

Chapter 6

TRANSFORMATION OF THE KANSAI ECONOMY: “EARNING” INDUSTRIES AND POST-COVID-19 CONSUMPTION PATTERNS

The Kansai economy has faced significant upheaval in recent years due to population decline, shifts in industrial structure, and the COVID-19 pandemic. Amidst these changes, both industrial structure and consumer behavior patterns have been evolving.

Chapter 6 examines the recent transformation of the Kansai economy from the perspectives of industrial structure and consumption. First, it identifies the “earning” industries¹⁾ within each Kansai prefecture and tracks their evolution. Next, it compares Osaka, Tokyo, and Aichi, analyzing their “earning” industries from the standpoint of labor productivity. Finally, it captures changes in consumer behavior before and after the COVID-19 pandemic based on the results of an online survey.

Section 1

KANSAI’S “EARNING” INDUSTRIES AND TRADE STRUCTURE: ANALYSIS USING INTERREGIONAL INPUT- OUTPUT TABLES

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1) Chapter 3 Section 1 of the APIR(2024) focused on the value added per business employee based on census data, using this as an indicator of ‘profitable industries.’ By contrast, we focus on interregional balances, defining industries with large interregional balance surpluses as ‘earning’ industries. That is, just as the nation ‘earns foreign currency’ through the trade balances surpluses, these industries can be said to “earn ‘foreign currency’ (money flowing into the region from outside through industrial activity)” for the region through interregional balance surpluses.

Introduction

Which industries in each prefectures hold comparative advantages within the Kansai economy? What strengths do they demonstrate in trade relations both within and outside the Kansai region? Have there been changes in this structure? Section 1 analyzes the economic structures of Kansai prefectures and interregional trade relations to clarify the current state of Kansai’s “earning” industries. Specifically, it examines which Kansai industries generate interregional surpluses and whether these have changed in recent years. This analysis utilizes the APIR Kansai Interregional Input-Output Tables.²⁾

First, Section 1.1 examines the input-output structure and trade structure within the Kansai region. Next, Section 1.2 identifies industries with large interregional trade surpluses by prefecture and outlines the characteristics of the trade structure for representative industries. Finally, Section 1.3 examines recent changes in the economic structure and their background by comparing with past tables.

1. Overview of the Economic Structure of Greater Kansai

(1) Input-Output Structure by Prefecture

Here, we use the 2015 APIR Kansai Interregional Input-Output Table to analyze input-output structures and interregional balances, providing an overview of the economic structure of the Greater Kansai region’s ten prefectures. This section uses a table in which each prefecture’s industrial sectors are aggregated into a single sector. This allows us to grasp the overall picture of the Greater Kansai economy, including gross output and value added per prefecture, as well as the interregional trade structure. [Table 6-1-1](#) shows the 2015 APIR Kansai Interregional Input-Output Table with industrial sectors consolidated into a single category. The bottom row and rightmost column record each prefecture’s domestic gross output: Fukui prefecture at 5.9592 trillion yen, Mie prefecture at 19.388 trillion yen, and so forth. The gross outputs in the rows and columns match.

Looking at the input structure of each prefecture and industry by column in the input-output table, for example, we examine the Fukui Prefecture column

2) The APIR Kansai Interregional Input-Output Table is an interregional input-output table created by connecting the 2015 input-output tables for Fukui prefecture, Mie prefecture, Shiga prefecture, Kyoto prefecture, Osaka prefecture, Hyogo prefecture, Nara prefecture, Wakayama prefecture, Tottori prefecture, Tokushima prefecture, and the Rest of Japan (which was created by subtracting it from the national table). For details, refer to the Asia Pacific Institute of Research (2024).

Table 6-1-1

2015 Kansai Interregional Input-Output Table (Single-Sector Table, Partial Excerpt)

Unit: billion yen

		Intermediate demand				Final demand					Imports	Gross Output
		Fukui	Mie	...	Rest of Japan	Fukui	Mie	...	Rest of Japan	Exports		
Intermediate inputs	Fukui	1,286.0	69.8	...	738.9	2,717.9	13.5	...	212.5	351.5	-66	5,959.2
	Mie	85.1	6,181.0	...	3,151.9	26.8	5,737.6	...	1,949.7	2,031.1	-2,557	19,388.0
	⋮	⋮	⋮		⋮	⋮	⋮		⋮	⋮	⋮	⋮
	Rest of Japan	813.8	2,818.7	...	364,919	509.1	1,408.3	...	448.6	72.6	-84,826	833,604
Intermediate Inputs		2,839.9	10,785.2	...	384,948							
Value added		3,119.2	8,602.9	...	448,656							
Gross Output		5,959.2	19,388.0	...	833,604							

Source: Prepared by the authors

in Table 6-1-1, out of the gross output of 5.9592 trillion yen, 2.8399 trillion yen represents intermediate inputs and 3.1192 trillion yen represents gross value added. Breaking down intermediate inputs, inputs originating from Fukui prefecture itself amount to 1,286.0 billion yen. Inputs from other prefectures are recorded, with 85.1 billion yen from Mie prefecture shown in the table. Intermediate inputs to Fukui prefecture from Greater Kansai (ten prefectures, including Fukui) total 2,026.1 billion yen, while intermediate inputs from other regions total 813.8 billion yen.

Furthermore, viewing the input-output table in the row direction reveals the composition of output destinations for each prefecture and industry, specifically the breakdown of goods and services sold. For example, Fukui prefecture's gross output is 5.9592 trillion yen, consistent with the column direction. This breaks down into 2.595 trillion yen for intermediate demand and 3.4303 trillion yen for final demand. However, intermediate and final demand include imports (66.2 billion yen for Fukui prefecture in the table). Subtracting these imports yields the prefecture's gross output.

Breaking down the 2.595 trillion yen in intermediate demand, output (sales) to Fukui prefecture itself totaled 1.286 trillion yen. Output to other prefectures is recorded below, such as 69.8 billion yen to Mie prefecture. Similarly, for final demand, the trade structure can be understood as output to the home prefecture of 2.77179 trillion yen, output to Mie prefecture of 13.5 billion yen, and output to other prefectures as recorded. Exports overseas total 351.5 billion yen.

(2) Trade Structure from an Interregional Balance Perspective

Next, we examine the trade structure among prefecture within the Kansai region using interregional balances. Interregional balances can be considered the “regional economic equivalent of the trade balances.” Just as the trade balances reflects a nation’s economic structure, interregional balances reflect the structure of regional economies. Interregional balances are calculated by subtracting imports from exports.

As an example, we examine the interregional balance between Osaka prefecture and Fukui prefecture using a single-sector table.

The outflow from Osaka prefecture to Fukui prefecture totals 461.4 billion yen, comprising 336 billion yen in intermediate demand and 125.5 billion yen in final demand. Conversely, Osaka prefecture’s imports from Fukui prefecture (equivalent to exports from Fukui prefecture to Osaka prefecture) total 240.5 billion yen, comprising 175.4 billion yen in intermediate demand and 65.1 billion yen in final demand. Therefore, Osaka Prefecture’s interregional balance with Fukui prefecture shows a surplus of 221.0 billion yen, calculated by subtracting imports from exports. Conversely, from Fukui prefecture’s perspective, the interregional balance with Osaka prefecture shows a deficit of 221.0 billion yen.

Figure 6-1-1 shows the interregional balances for each prefecture and the total for Greater Kansai (ten prefectures), along with the breakdown into net transfers within Greater Kansai, net transfers outside Kansai (to other regions), and net exports. For Greater Kansai (ten prefectures combined), net outflow outside Kansai shows a surplus of 1.2141 trillion yen, but net exports show a deficit of 3.1763 trillion yen, resulting in an overall interregional balance deficit of 1.9261 trillion yen. By prefecture, those showing surpluses, in descending order, are Osaka prefecture, Mie prefecture, and Shiga prefecture. On the

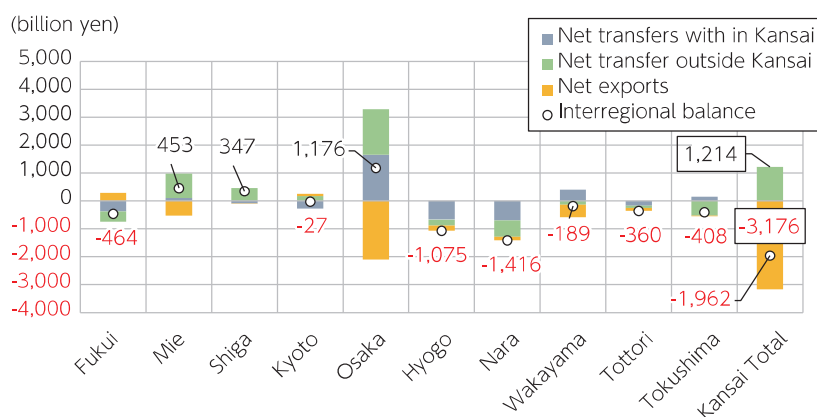


Figure 6-1-1

Interregional Trade Balances for Greater Kansai (ten prefectures) (Overall)

Source: Prepared by the authors

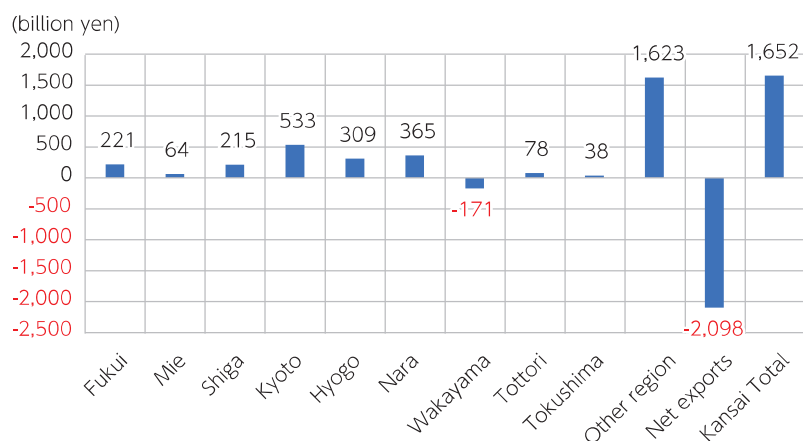


Figure 6-1-2

Interregional Trade Balances for Each Region from the Perspective of Osaka Prefecture

Source: Prepared by the authors

other hand, the other prefectures show deficits, with Nara prefecture having the largest such deficit.

Regarding Osaka prefecture, which accounts for approximately 40% of the Kansai economy, the interregional balance with other regions is shown in Figure 6-1-2. The overall interregional balance for Osaka prefecture is 1,176.4 billion yen. Looking at the balance with other prefectures within Kansai, there is a surplus of 1,651.9 billion yen. By prefecture, there is a deficit only with Wakayama prefecture; there are surpluses with all other prefectures.

Furthermore, it also shows a surplus of 1,622.9 billion yen with other domestic regions outside Kansai. On the other hand, net exports show a deficit of 2,098.4 billion yen. Thus, it can be seen that while Osaka prefecture's interregional balance shows large surpluses with domestic regions both within and outside Kansai, it exhibits a significant deficit in trade with overseas regions.

2. Interregional Surplus Industries and Trade Structures

(1) Characteristics of Interregional Surplus Industries by Prefecture

The previous section examined interregional balances for each prefecture using a single-sector table. However, the interregional input-output tables are compiled across 108 sectors, allowing us to calculate interregional balances for each specific industrial sector between prefectures. When a specific industry in a region has an interregional surplus, it means that industry can satisfy demand within its own region and also supply demand from other regions. In other words, it represents an industry with comparative advantage in that region, a so-called "strength."

Industries with large interregional surpluses in each prefecture include: Osaka prefecture’s “Commerce” sector (2.3492 trillion yen), Mie prefecture’s “Electronic Devices” sector (1.2142 trillion yen), Hyogo prefecture’s “Steel Products” sector (713.2 billion yen), Kyoto prefecture’s “Feed and Organic Fertilizers (excluding separately listed items)” sector (595.1 billion yen), and Wakayama prefecture’s “Petroleum Products” sector (420.3 billion yen). These clearly represent industries reflecting each prefecture’s strengths and characteristics. For example, while “Feed and Organic Fertilizers (excluding separately listed items)” sector includes the tobacco industry, Kyoto prefecture is the only location in the Kansai region, and indeed all of Western Japan, where tobacco factories are situated. Consequently, Kyoto prefecture’s domestic shipments in this sector show a surplus with all regions (though net exports are in deficit), making it distinctive. Furthermore, in most prefectures except Osaka, manufacturing dominates the top interregional surplus sectors. Notably, in Mie and Shiga prefectures, all top 10 industries are in manufacturing. In contrast, Osaka prefecture features a prominent presence of tertiary industries in the top ranks, including the aforementioned “Commerce” sector, along with “Other business services” sector, “Rental services” sector, “Air transport and Freight transport” sector, “Food and Beverage services” sector and “Advertising” sector. Among non-manufacturing sectors in prefectures other than Osaka, industries with large interregional surpluses include Hyogo prefecture’s “Road freight transport” sector, Kyoto prefecture’s “Research” sector and Tokushima prefecture’s “Electric power” sector.

(2) Trade Structure of Major Interregional Surplus Industries

Next, we examine the details of interregional trade for Kansai’s top major interregional surplus industries. The only statistics that reveal the nature of interregional trade relationships within each industrial sector are the interregional input-output tables.

As examples from the manufacturing sector, we examine Hyogo prefecture’s “Steel Products” (Figure 6-1-3) and Wakayama prefecture’s “Petroleum Products” (Figure 6-1-4).

Hyogo prefecture’s “Steel Products” sector recorded a surplus of 713.2 billion yen, with over half of this surplus (411.3 billion yen) being generated from overseas trade. Hyogo prefecture has a surplus of 148.4 billion yen with Osaka prefecture and a deficit of 64.0 billion yen with Wakayama prefecture, indicating certain trade relationships exist within the Kansai region.

Wakayama prefecture’s “Petroleum Products” sector recorded a surplus of 420.3 billion yen, showing a surplus with all regions. Notably, the surplus with

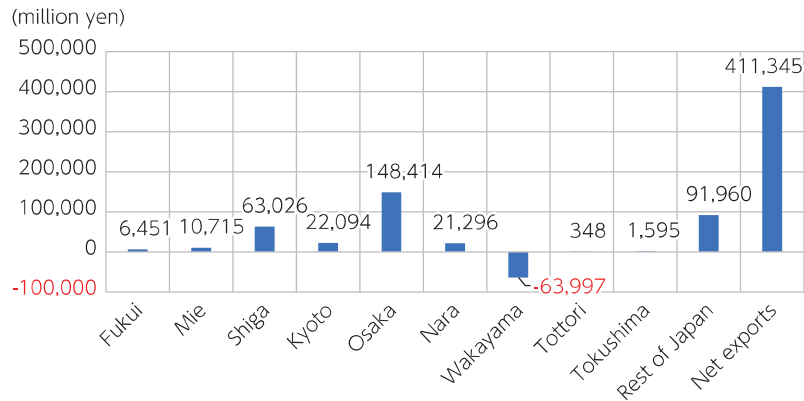


Figure 6-1-3 Interregional Trade Balances "Steel Products" Sector in Hyogo Prefecture

Source: Prepared by the authors

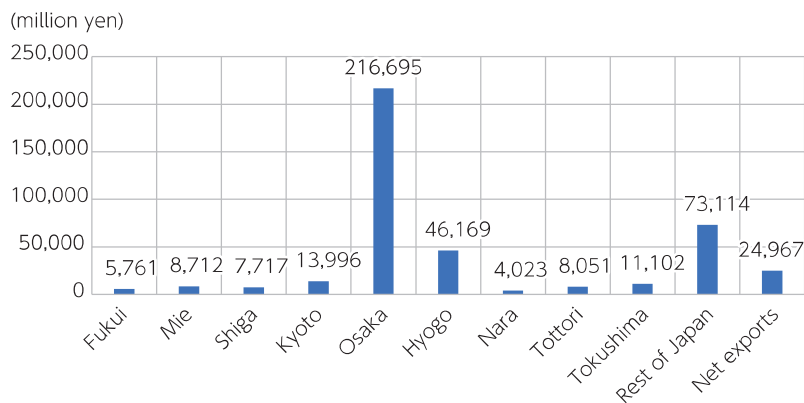


Figure 6-1-4 Interregional Trade Balances "Petroleum Products" Sector in Wakayama Prefecture

Source: Prepared by the authors

Osaka prefecture alone reached 216.7 billion yen, accounting for about half of the total surplus. Unlike the cases of Hyogo prefecture mentioned earlier, the surplus with overseas regions accounted for only about 6% of the total. Within the Kansai region, Wakayama prefecture recorded a surplus not only with neighboring prefectures surrounding Osaka Bay, such as Osaka and Hyogo prefecture, but also with geographically more distant prefectures like Fukui and Tottori prefecture. This demonstrates connections extending across the greater Kansai region.

Next, as examples from the non-manufacturing sector, we examine the interregional trade of "Commerce" sector in Osaka prefecture and "Research" sector in Kyoto prefecture (Figure 6-1-5, Figure 6-1-6).

Osaka prefecture's "Commerce" sector recorded a surplus of 2.3492 trillion yen, the largest surplus among all industrial sectors across the Greater Kansai region's ten prefectures. By region, the surplus with overseas markets is the largest. It also holds substantial surpluses with Hyogo prefecture and

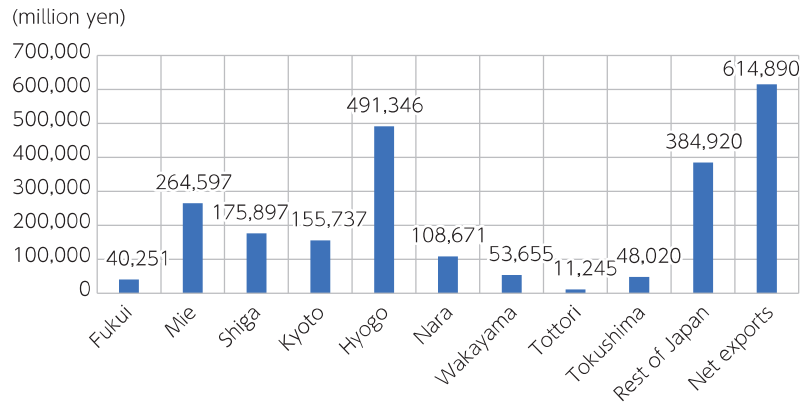


Figure 6-1-5 Interregional Trade Balances for the “Commerce” Sector in Osaka Prefecture

Source: Prepared by the authors

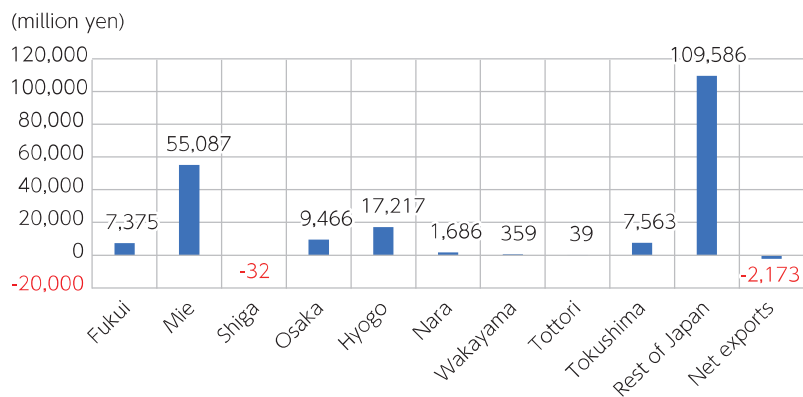


Figure 6-1-6 Interregional Trade Balances “Research” Sector in Kyoto Prefecture

Source: Prepared by the authors

other regions, maintaining a surplus with every region. Similar to Wakayama prefecture’s “Petroleum Products” sector, it records surpluses not only with neighboring prefectures like Hyogo and Kyoto but also with geographically distant prefectures such as Fukui, Mie, Tottori, and Tokushima prefecture. This demonstrates that Osaka prefecture’s “Commerce” sector is a key industry supporting the Osaka and Kansai economies, serving as the central hub for distribution within the greater Kansai region.

In Kyoto prefecture, “Research” sector generates the largest surplus (206.2 billion yen) among non-manufacturing sectors. Examining regional balances reveals a large surplus with other regions. Within the Kansai region, Kyoto holds a surplus with all prefectures except Shiga. This indicates high demand from outside Kyoto for its research capabilities, given the concentration of universities and research institutions in the prefecture.

3. Transformation of the Kansai Economy Through Comparison with Existing Tables

Next, we compare the gross outputs and interregional balances of the 2015 table with those of the Kansai Interregional Input-Output Tables (2005 and 2011 tables) previously developed by the Asia Pacific Institute of Research to verify whether structural changes occurred during this period.

(1) Changes in Gross Output and Gross Value Added Rate

Figure 6-1-7 and Figure 6-1-8 compare the changes in gross output and gross value-added rates for 2005, 2011, and 2015 for individual Kansai prefectures, the Kansai region (six prefectures), the Kansai region (ten prefectures), and the entire nation. Note that in the 2005 table, Mie, Tottori, and Tokushima prefectures were not included in the Kansai regional input-output table area; however, figures for these prefectures were obtained using their respective 2005 input-output tables.

As shown in Figure 6-1-7, gross outputs decreased significantly from 2005 to 2011 due to the impact of the 2008 Lehman Shock and the ensuing global financial crisis, as well as the March 2011 Great East Japan Earthquake. Comparing gross output in the national input-output tables between 2005 and 2011 shows a decrease of 3.3% (annual rate 0.6%). Within Greater Kansai (ten prefectures), gross outputs also decreased in many prefectures, showing a decline of 3.3% (annual rate 0.6%), nearly identical to the national rate.

From 2011 to 2015, the economy was in a recovery phase from the earthquake, with gross output increasing in many regions. Nationwide gross output showed strong growth of +8.3% (annualized +2.0%), driven by factors including reconstruction demand following the earthquake. In contrast, Greater Kansai (ten

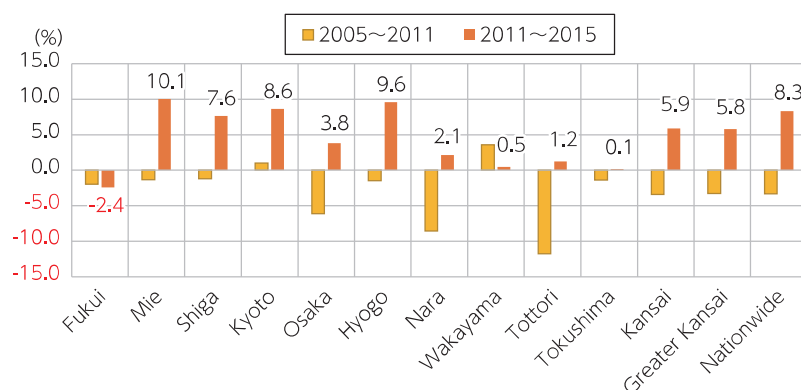


Figure 6-1-7 Comparison of Gross Output Change Rates

Source: Prepared by the authors

prefectures) experienced a relatively minor impact from the earthquake, resulting in a smaller increase of +5.8% (annualized +1.4%) compared to the national growth. By prefecture, Mie prefecture (+10.1%, annual rate +2.4%), Hyogo prefecture (+9.6%, annual rate +2.3%), and Kyoto prefecture (+8.6%, annual rate +2.1%) all exceeded the national growth rate. In contrast, Fukui prefecture saw a decrease of 2.4% (annual rate 0.6%). This was due to the shutdown of nuclear power plants in Fukui prefecture since 2011, which caused a significant decrease in the gross output of the electricity sector (74.3%, annual rate 28.8%).

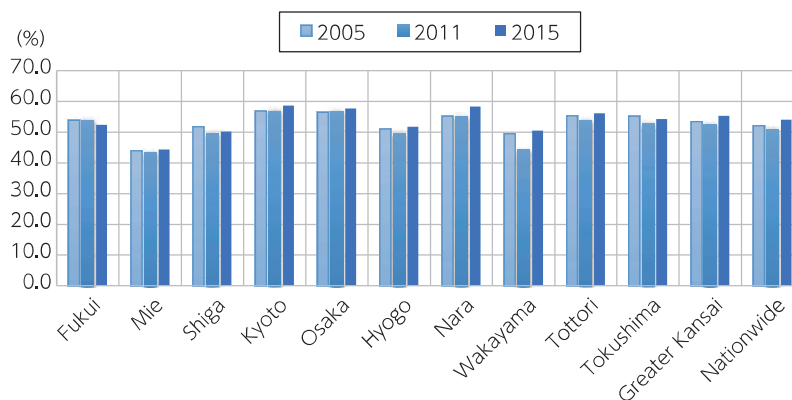


Figure 6-1-8

Comparison of Gross Value-Added Rates

Source: Prepared by the authors

Figure 6-1-8 shows the change in the gross value-added rate (gross value-added amount / gross output amount). From 2005 to 2011, the gross value-added rate declined in all regions. However, from 2011 to 2015, it began to rise in all regions except Fukui prefecture. This was due to the impact of the 2011 Great East Japan Earthquake, which caused production stagnation in eastern Japan, with Kansai partially replacing that production. This rapid response led to production that disregarded profitability, likely temporarily depressing the Kansai region's gross value-added rate. By 2015, this impact diminished, and the gross value-added rate recovered to 2005 levels in many prefectures. This recovery trend was particularly pronounced in Hyogo and Wakayama prefectures. Conversely, Fukui prefecture experienced a consistent decline in its gross value-added rate from 2005 to 2015, diverging from the national trend.

(2) Changes in Interregional Balance

Next, we examine how the interregional balance of each prefecture changed from 2011 to 2015.

Figure 6-1-9 shows the interregional balance for each Kansai prefecture and for Greater Kansai (ten prefectures) based on the 2011 and 2015 tables.

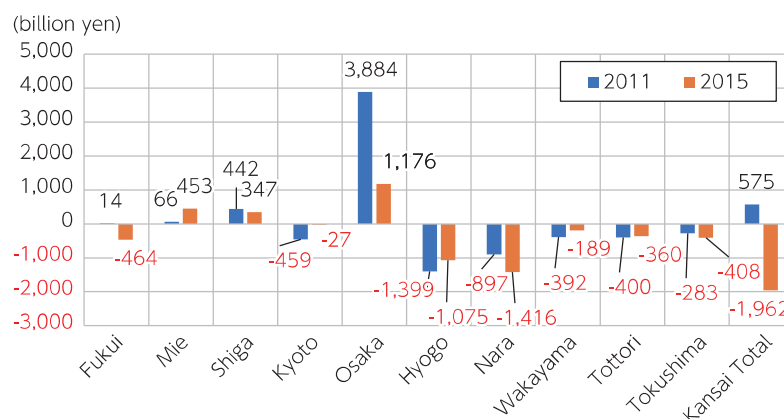


Figure 6-1-9 Interregional Balance Comparison

Source: Prepared by the authors

During this period, the overall interregional balance for the Kansai region shifted from a surplus of 574.7 billion yen in 2011 to a deficit of 1,962.1 billion yen in 2015.

Looking at individual prefectures, Osaka prefecture maintained a surplus in both 2011 and 2015, but the amount of the surplus shrank by 2,708.0 billion yen. Furthermore, the balances also deteriorated in other prefectures such as Nara and Fukui. While the balances improved in Kyoto and Mie prefectures, this improvement was insufficient to offset the deterioration in Osaka.

Next, as a representative example, we examine the top 10 industries contributing to Osaka prefecture's interregional surplus in 2011 and 2015 (Table 6-1-2). For comparison purposes, the industry classifications for both years are standardized to 37 sectors.

Table 6-1-2 Top Industries by Interregional Surplus in Osaka Prefecture: 2011 and 2015 (Unit: million yen)

Osaka (2011, 37 Sector Classification)

1	Commerce	4,857,523
2	Business services	1,129,315
3	Transport and postal services	620,240
4	Metal products	480,557
5	Chemical products	475,162
6	Production machinery	456,779
7	General-purpose machinery	321,459
8	Real estate	308,676
9	Electrical machinery	257,860
10	Electronic components	176,368

Osaka (2015, 37 Sector Classification)

1	Commerce	2,349,229
2	Business services	1,485,891
3	Transport and postal services	636,461
4	Production machinery	445,544
5	Metal products	326,344
6	General-purpose machinery	299,680
7	Iron and steel	211,151
8	Electrical machinery	198,192
9	Petroleum and coal products	111,218
10	Real estate	105,391

Note: Shaded items in the table indicate manufacturing industries.

Source: Prepared by the authors

While the top industries for 2011 and 2015 are largely the same, the inter-regional surplus for “Commerce” sector decreased significantly from 4.8575 trillion yen in 2011 to 2.3492 trillion yen in 2015. In the 2011 table showing 159 categories, “Wholesale” and “Retail” sector were separate. The breakdown of the interregional surplus was 4.6414 trillion yen for “Wholesale” sector and 243.4 billion yen for “Retail” sector. Furthermore, examining the regional balance, the surplus from “Wholesale” sector to other regions was 3,025.1 billion yen, accounting for approximately two-thirds of the “Wholesale” sector interregional surplus. In the 2015 table, “Wholesale” and “Retail” sector are consolidated under “Commerce” sector, but the surplus to other regions is only 384.9 billion yen. These changes suggest that the decline in the interregional surplus for “Commerce” sector is attributable to a significant reduction in the surplus from “Wholesale” sector to other regions. Indeed, during this period, Osaka prefecture saw declines in the annual merchandise sales share of wholesale trade relative to the national total³⁾ and in the ratio of wholesale sales (W) to retail sales (R) (W/R ratio).⁴⁾ This weakening of wholesale functions is thought to have contributed to the contraction in the interregional surplus.

References

- Asia Pacific Institute of Research (2024), “Kansai and the Asia Pacific Economic Outlook 2023-24”, Nikkei Printing Co., Ltd., October 2023
- Asia Pacific Institute of Research (2024), “Preparation and Utilization of the 2015 Kansai Interregional Input-Output Tables: Research Group Report (FY2023),” (<https://www.apir.or.jp/project/post15297/>, Last accessed: July 24, 2025), May 2024
- Osaka Prefecture (2024 FY), Naniwa Economic Data 2024 FY Edition, (<https://www.pref.osaka.lg.jp/o110010/aid/sangyou/naniwa2024.html>, Last accessed: July 24, 2025), December 17, 2024

3) Refer to the ‘2024 FY Edition of Naniwa Economic Data.’

4) The W/R ratio is calculated from the annual editions of the ‘Osaka Prefectural Economic Accounts.’