2015 Benchmark Input-Output Tables

March 2019

Economic Statistics Department

The Bank of Korea

Ⅰ. Introduction

1. Brief History of the Korean Input-Output (I-O) Statistics

☐ The benchmark I-O statistics, compiled every five years, are also used as reference materials for revising the base year figures for various statistics including the GDP statistics, the Producer Price Index and the Facilities Investment Estimation Index.

☐ The system of classification has been revised for 2015 benchmark I-O statistics, in order to reflect structural changes such as the digitalization and convergence of economic activities.

☐ The Bank of Korea has compiled benchmark I-O tables every five years since 1960, when the first ones were compiled, and has also released updated tables. We have updated the tables annually since 2005.

History of Korean Input-Output Tables

— Benchmark tables : 1960, 1963, 1966, 1970, 1975, 1980, 1985, 1990, 1995, 2000, 2003, 2005, 2010, 2015
— Updated tables : 1968, 1973, 1978, 1983, 1986, 1987, 1988, 1993, 1998, 2006, 2007, 2008, 2009, 2010*, 2011**, 2012, 2013, 2014

    * Based on 2005 benchmark tables
  ** Based on both 2005 and 2010 benchmark tables

---

2. Work of 2015 I-O Statistics Compilation

☐ A variety of data sources were used, and field surveys were additionally conducted to estimate the flows of goods and services.

— The I-O tables (commodity by commodity) were derived directly from primary data.

3. Major Improvements

☐ **Reclassification of commodities**: We have revised the system of commodities classification to reflect structural changes in the economy in accordance with SNA (2008), KSIC (10th revision) and ISIC (Rev. 4).

— "Head offices" has been newly created as a separate category, so as to recognize the ancillary activities of companies' headquarters as separate outputs.

— "Postal services," which had been categorized as communication services, has been redefined as a part of transportation services.

— The classification system has been reorganized to cover new products such as 3D printers, drones, and mobile advertisements.

— The classification "Others" has been restored, in order to reconcile statistical discrepancies.

☐ **Change of main valuation indicator**: The main valuation indicator for analysis has been changed from the basic price to the producer's price.

Ⅱ. Korean Economy in 2015 Input-Output Tables

1. Supply and Demand

☐ The total supply (= total demand) of goods and services in 2015 amounted to 4,457.6 trillion won (at current prices).

— Domestic output accounted for 86.0% of this total supply, and imports for 14.0%. The share of domestic output was 2.3%p higher than the 83.7% figure for 2010.

— Of total demand, the share accounted for by domestic demand was 83.9%, having edged up by 0.7%p from 83.2% in 2010, while that of exports stood at 16.1%.

☐ The share of exports plus imports had fallen by 3.0%p, from 33.1% in 2010 to 30.1% in 2015.

— This was due mainly to declines in the prices of raw materials including oil, which pushed the import and export prices down.

Total Supply and Demand[1]

(Unit: trillion won, %)

| | Total Supply | | = | Total Demand | | | | Exports and Imports (A + D) |
| | Domestic Output | Imports (A) | | Domestic Demand (B+C) | Intermediate Demand (B) | Final Demand[2] | | |
						Domestic (C)	Exports (D)	
2015 (E)	3,833.6 (86.0)	624.0 (14.0)	4,457.6 (100.0)	3,740.6 (83.9)	2,196.1 (49.3)	1,544.5 (34.6)	717.0 (16.1)	1,341.0 (30.1)
2010 (F)	3,147.6 (83.7)	612.3 (16.3)	3,759.9 (100.0)	3,127.9 (83.2)	1,902.9 (50.6)	1,225.0 (32.6)	632.0 (16.8)	1,244.3 (33.1)
2005	2,013.2 (85.8)	332.6 (14.2)	2,345.8 (100.0)	2,002.5 (85.4)	1,142.3 (48.7)	860.2 (36.7)	343.3 (14.6)	675.9 (28.8)
2000	1,362.5 (85.0)	239.8 (15.0)	1,602.3 (100.0)	1,365.3 (85.2)	752.9 (47.0)	612.4 (38.2)	237.0 (14.8)	476.8 (29.8)
Changes in shares in total supply (E-F, %p)	<2.3>	<-2.3>	<0.0>	<0.7>	<-1.3>	<2.0>	<-0.7>	<-3.0>

Notes: 1) The figures in ( ) represent the shares in total supply (= total demand)
2) Final Domestic Demand consists of consumption and investment

2. Industrial Structure

☐ Services accounted for 44.9% of total domestic output and 59.9% of total value added, and manufactured goods for 44.5% and 29.5% respectively.

— The ratios of services to total output and to value added rose by 4.6%p and 2.2%p respectively compared to 2010, while the proportions of agricultural, forest and fishery products, manufactured goods and construction all declined.

— The growth of the service sector was a result of an expansion in producer services including professional, scientific, and technical services.

Compositions of Domestic Output and Value Added, by Commodity

(Unit: %)

	Composition of Output				Composition of Value Added			
	2000	2005	2010	2015	2000	2005	2010	2015
Agricultural, forest and fishery products	**2.9**	**2.1**	**1.7**	**1.6**	**4.0**	**2.9**	**2.3**	**2.0**
Mined and quarried products	**0.2**	**0.2**	**0.1**	**0.1**	**0.3**	**0.2**	**0.2**	**0.1**
Manufactured goods	**45.5**	**44.9**	**48.7**	**44.5**	**30.2**	**29.5**	**31.7**	**29.5**
Consumer goods	10.5	7.6	6.8	6.9	6.7	5.3	4.4	4.0
Basic materials	15.6	17.7	18.8	16.2	10.8	11.7	11.3	10.9
Assembled and processed products	19.4	19.6	21.8	19.8	12.6	12.5	14.4	12.8
Manufacturing services, repair services of industrial equipment	0.0	0.0	1.2	1.6	0.0	0.0	1.7	1.8
Electricity, gas and water supply, waste management	**2.6**	**2.6**	**3.0**	**2.9**	**2.8**	**2.7**	**2.3**	**2.7**
Construction	**7.3**	**7.5**	**6.2**	**5.8**	**7.3**	**7.9**	**5.8**	**5.7**
Services	**39.4**	**40.6**	**40.3**	**44.9**	**55.2**	**56.8**	**57.7**	**59.9**
Wholesale and retail trade, Transportation	9.0	9.3	10.5	10.1	11.0	11.3	12.1	11.6
Producer services[1]	18.0	17.4	16.4	19.5	27.8	25.6	25.3	28.1
Social services[2]	7.2	8.7	8.6	9.4	11.2	14.3	14.6	14.6
Consumer services[3]	5.1	5.2	4.8	5.9	5.1	5.6	5.6	5.6
Others	**2.2**	**2.0**	**0.0**	**0.1**	**0.3**	**0.0**	**0.0**	**0.0**
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Notes: 1) Communications and broadcasting, finance and insurance, real estate services, professional, scientific and technical services, and business support services
2) Public administration, defense, and social security services, education services, and health and social care services
3) Food services and accommodation, art, sports, and leisure services, and other services

## 3. Intermediate Input and Value Added

□ The intermediate input ratio fell from 60.5% in 2010 to 57.3% in 2015. In contrast the value added ratio, which is the proportion of value added in total domestic output, rose from 39.5% to 42.7% during this time.

― The value added ratios increased in all commodities except for mined and quarried products. In particular, the ratios in manufactured goods (25.8%→28.3%) and in utilities[*] (30.2%→39.6%) rose significantly.

　* Electricity, gas, and steam supply and water supply, sewage and waste treatment and disposal services

― Separating the intermediate inputs into domestic and imported commodities, the localization rate[*] of domestic commodities rose by 4.1%p from 74.2% in 2010 to 78.3% in 2015.

* Localization rate = [domestic intermediate inputs ÷ (domestic intermediate inputs + imported intermediate inputs)] × 100

Value Added Ratios　　　**Localization Rates of Intermediate Inputs**
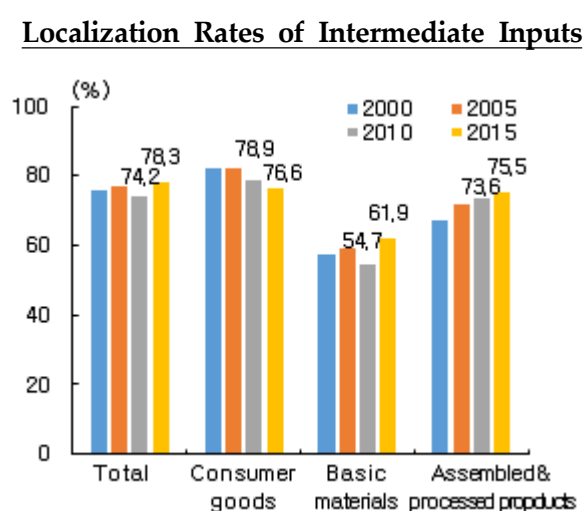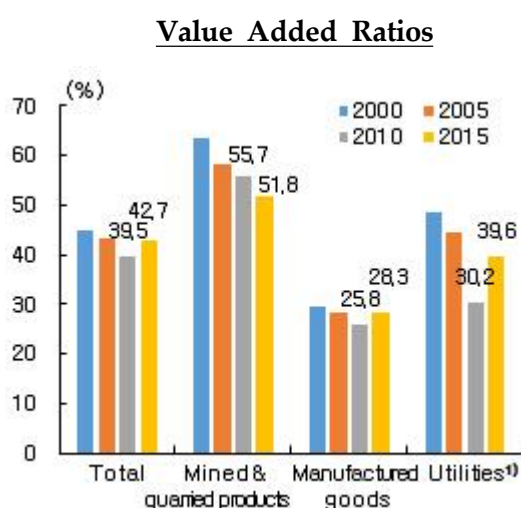
Note: 1) Electricity, gas, and steam supply and water supply, sewage and waste treatment and disposal services

4. Final Demand

□ Consumption made up 46.6% of total final demand, while investment accounted for 21.6% and exports 31.7%.

— The shares of investment (-0.2%p) and exports (-2.3%p) dropped during the years from 2010 to 2015, while that of consumption rose by 2.5%p.
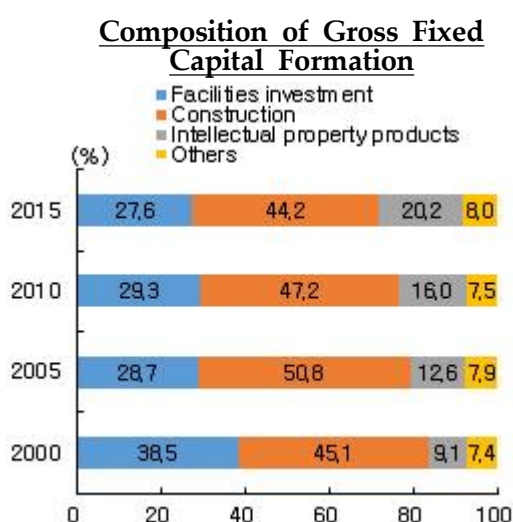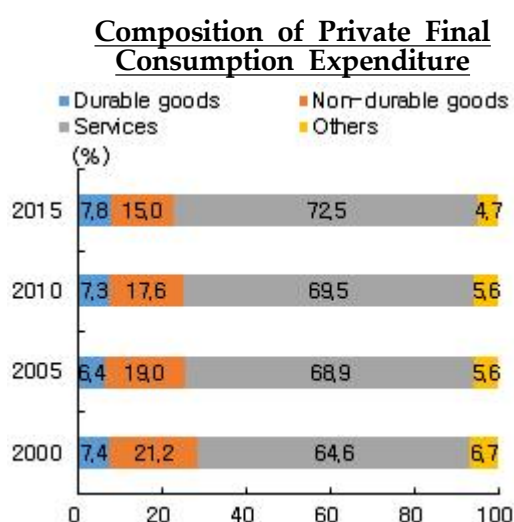
Composition of Final Demand

(Unit: %)

	2000	2005	2010(A)	2015(B)	Changes in shares(B-A)
Final demand	**100.0**	**100.0**	**100.0**	**100.0**	**-**
Consumption	**48.5**	**48.2**	**44.1**	**46.6**	**2.5**
Private final consumption expenditure	41.5	38.7	34.3	35.6	1.3
Government final consumption expenditure	7.0	9.5	9.9	11.1	1.2
Investment	**23.6**	**23.3**	**21.8**	**21.6**	**-0.2**
Gross fixed capital formation	23.4	22.8	20.8	21.3	0.5
Changes in inventories and acquisitions less disposals of valuables	0.2	0.5	1.0	0.4	-0.7
Exports	**27.9**	**28.5**	**34.0**	**31.7**	**-2.3**

□ Among private final consumption expenditures, the share of non-durable goods decreased (17.6%→15.0%) while those of both services (69.5%→72.5%) and durable goods (7.3%→7.8%) increased.

□ The share of intellectual property products in gross fixed capital formation increased (16.0% → 20.2%), while those of facilities investment (29.3% → 27.6%) and construction (47.2% → 44.2%) declined.

Composition of Private Final Consumption Expenditure

- Durable goods
- Non-durable goods
- Services
- Others

(%)

	Durable goods	Non-durable goods	Services	Others
2015	7,8	15,0	72,5	4,7
2010	7,3	17,6	69,5	5,6
2005	6,4	19,0	68,9	5,6
2000	7,4	21,2	64,6	6,7

Composition of Gross Fixed Capital Formation

- Facilities investment
- Construction
- Intellectual property products
- Others

(%)

	Facilities investment	Construction	Intellectual property products	Others
2015	27,6	44,2	20,2	8,0
2010	29,3	47,2	16,0	7,5
2005	28,7	50,8	12,6	7,9
2000	38,5	45,1	9,1	7,4

5. Exports and Imports

☐ Looking at exports of goods and services in 2015, those of manufactured goods accounted for 85.2% of the total, while exports of services and of agricultural, forest and fishery products made up 14.6% and 0.1% respectively.

— Among manufactured goods exports, the share of assembled and processed products was the highest (53.2%), followed by those of basic materials (24.7%) and consumer goods (6.8%).

— The proportions of services and consumer goods had risen, and those of basic materials and assembled and processed products had fallen.

☐ As to the composition of imports in 2015, manufactured goods imports held a share of 64.4% of the total, followed by mined and quarried products (18.0%) and services (15.6%).

— Among imports of manufactured goods, the shares accounted for by consumer goods and by assembled and processed products had risen since 2010, while that of basic materials had declined.


Composition of Exports

Composition of Imports
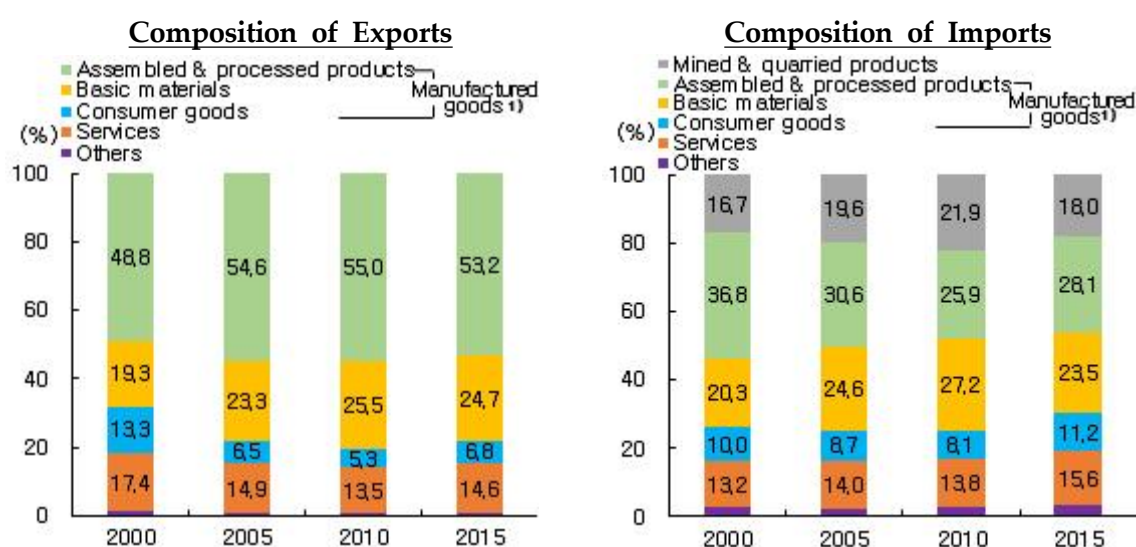
Note: 1) Includes manufacturing services and repair services of industrial equipment in addition to these three types of products.

# Ⅲ. Inter-industry Effects

1. Inducement Effects by Commodity

☐ The production inducement coefficient remained at a level similar to that in 2010 even though the localization rate rose, which was due to the lower intermediate input ratio.

— The production inducement coefficients of both manufactured goods and services had risen.

☐ The value added inducement coefficient increased from 0.717 in 2010 to 0.774 in 2015.

— This was because the value added ratio rose and the share in intermediate inputs accounted for by services expanded.

Production Inducement Coefficients　**Value Added Inducement Coefficients**
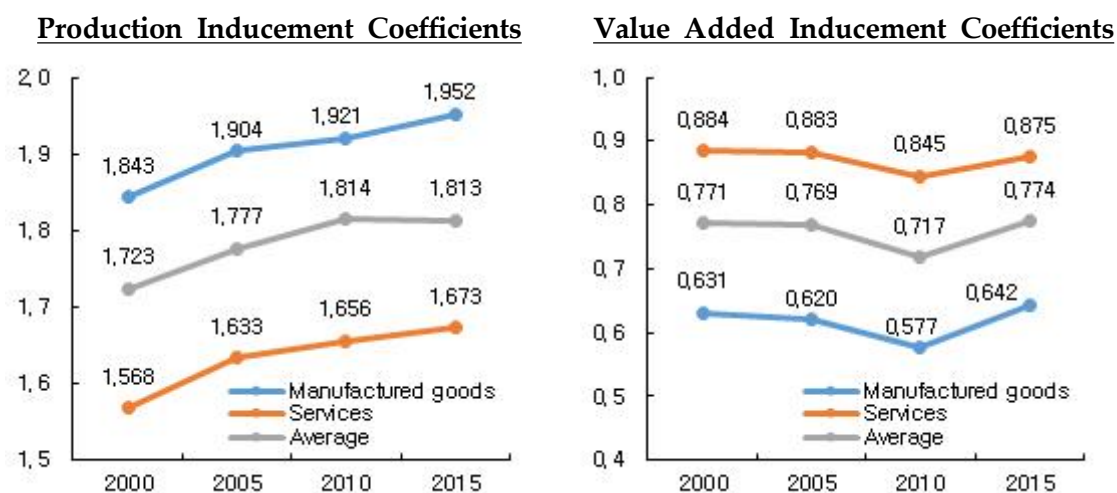
2. Inducement Effects by Component of Final Demand

☐ Among the components of final demand, investment had the highest production inducement coefficient in 2015, at 1.939.

☐ The overall value added inducement coefficient was 0.774 in 2015, up from 0.717 in 2010 and the coefficient for consumption was higher than those of the other final demand components.

— The value added inducement coefficients of all components of final demand rose during this time.

Production Inducement Coefficients, by Final Demand Component
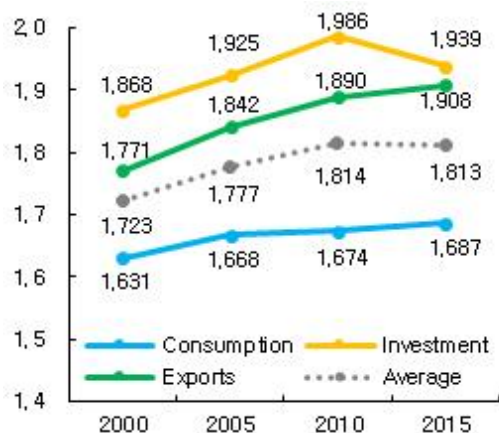
Value Added Inducement Coefficients, by Final Demand Component
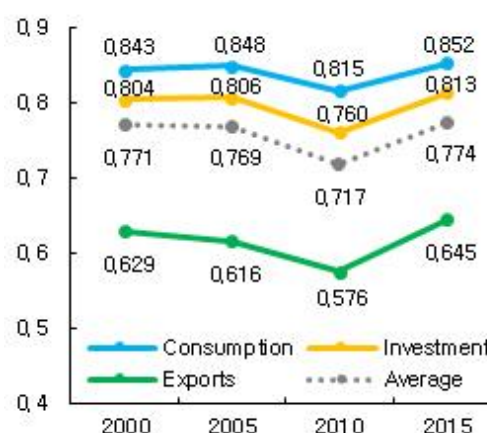
3. Backward Linkage and Forward Linkage Effects

☐ The levels of industrial interdependence remained susceptible to external conditions.

— The power of dispersion index, indicating the backward linkage effects, was high for manufactured goods (1.012) and low for services (0.867).

— The sensitivity of dispersion index, which measures the forward linkage effects, showed relatively high figures for both manufactured goods and services.

Power of Dispersion Index

Sensitivity of Dispersion Index