet Nam's participation in GVCs. Backward participation (upstream) rose but forward participation (downstream) remains stagnant (see table).
- Supporting industries (upstream) are dominated by FDI firms.
- Insufficient GVC participation and being trapped in simple processes (mentioned above) are two sides of the same coin.



Viet Nam's participation in global value chains

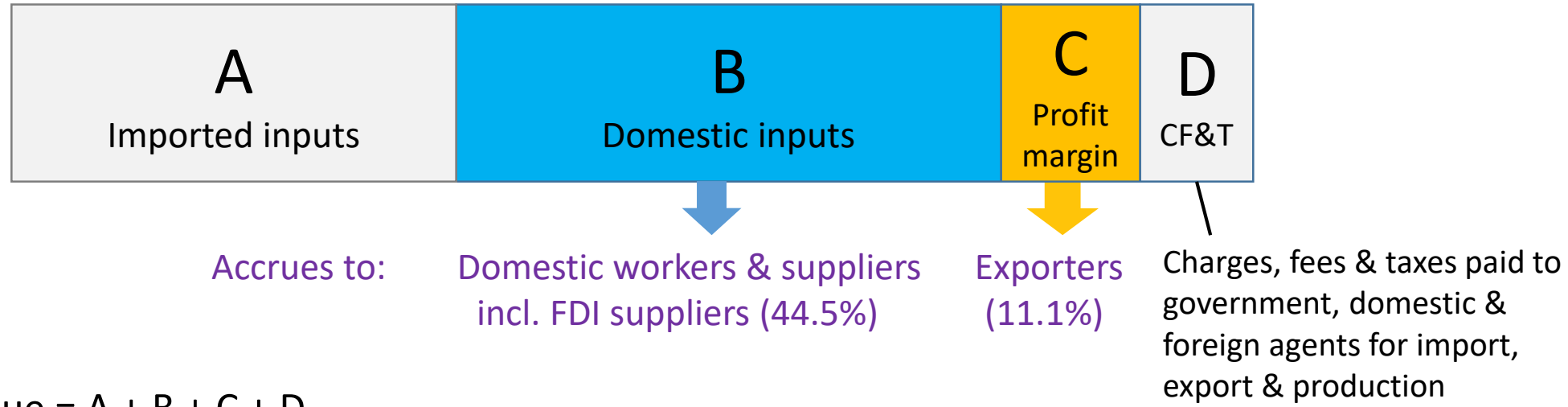
Year	Forward participation (%)	Backward participation (%)	Participation in global value chains (%)
1995	12.6	21.6	34.2
2000	19.5	27.2	46.7
2005	14.5	36.1	50.6
2010	12.5	40.5	53.0
2015	11.1	44.5	55.6

Source: Nguyen Viet Khoi and Shashi Chaudhary (2019).

Technical note

Nguyen Viet Khoi and Shashi Chaudhary (2019) define the “backward participation” as the amount of domestically produced intermediate products and services contained in a nation’s total export, and “forward participation” as the amount of value-added earned abroad in a nation’s total export.

Vietnam: Export value structure (2015)



Total export value = A + B + C + D

Backward participation = B / (A+B+C+D)
Forward participation = C / (A+B+C+D)

Note: this is an analysis of export value (FOB). The final retail price must be higher, and the difference is captured by foreign buyers & distributors, whose amount is unknown to Vietnamese exporters.

The Labor Market and Lewis' Turning Point

- Arthur Lewis argued that, in development, rural labor migrate to urban industry and services. If this process proceeds sufficiently, the economy will reach the "turning point" where surplus labor disappears, the labor market tightens, and wages begin to rise.
- Vietnamese labor is migrating across sectors. Agri. (72→34%), Industry (11→30%), Services (16→35%) (labor share, 1991 to 2019）.
- Labor in HCMC & Ha Noi is already tight, but surplus labor exists in rural and remote areas. Labor shortage is partial and local. The nation as a whole has not reached the turning point.
- In Japan, labor migration did not stop until the turning point was reached. Why does Viet Nam's internal labor migration not accelerate? Possible reasons include: (i) rural labor is actually already in shortage; (ii) rural labor is without skills for modern sectors; (iii) narrowing urban-rural income gap; (iv) some barrier(s) in labor mobility exist.

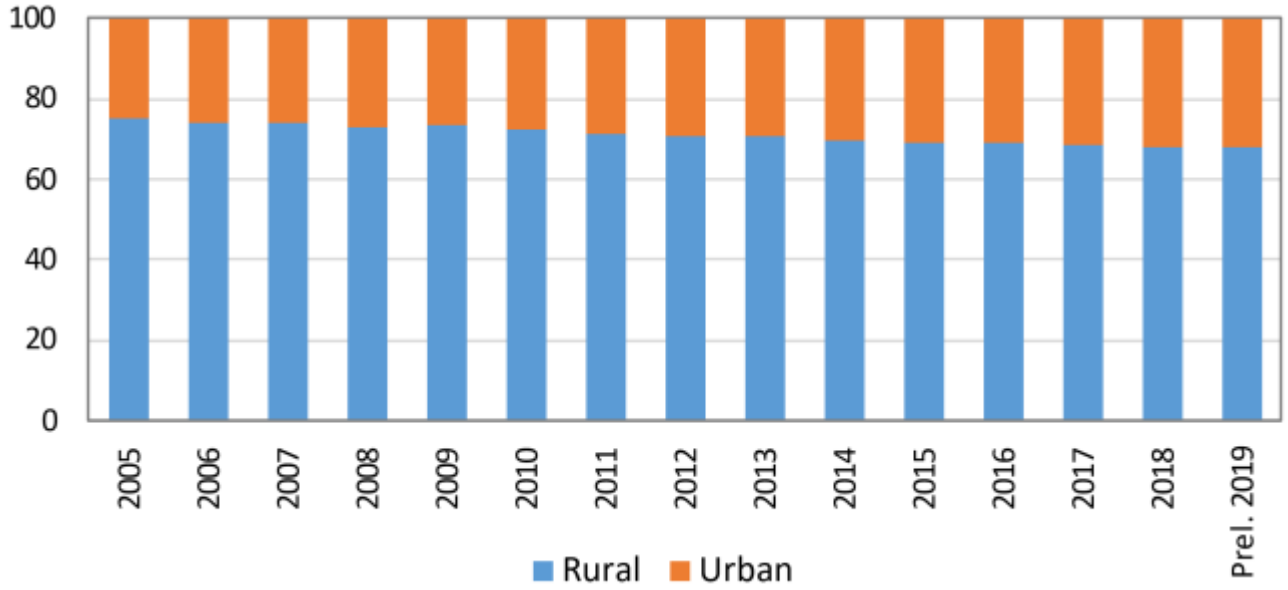
The Labor Market and Lewis' Turning Point (cont.)

Skill level of Vietnamese labor is low and not rising (actually, falling)

- Between 2007 and 2013, labor who lacked skill, as defined by job duty and required certification, rose from 7.1% to 11.1% in agriculture, from 55.5% to 65.5% in industry and construction, and from 30.5% to 56.4% in services (Nguyen Ba Ngoc & Pham Minh Thu, 2014).

Labor is surely migrating from villages to cities, but speed may not be very fast

Distribution of labor between rural and urban areas (%)



Source: General Statistics Office.

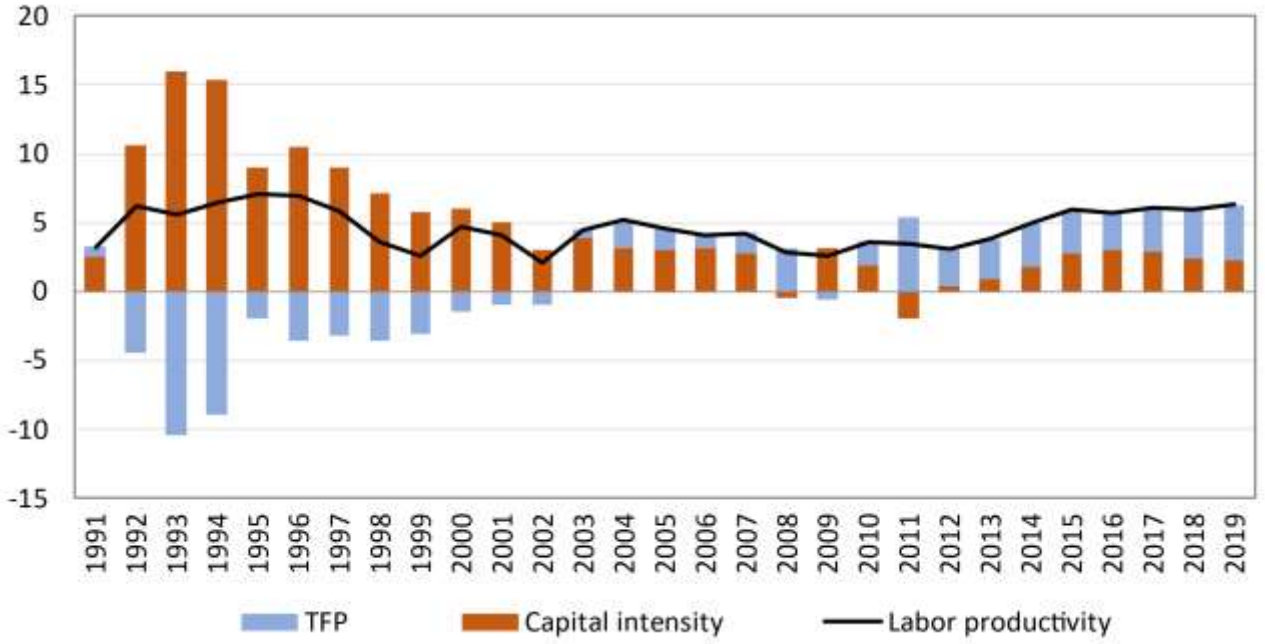
Findings in the Sources of Labor Productivity Growth

Growth Accounting Decomposition

Δ Labor productivity = Δ TFP + Δ (Capital/Labor)

- In early years, heavy investment drove labor productivity. TFP (true efficiency) tended to decline.
- In the 21C, especially in the 2010s, TFP growth rose and replaced investment as a main driver of labor productivity.

Growth accounting: decomposition of labor productivity growth (%)



Source: authors' calculation based on GSO data, with adjustment for the 2010 data gap.

Decomposition of Labor Productivity Growth (%)

Same data in table format for three subperiods

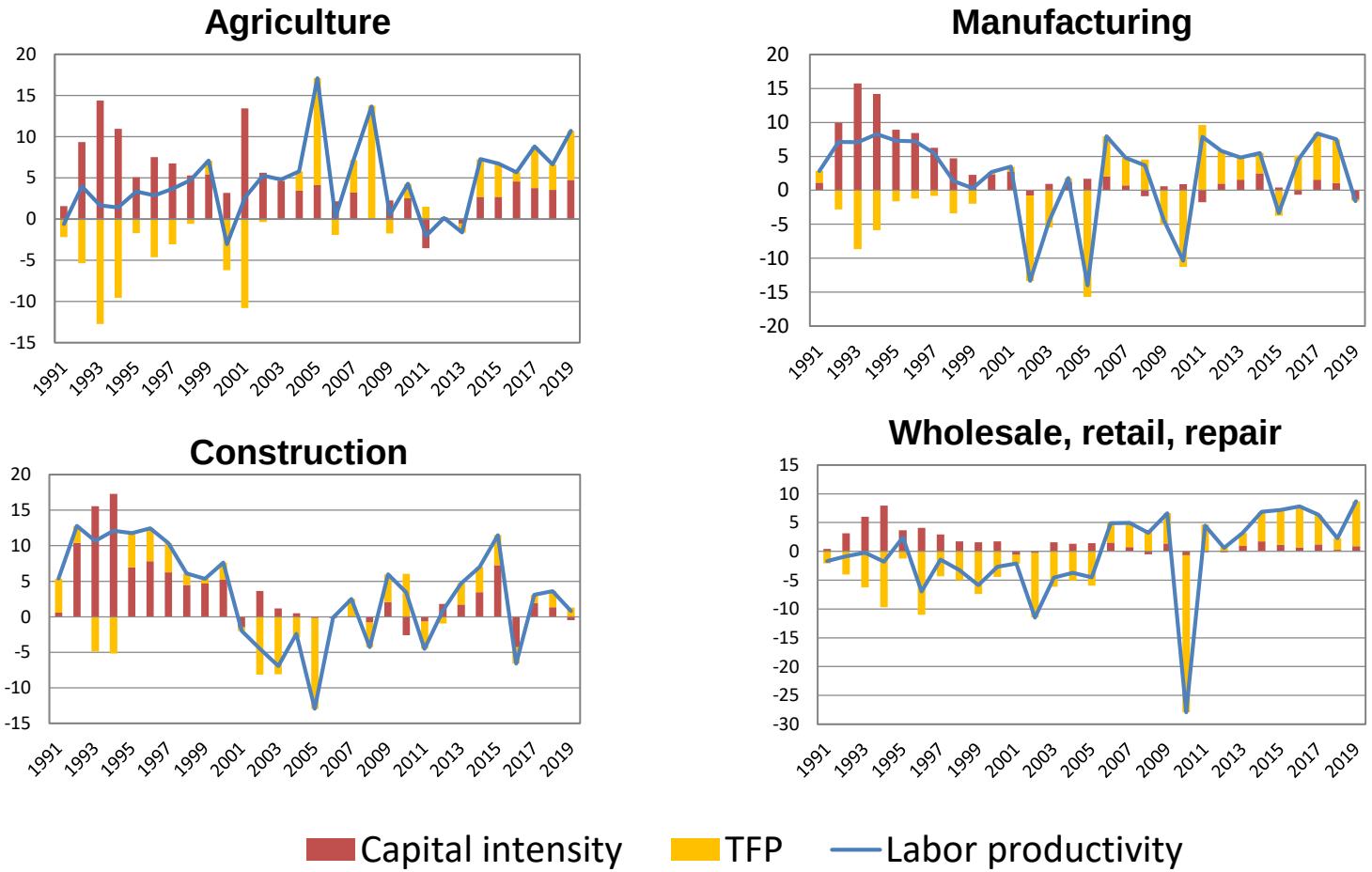
		Labor productivity growth	Contribution of		Contribution share	
			Capital intensity	TFP	Capital intensity	TFP
All period	1991-2019	4.65	4.44	0.22	95.37	4.63
Period of high productivity growth	1991-1995	5.70	10.39	-4.69	182.16	-82.16
Period of productivity stagnation	1996-1999	4.73	8.05	-3.32	170.24	-70.24
	2000-2007	4.18	3.77	0.40	90.31	9.69
	2008-2012	3.10	0.58	2.52	18.79	81.21
Period of productivity recovery	2013-2019	5.53	2.28	3.25	41.20	58.80

Source: authors' calculation based on GSO data.

Growth Accounting Decomposition: Subsectors

- Trends in agriculture, manufacturing & construction are similar to overall economy, but services are driven mainly by TFP.

Decomposition of labor productivity growth: selected subsectors (%)

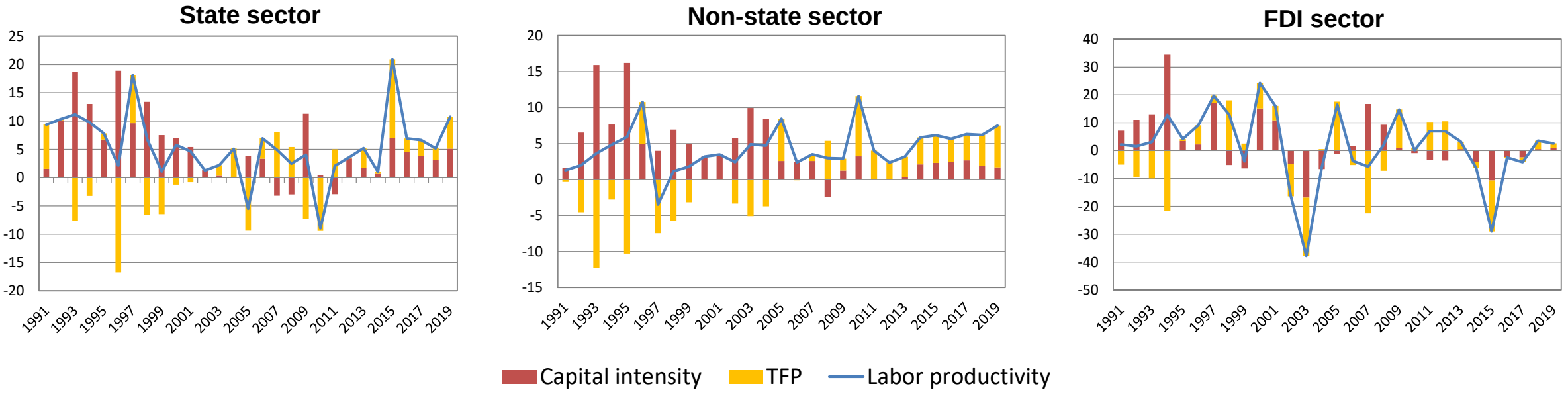


Source: authors' calculation based on GSO data, with adjustment for the 2010 data gap.

Growth Accounting Decomposition: Subsectors (cont.)

- In terms of type of enterprise ownership, capital intensity had a large influence on labor productivity growth in all sectors in the 1990s, though this effect was slightly less prominent and more volatile in the FDI sector.
- After 2000, the impact of capital intensity generally became small and the role of TFP growth more prominent, especially in the non-state sector. However, TFP contribution was unstable and weak in the FDI sector, as its labor productivity fell greatly in the early 2000s—especially in 2003—and then stagnated subsequently, a phenomenon we analyzed in detail in the previous chapter.

Decomposition of labor productivity growth by ownership (%)



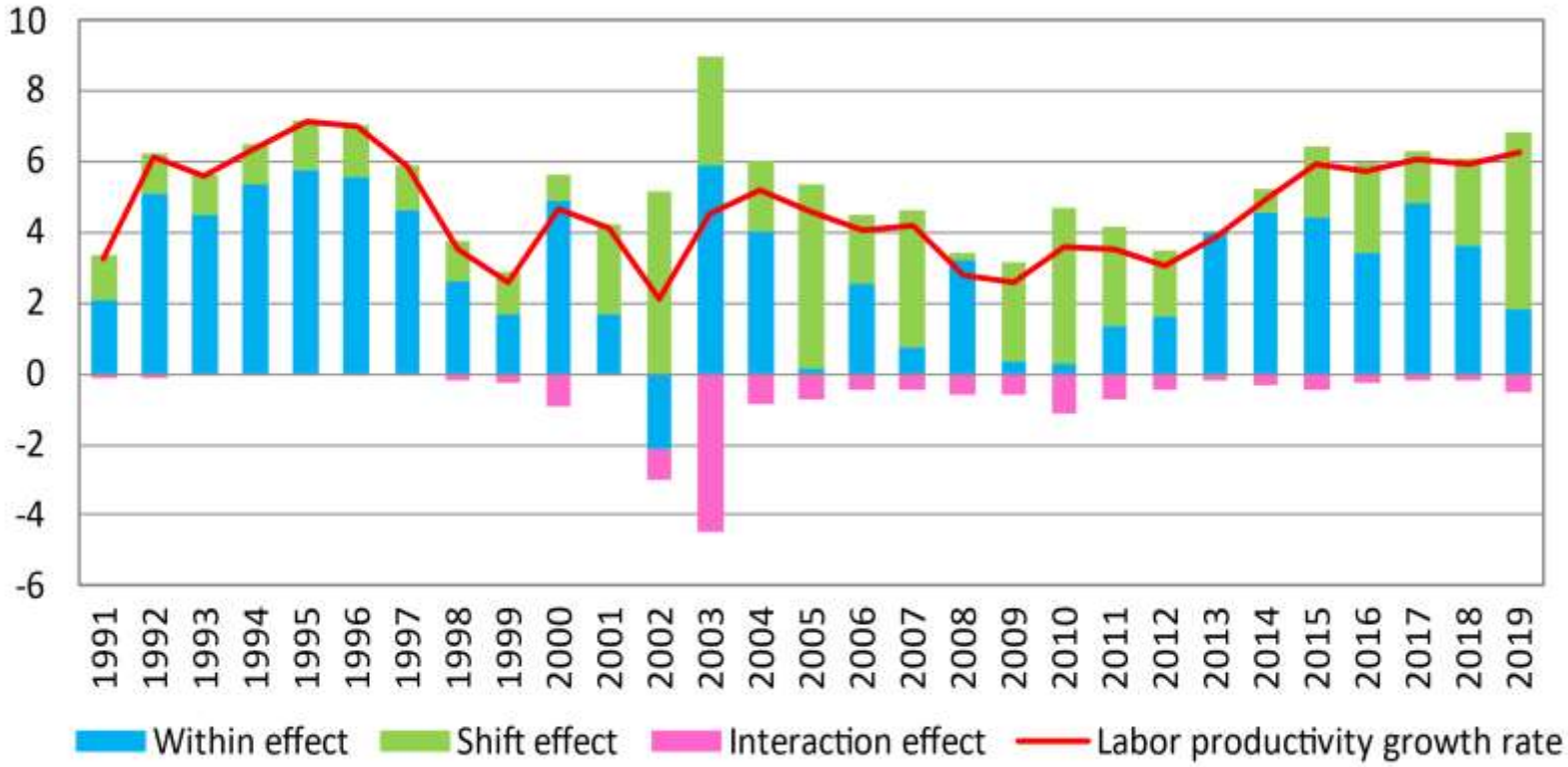
Source: authors' calculation based on GSO data, with adjustment for the 2010 data gap.

Shift-share Analysis

Δ Labor productivity = Δ Productivity increase in each sector
+ Δ Labor movement across sectors + Interaction effect

- Within effect dominated in early and recent years. In the middle subperiod, Shift effect was also significant.
- At lower middle income, both effects should be dynamic and reinforce each other. In Viet Nam, they are not very dynamic.

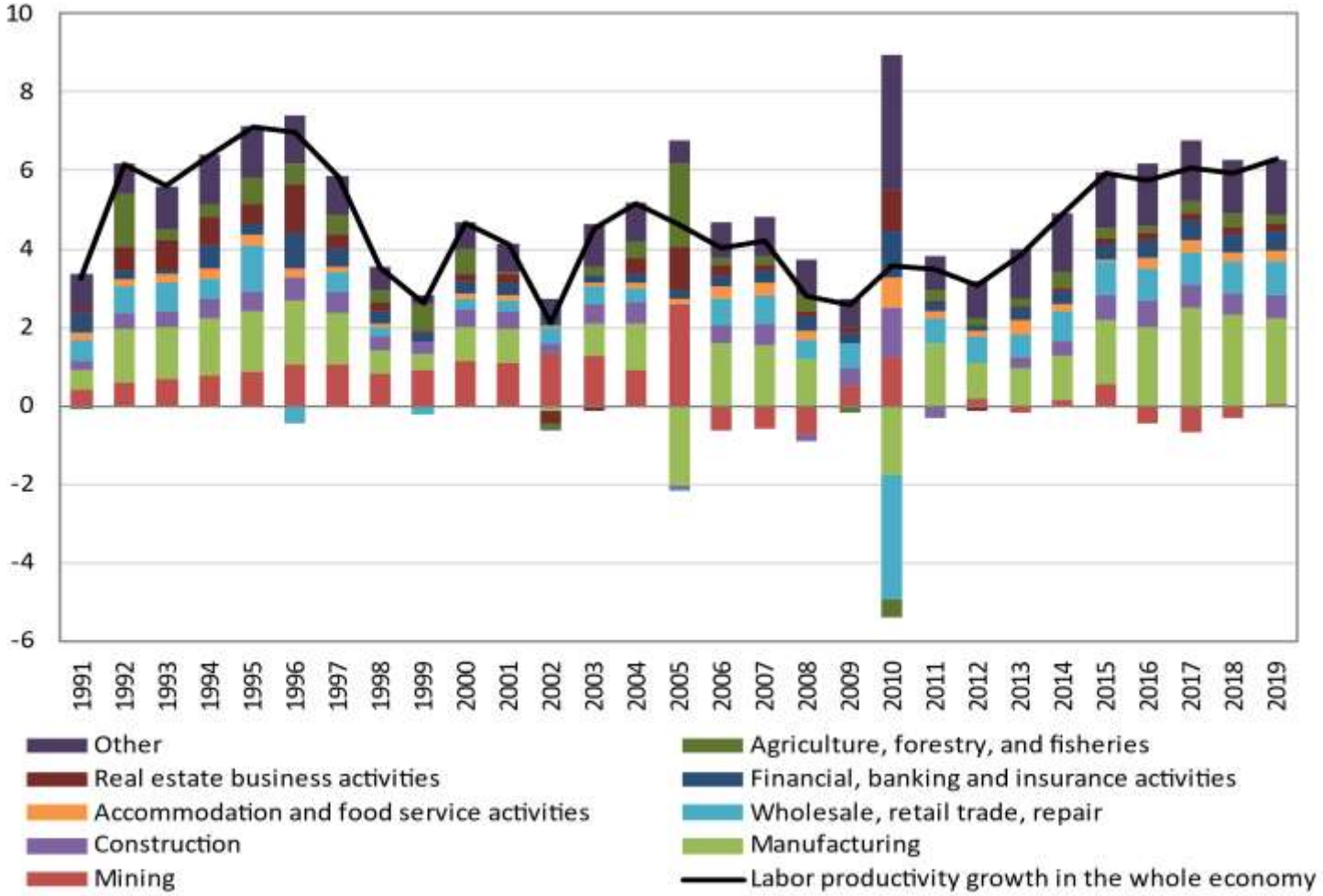
Shift-share analysis: decomposition of labor productivity growth (%)



Source: authors' calculation based on GSO data, with adjustment for the 2010 data gap.

Shift-share Analysis: Subsectors

Five subsectors that had, generally and throughout the entire period, largest impact on overall labor productivity are (i) manufacturing; (ii) mining; (iii) construction; (iv) financial, banking, and insurance activities; and (v) wholesale, retail, and repair. They collectively accounted for 61% of overall labor productivity growth in the 1990s and 2010s though their impact was reduced to 52% in the 2000s.



Annual subsector contribution to economy-wide labor productivity growth (%)

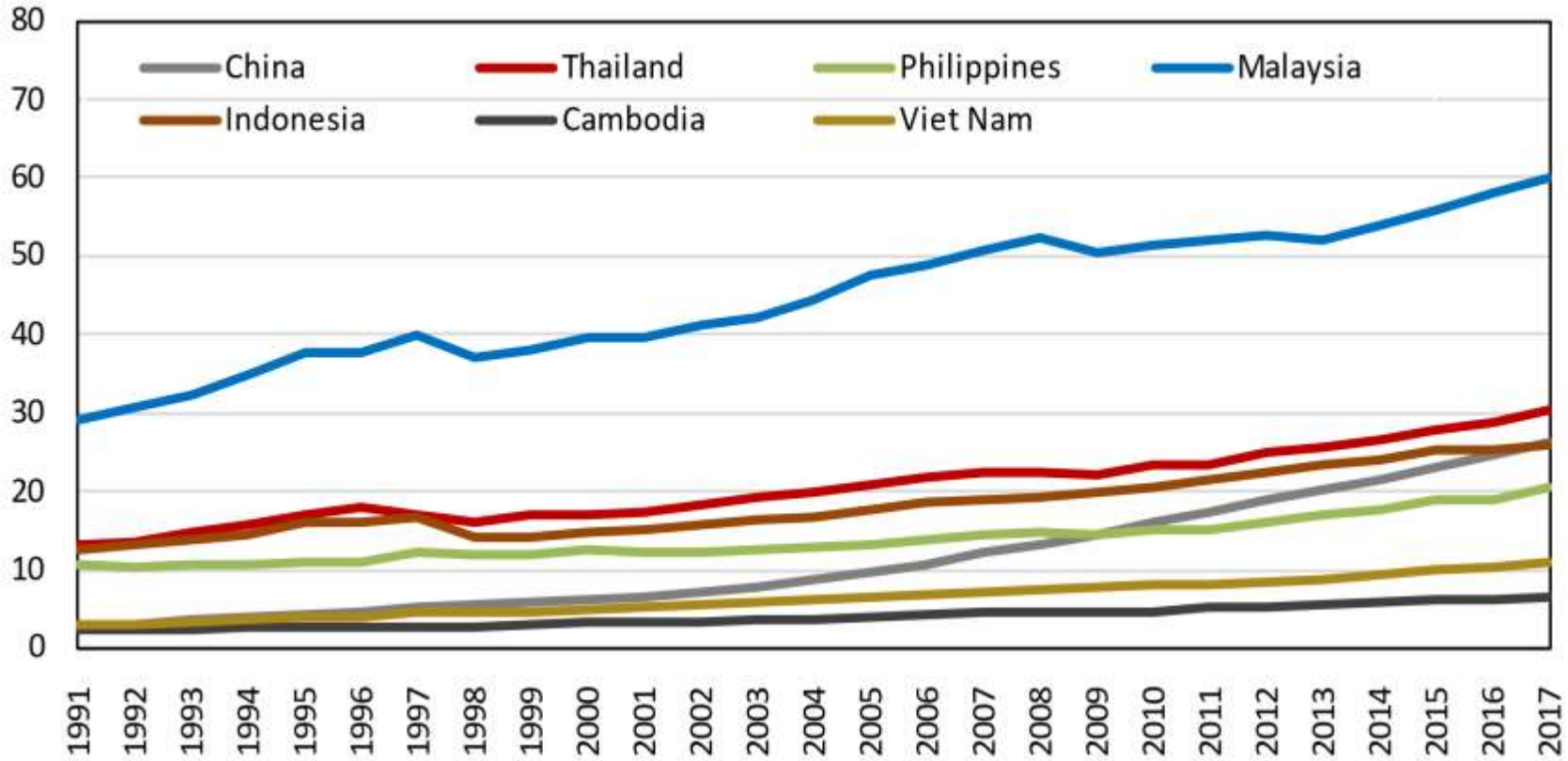
Source: authors' calculation based on GSO data, with adjustment for the 2010 data gap.
Note: the apparent jump in 2010 may reflect our less-than-perfect adjustment for the change in the GSO's treatment of "products taxes less subsidies on production".

Major Findings from the International Context

Labor Productivity: Level & Growth

Even through rising, **Viet Nam's** labor productivity (second from bottom) is still very low. Speed is too slow to overtake others. It is **China** that is overtaking others.

Labor productivity level: comparison with Asia's middle income economies



Source: authors' calculation based on the statistics from APO.
Note: expressed in USD thousand per worker in constant 2011 PPP dollars.

Labor Productivity: Level & Growth (cont.)

In 1991, the labor productivity of Viet Nam was similar to that of China. Thereafter, China attained a high labor productivity growth of 8.98% during 1991-2017, and especially in the first decade of this century when its growth nearly reached 10% per annum. China raised labor productivity by 9.4 times from 1991 to 2017 while Viet Nam's rose only 3.7 times.

Viet Nam needs to accelerate labor productivity growth significantly, not just maintain its current pace, if it does not want to further lag behind other countries in the region.

Country	1991-2000	2001-2010	2011-2017	1991-2017
Japan	0.99	0.79	0.51	0.79
South Korea	5.30	3.29	1.43	3.54
China	9.25	9.94	7.26	8.98
Singapore	3.95	1.91	1.91	2.66
Thailand	3.46	3.19	3.72	3.42
Philippines	1.26	1.95	4.47	2.34
Malaysia	3.92	2.61	2.28	3.01
Indonesia	2.47	3.29	3.51	3.04
Cambodia	3.72	4.06	4.93	4.16
Viet Nam	5.74	4.79	4.83	5.15

Labor productivity growth in Viet Nam and selected countries (percent per annum)

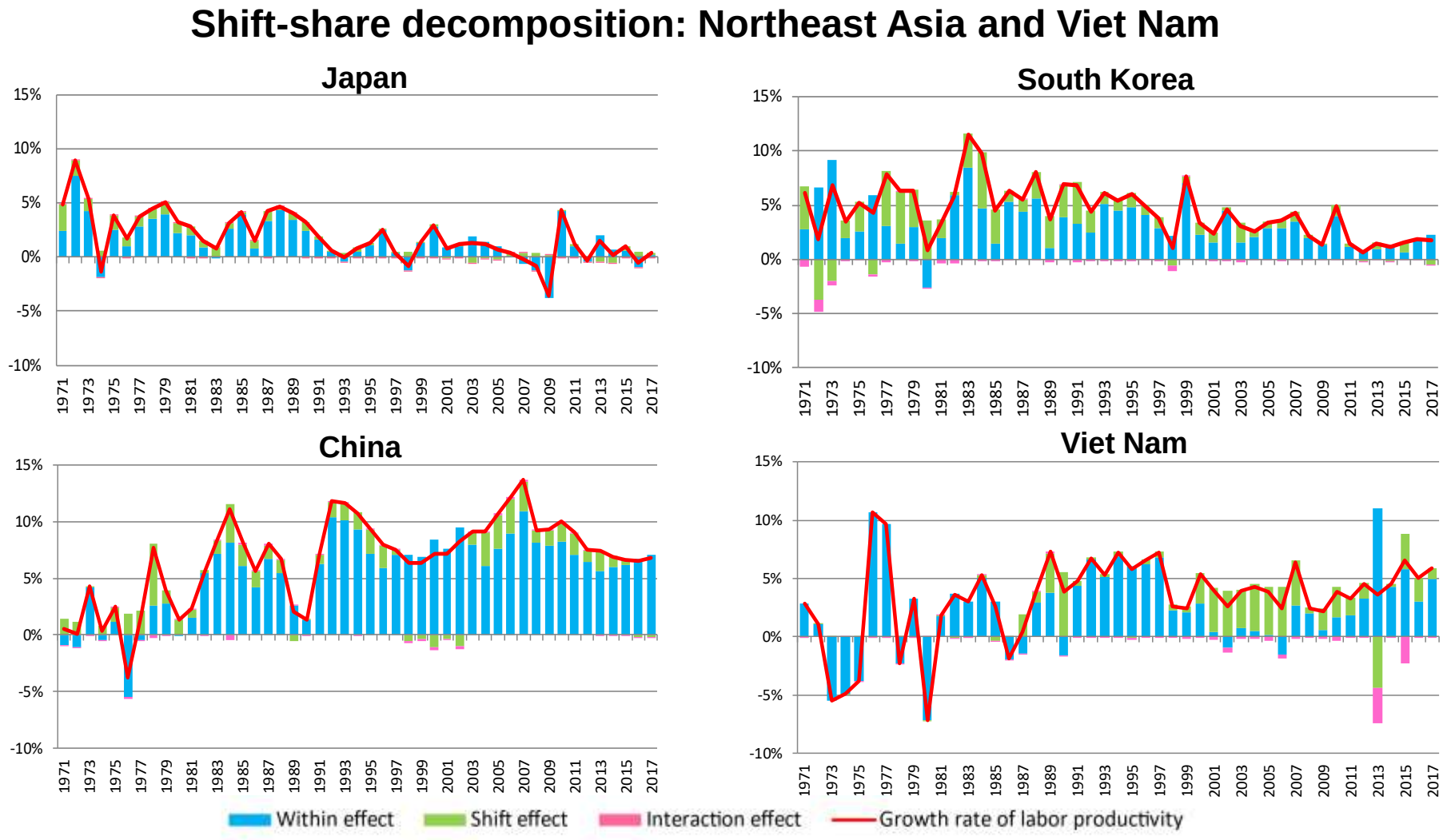
Source: authors' calculation based on statistics from APO.

Labor Productivity by Sectors

- In 2017, the labor productivity of Viet Nam in almost all sectors was at the lowest range in comparison with the selected Northeast and Southeast Asian countries.
- Viet Nam's labor productivity was the lowest, even below Cambodia, in two sectors, namely construction; and transport, storage and communications.
- It was the second lowest, only above Cambodia, in agriculture, forestry, and fishery; manufacturing; electricity, gas, and water supply; wholesale and retail trade, repair of vehicles and household goods, hotels and restaurants; and community, social and personal services.
- Viet Nam had relatively high labor productivity in two sectors, including mining and quarrying; and financial intermediation, real estate, renting and business activities.

Labor Mobility: Comparison with Other Asian Economies

Korea and China grew mainly by Within effect, while Shift effect was supplementary.

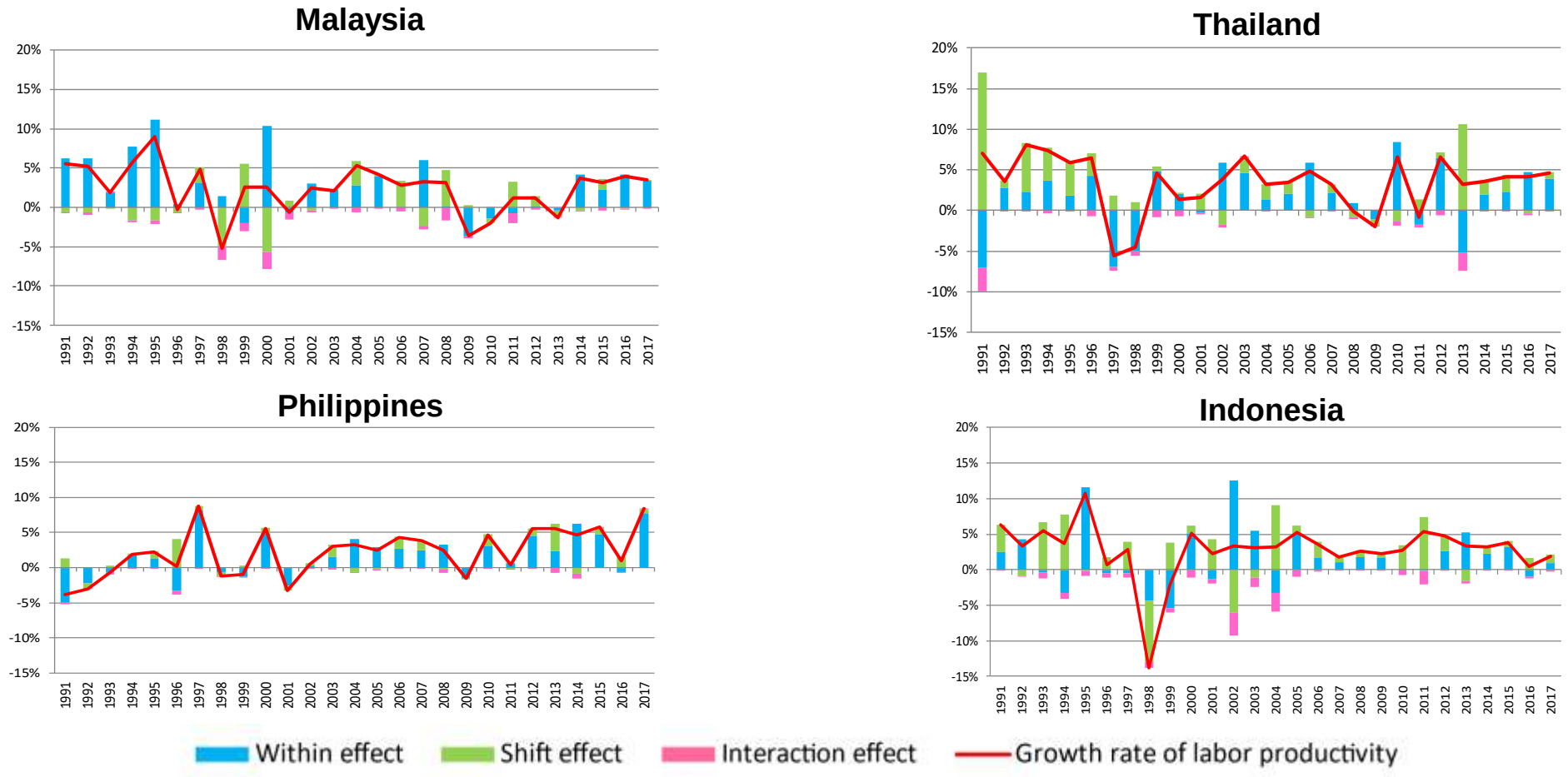


Source: authors' calculation based on the statistics of APO.

Labor Mobility: Comparison with Other Asian Economies (Cont.)

In ASEAN, Shift effect was significant first, then Within effect later rose. Annual fluctuations were large.

Shift-share decomposition: selected ASEAN countries

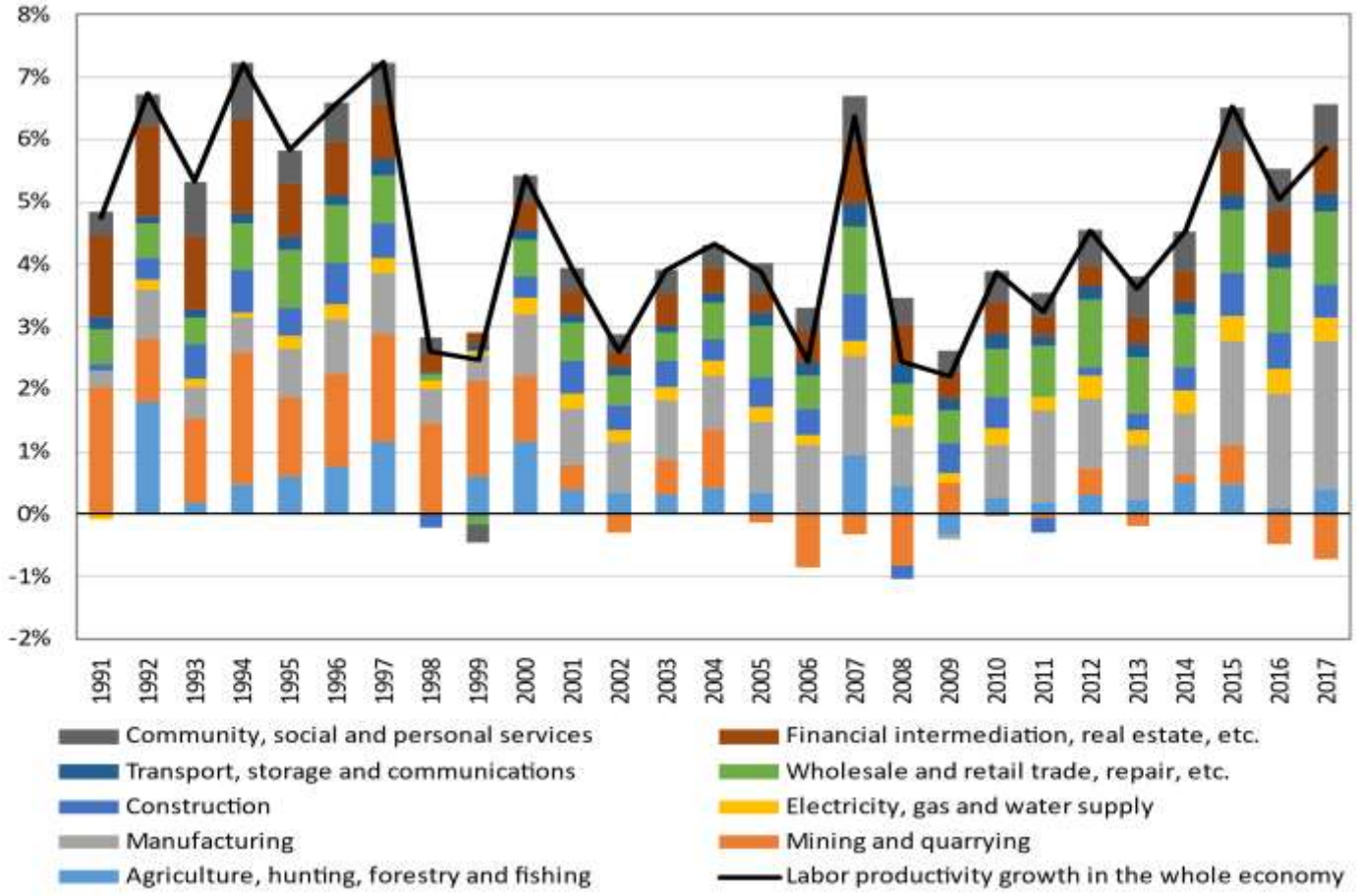


Source: authors' calculation based on the statistics of APO.

Sectoral Contribution to Labor Productivity Growth

Since 2011, the contributions of economic sectors gradually recovered and had a positive impact on labor productivity growth, although a remarkable leveling up of the growth process was again not observed. So far, a manufacturing-based shift to high growth and high income has not been observed in Viet Nam.

Sectoral contribution to overall labor productivity growth in Viet Nam



Source: authors' calculations based on data from APO.

Productivity Enhancement Policy in the Doi Moi Period

Viet Nam's Productivity Policy: A Historical Review

1996 Join the Asian Productivity Organization (APO).

1996-2005 First Quality Decade. Vietnam Productivity Institute (VNPI) established under MOST. Quality Awards, ISO, 5S, Kaizen introduced.

2006-15 Second Quality Decade. Emphasis on implementing learned tools. Awareness raising, enterprise guidance, technology infrastructure.

2010 Prime Minister's National Program (Program 712).

2011 TFP targets set at 11th Party Congress.

2015 ILO says Viet Nam's labor productivity is very low.

2016 Productivity targets at 12th Party Congress. Action plan by Resolution No. 27/NQ-CP (2017).

Key Policy Components

The Vietnam Productivity Institute (VNPI)

VNPI was established in 1997 with the support of the APO. The VNPI was expected to become a competent and effective national productivity agency. However, with its current position in the system of many agencies related to productivity under MOST, the VNPI has not fully fulfilled its expected role.

National Program 712

Its full name is “Improving Productivity and Quality of Products and Goods of Vietnamese Companies to 2020.” This was the first national program for productivity and part of the Second Decade of Quality, approved under Decision No. 712/Qd-TTg of May 2010. It is a collection of missions and solutions to reform the legal framework, policy mechanisms, organizations, and human resource.

Achievements

- Even though the awareness raising process has been slow, Viet Nam has prepared basic conditions to initiate a future national productivity movement.
- The trade-off between productivity and quality, which was the concern of policymakers in the days of central economic planning, has been resolved.
- The First Decade of Quality 1996-2005 introduced a number of new methods to Vietnamese enterprises. The Second Decade of Quality 2006-2015 expanded various prototyped models to improve productivity for businesses.
- Program 712 was implemented with the goal of raising TFP's contribution to GDP growth to 35% by 2020. This goal was achieved ahead of time with better productivity performance in recent years; contribution of TFP to GDP growth was 43.5% in 2018.
- Policy planning and enforcement mechanisms are now in place. Relevant agencies have accumulated experience, and many workers are well trained to promote technology transfer. These are a solid foundation for Viet Nam to implement new productivity policies in the future.

Limitations

- Policies so far focused only on the business sector, but not government, educational institutions, and households.
- Mindset regarding productivity is still marred by traditional top-down plan thinking rather than the bottom-up approach driven by individual firms and organizations.
- In designing and implementing policies, communication and coordination among support organizations are hampered or delayed due to scattered authority and multiple management layers of many ministries.
- Viet Nam has received technical and financial support from many countries. International cooperation has produced reasonable results so far, but foreign models must in the long run be converted to a genuine homemade model.
- The results remain ineffective due to serious weaknesses in Viet Nam's policy making process. They include (i) the lack of continued commitment and support by national leaders, (ii) the lack of incentives for firms, workers, and individuals to participate, (iii) the lack of detail design—only broad directions are given—and proper mechanisms, staffing, and budgets, (iv) government and ministerial bureaucracy which causes deadlocks and delays, and (v) insufficient international support. The productivity movement of Viet Nam has so far been small, scattered, and only partially implemented.

Thank You!

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