

An Analysis of Japan-Korea FTA : Sectoral Aspects

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1. Introduction

- ◆ The idea of a Japan-Korea Free Trade Agreement (FTA) was raised at the Japan-Korea summit meeting in October 1998.
- ◆ The Institute of Developing Economics (IDE), of the Japan External Trade Organization and the Korea Institute for International Economic Policy (KIEP) released reports on the economic effects of a Japan-Korea FTA in May 2000 at the request of both governments.

1. Introduction (continued)

- ◆ The Japan–Korea FTA Business Forum, a gathering of business leaders from both countries, was established in September 2001.
- ◆ January 2002, the forum issued a joint statement requesting the early conclusion of the FTA to the two governments.
- ◆ The establishment of a joint research group was agreed at the Japan-Korea summit meeting in March 2002 .

2. Outlines of models

- ◆ Short-run model:

Basically equal to the standard GTAP model.

- ◆ Long-run model:

Capital stock (KB) is an endogenous variable.

Assume interregional mobility for capital stock (KB). (Warmusley (1998))

GTAP Closures

	Short-run	Long-run
Exogenous	qo(capital) or kb	EXPAND
Endogenous	EXPAND	qo(capital) or kb
	RORDELTA=1 DTBAL is endogenous.	

Figure 1: Illustration of Effects on Real GDP

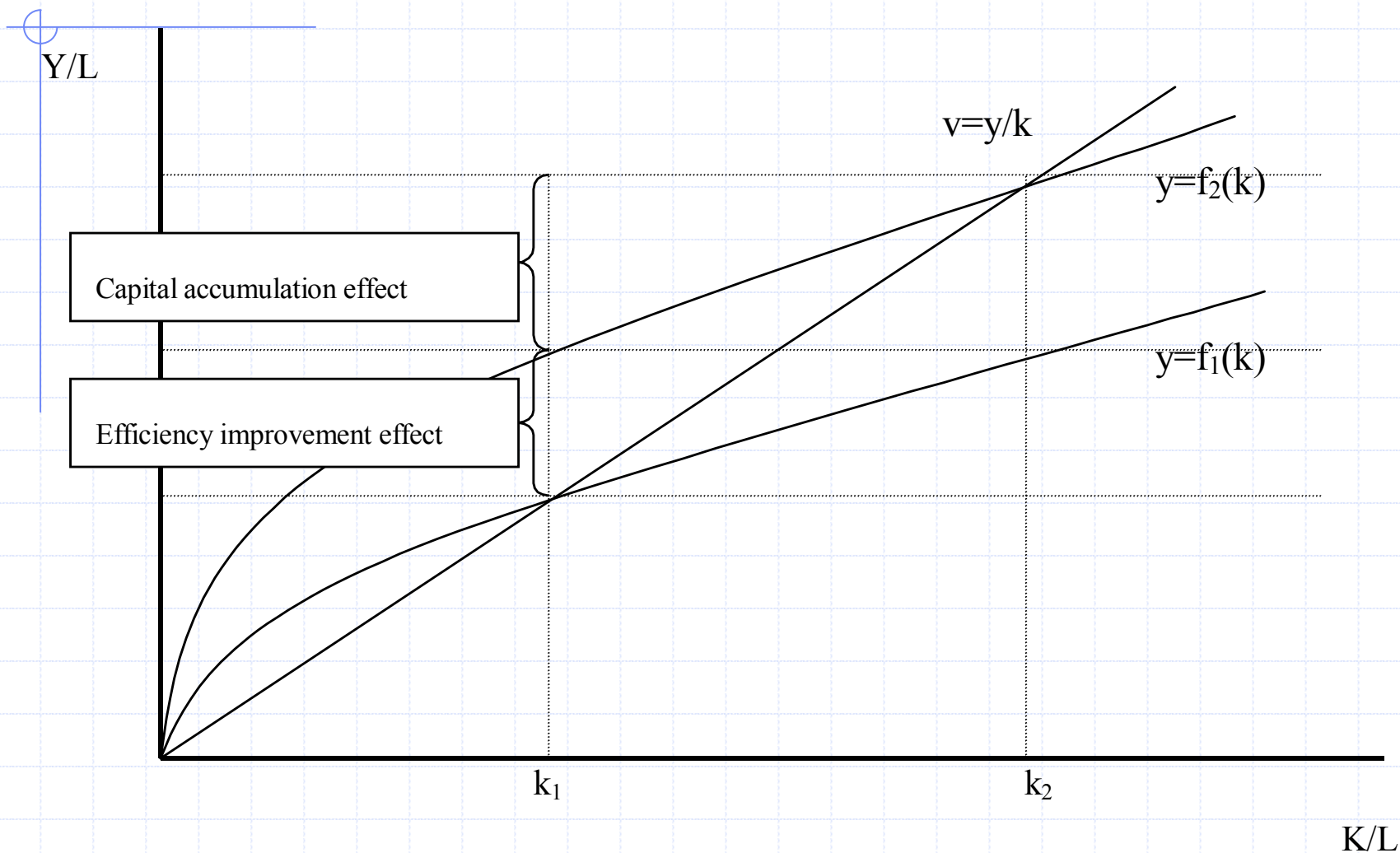


Table 1: Aggregation of Regions and Sectors

Regions	Sectors
8 regions: Japan, ROK, China, Asian NIES, ASEAN, NAFTA, EU, Rest of World	17 sectors: Agricultural products, Fishery products, Forest products, Mineral resources, Processed food, Textiles and wearing apparel, Metal products, Motor vehicle, Other transport equipment, Electronic equipment, Other machinery and equipment, Other manufacturing products, Energy, Transport, Communication, Finance, Other services

Note: Asian NIES are Taiwan and Hong Kong. Singapore belongs to ASEAN.

Table2: Tariff Rates between Japan and ROK

	(%)	
	Japan	ROK
Agricultural products	36.3	51.9
Forest products	4.7	2.3
Fishery products	6.8	11.7
Mineral resources	0.0	2.6
Processed food	42.1	44.8
Textiles and wearing apparel	10.4	8.0
Metal products	2.1	7.3
Motor vehicle	0.0	8.0
Other transport equipment	0.0	2.8
Electronic equipment	0.0	8.0
Other machinery and equipment	0.3	7.9
Other manufacturing products	3.9	7.5

Source: GTAP database Ver.5

Table 3: Base Data (1997)

					Millions of U.S. Dollars	
	GDP	Exports	Export Share	Imports	Import Share	Trade Balance
Japan	4,255,524	506,278	5.6%	418,249	3.8%	88,029
ROK	445,503	162,516	10.1%	158,518	18.1%	3,997
Source: GTAP database Ver.5						
Note: Trade data include services.						
"Export Share" refers to share of exports to the ROK or JAPAN as a share of total exports.						
"Import Share" refers to share of imports from the ROK or JAPAN as a share of total imports.						

3. Macroeconomic effects

Figure 2: Change in Real GDP (qgdp)

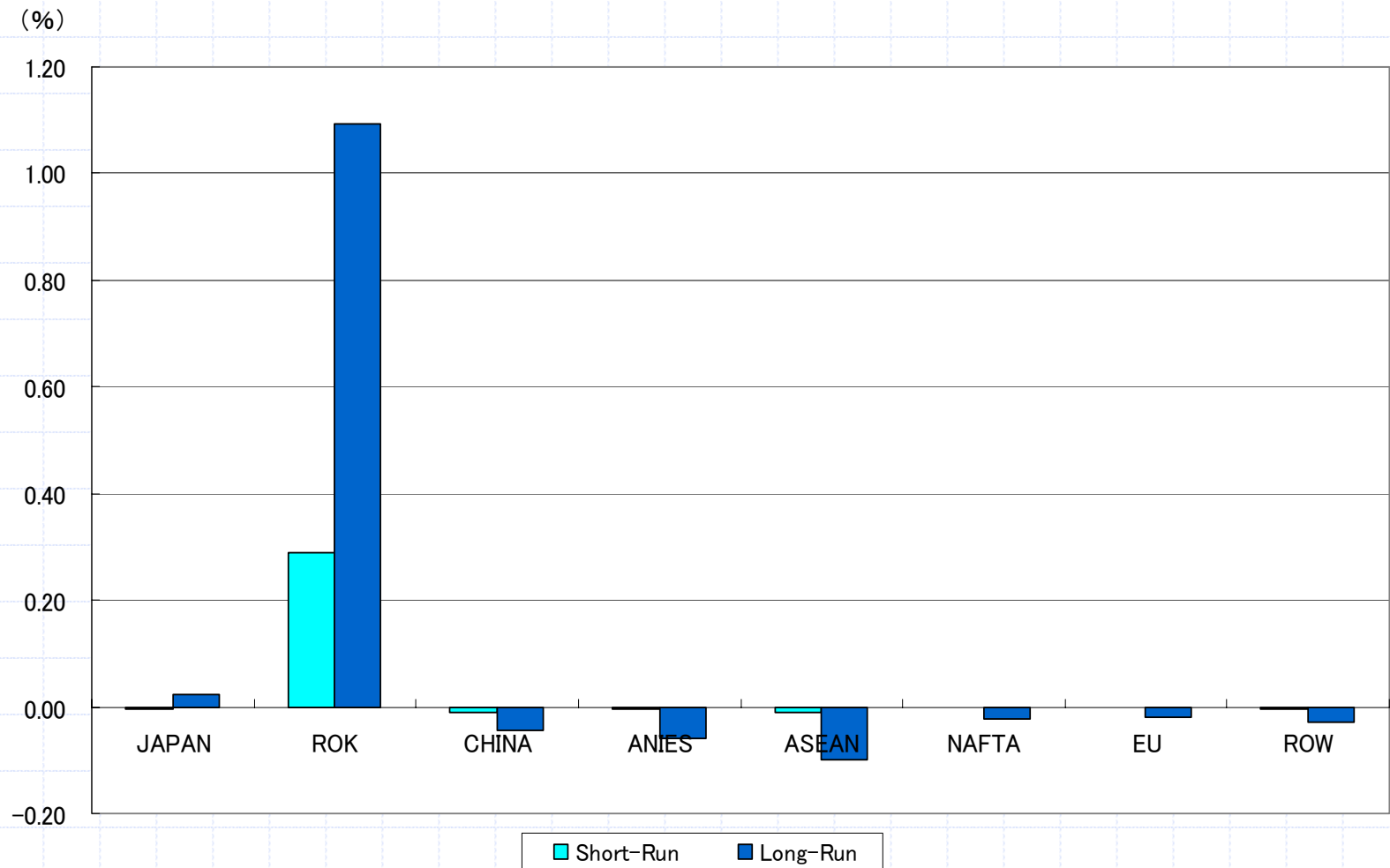


Figure 6: Change in Current Net Rate of Return on Capital Stock (rorc)

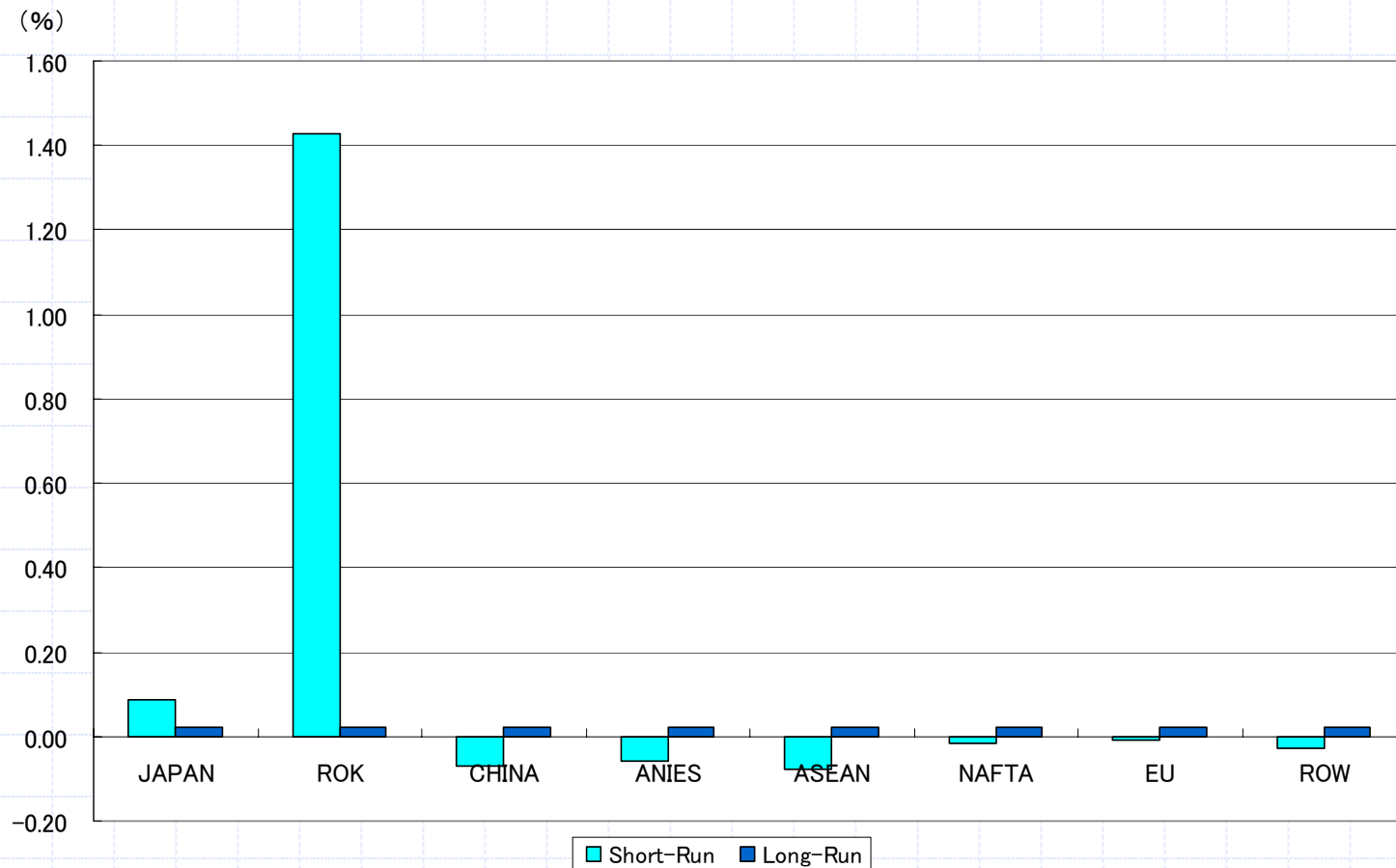


Figure 7: Change in Beginning of Period Capital Stock (kb)

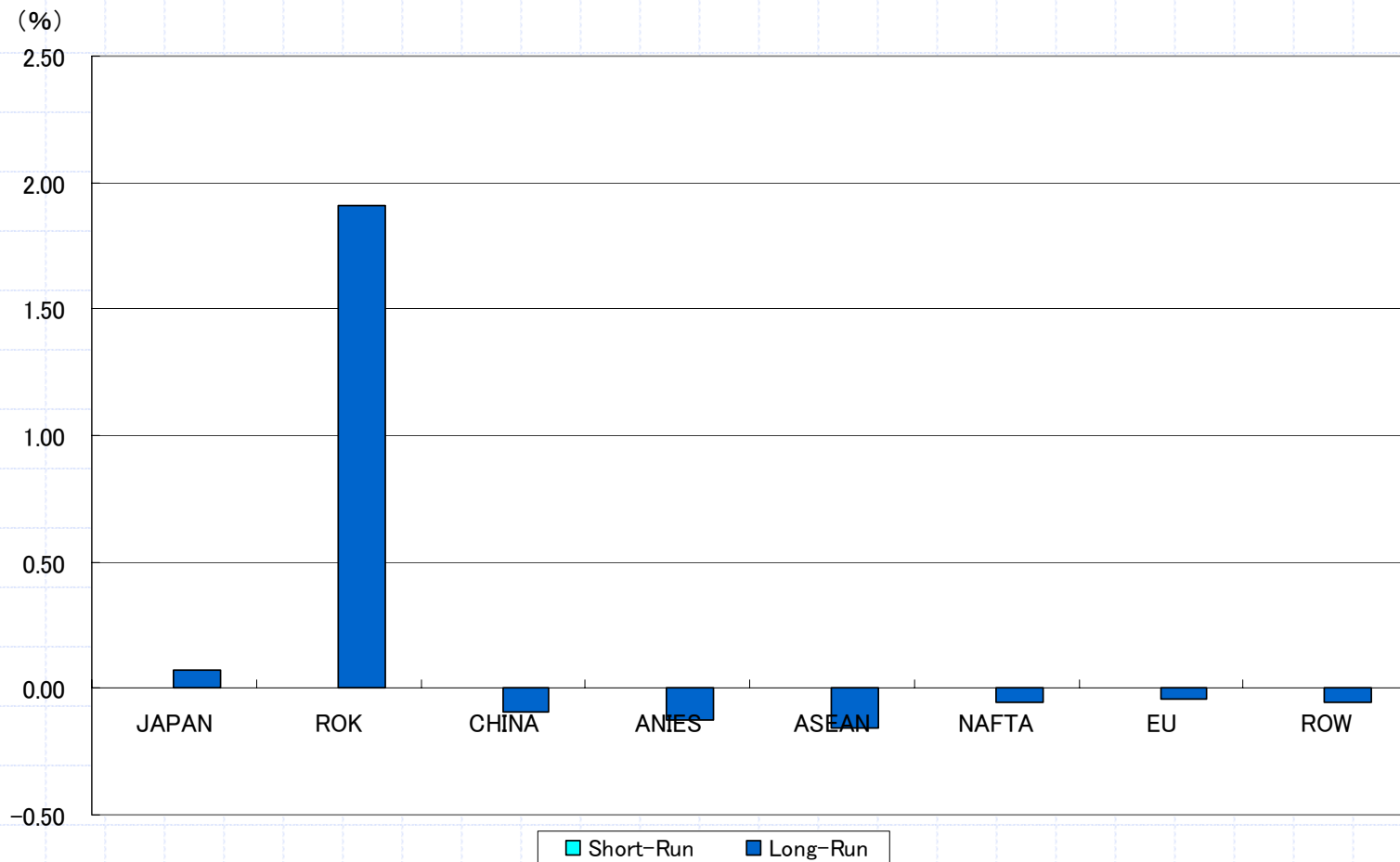


Figure 3: Equivalent Variance (EV)

(Million U.S. Dollars)

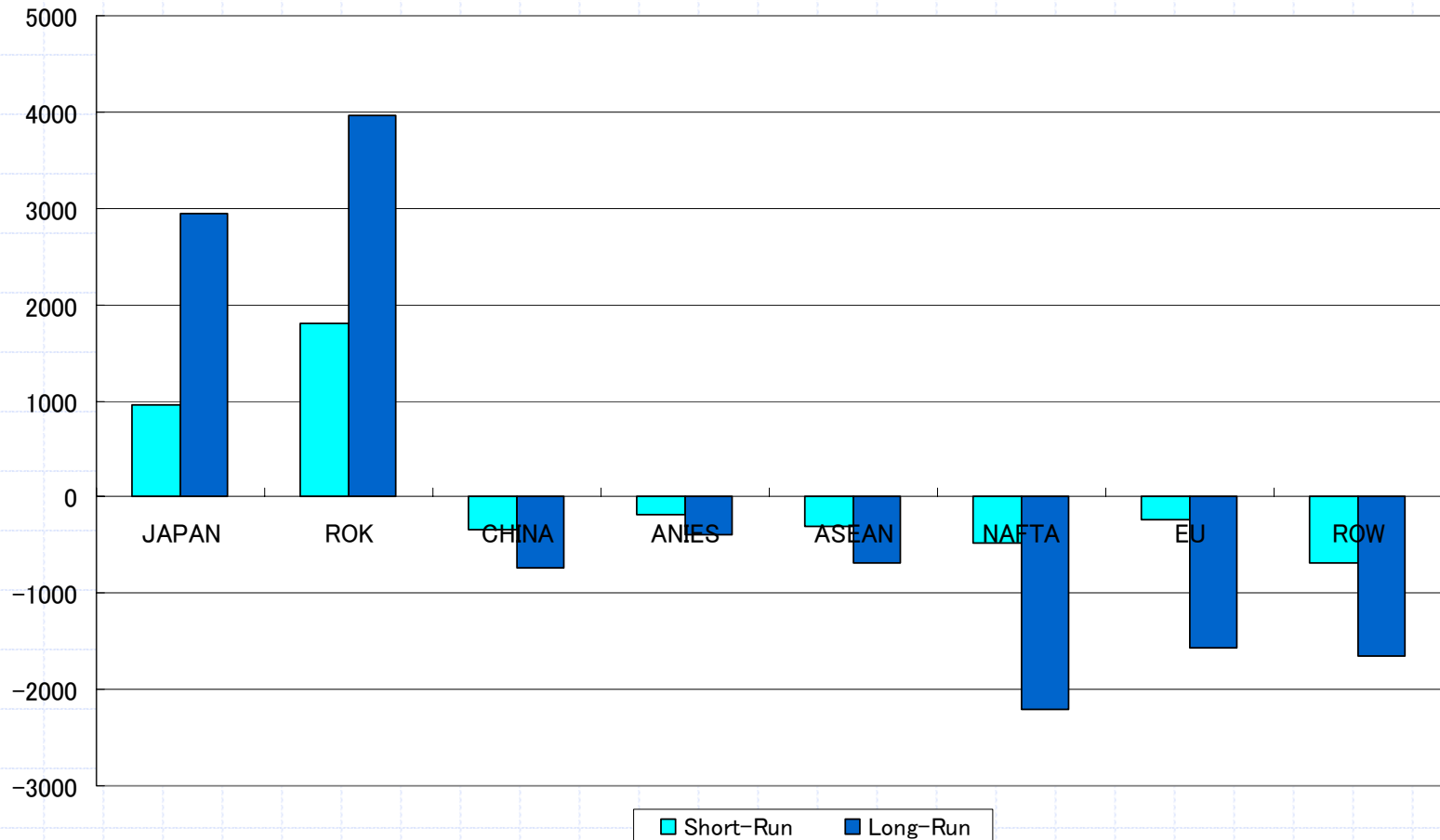


Figure 4: Change in Terms of Trade (tot)

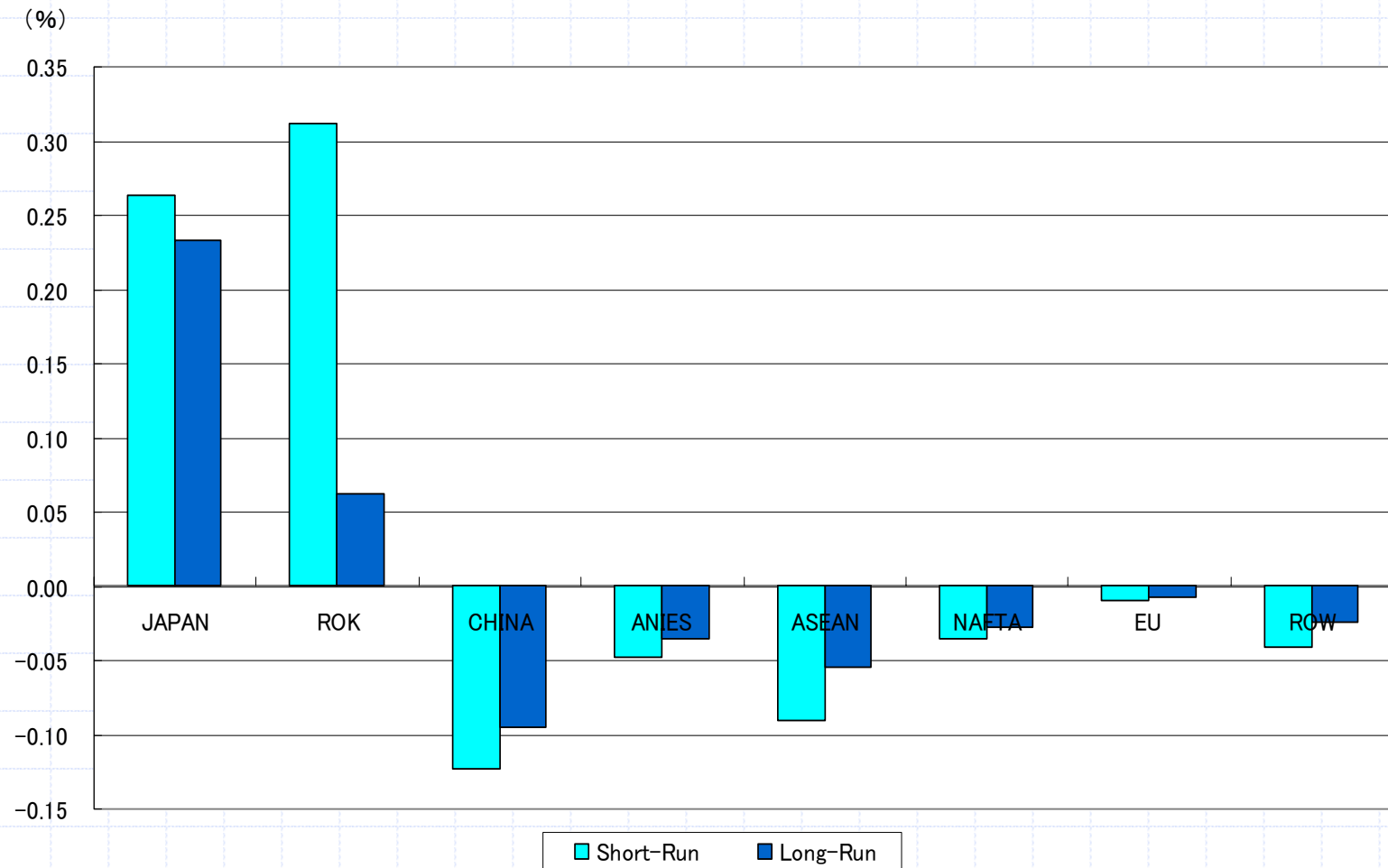
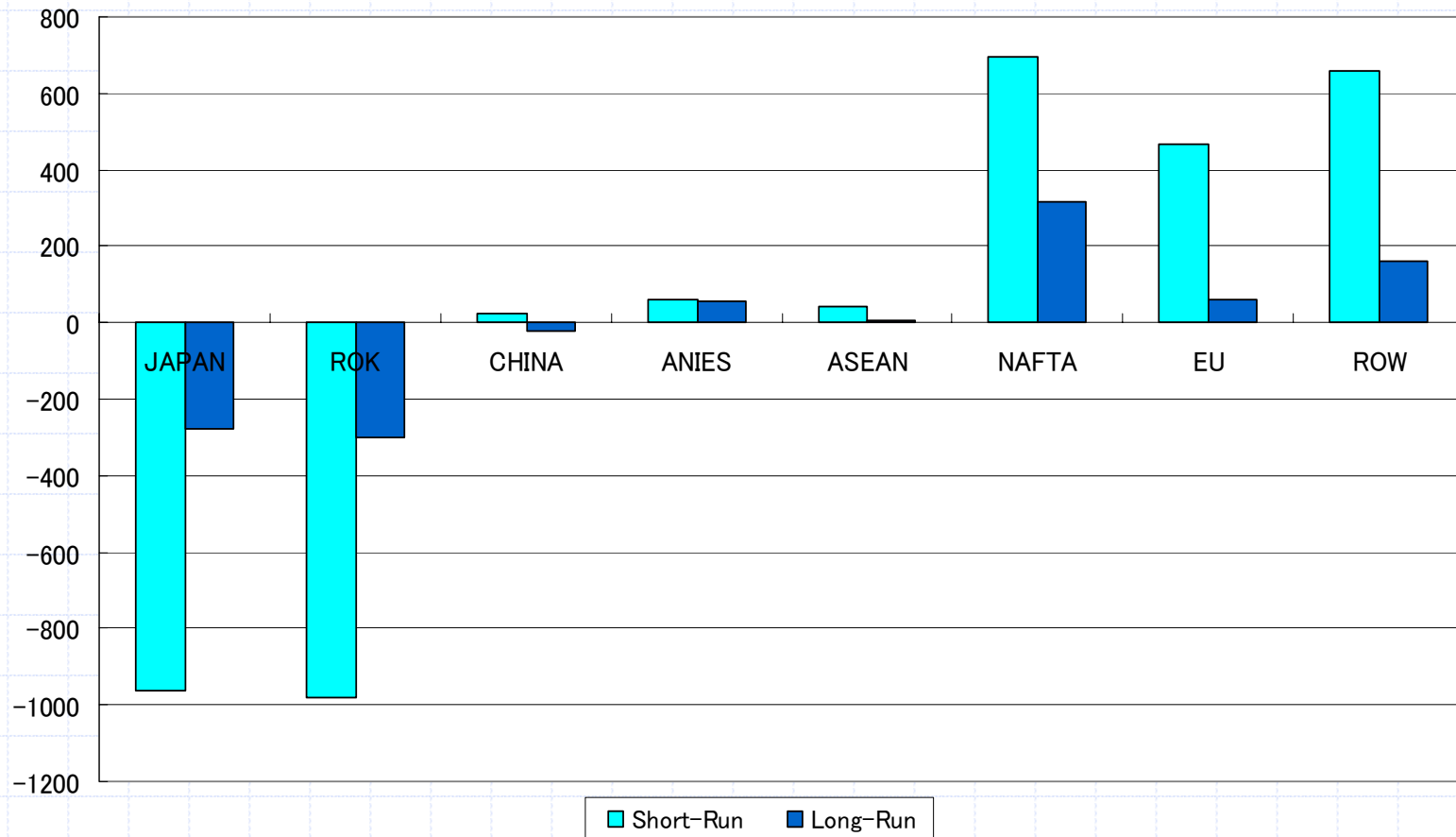


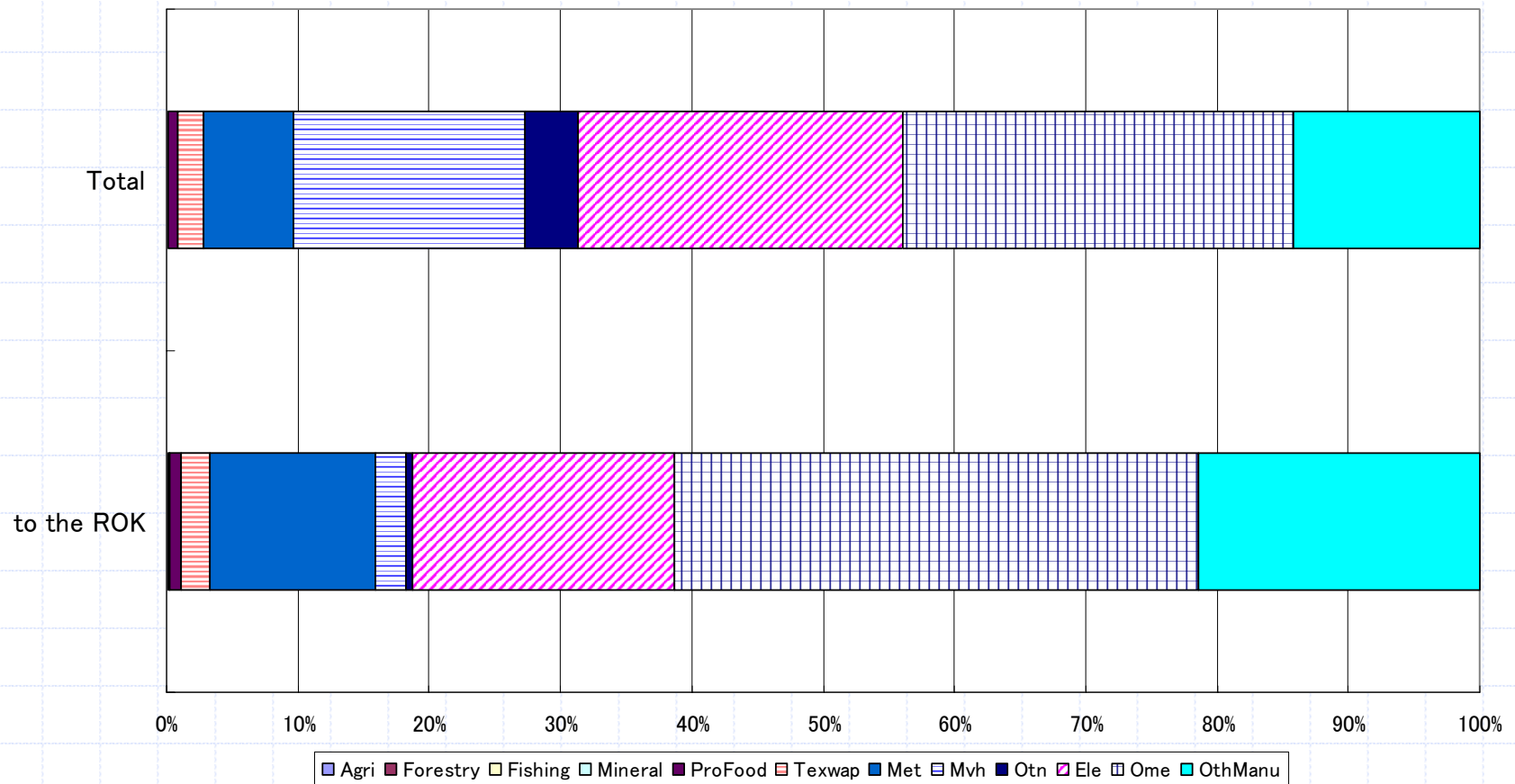
Figure 5: Change in Trade Balance (DTBAL)

(Million U.S. Dollars)



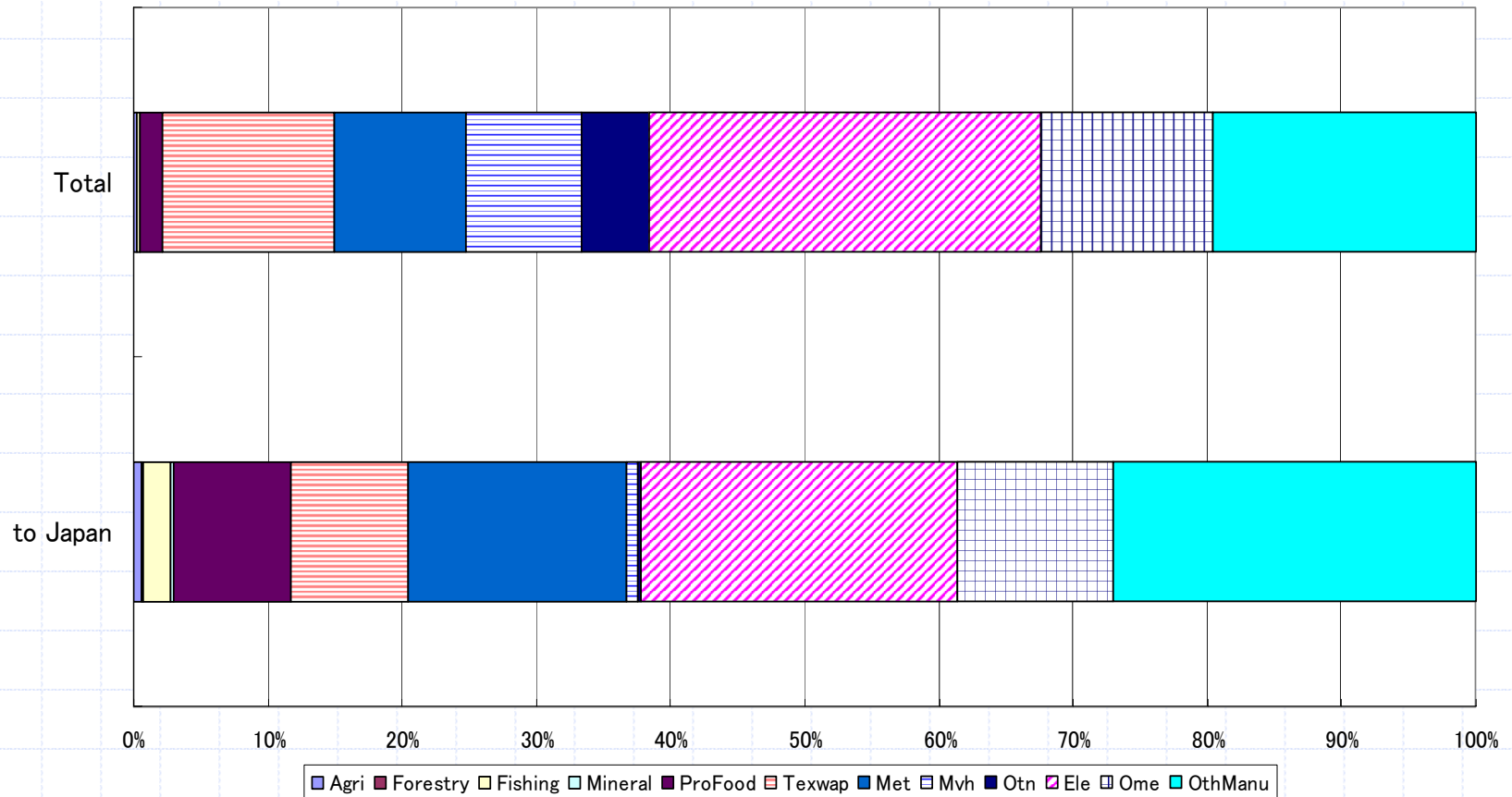
4. Sectoral Effects

Figure 8: Composition of Japan's Exports



Source: GTAP database Ver.5

Figure 9: Composition of the ROK's Exports by Sector



Source: GTAP database Ver.5

Figure 10: Change in Trade Balance by Sector (DTBAL) (Short-Run)

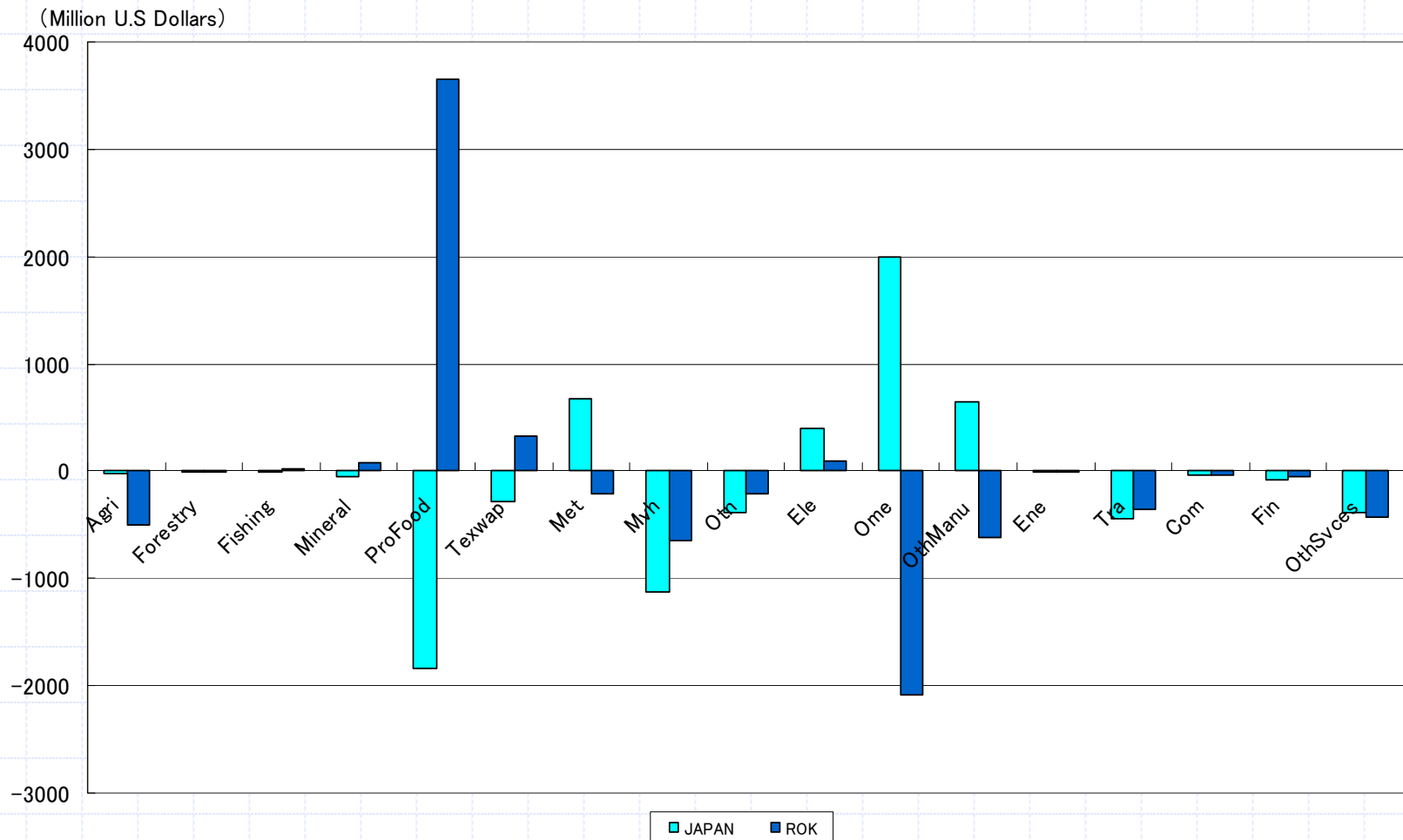


Figure 11: Change in Value Added by Sector (qva) (Short-Run)

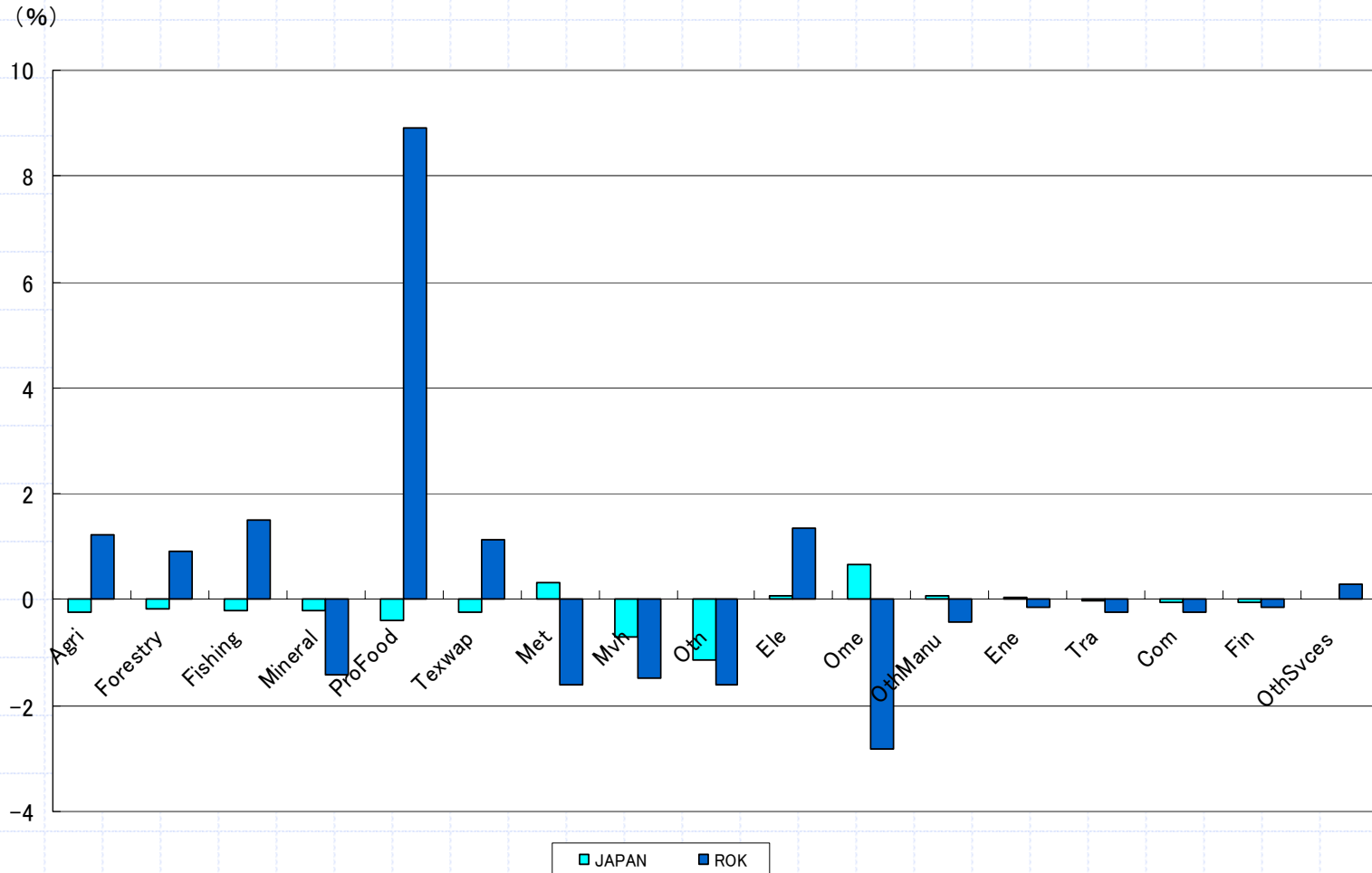


Figure 12: Change in Export Sales of Japan's Two Sectors (qxs) (Short-Run)

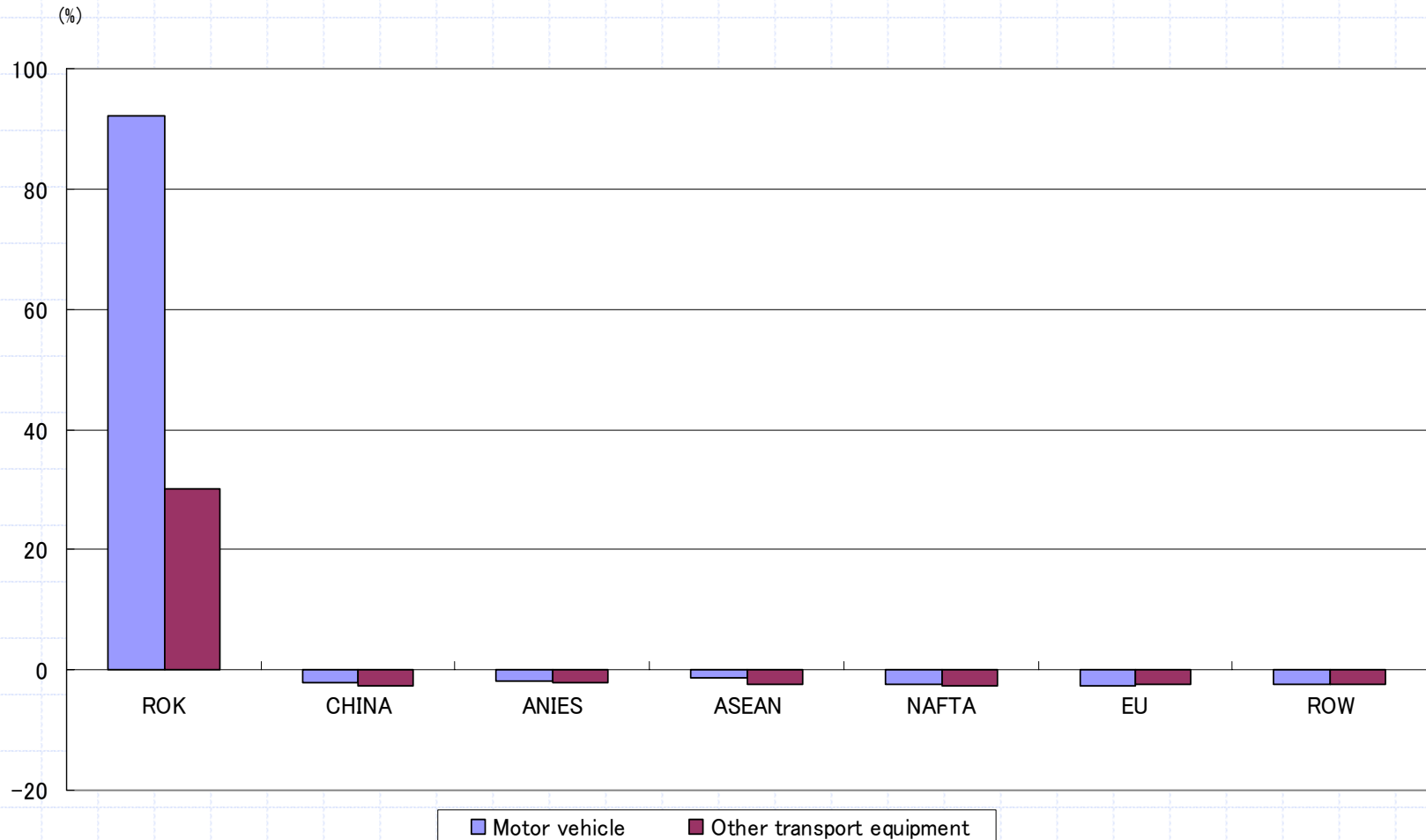
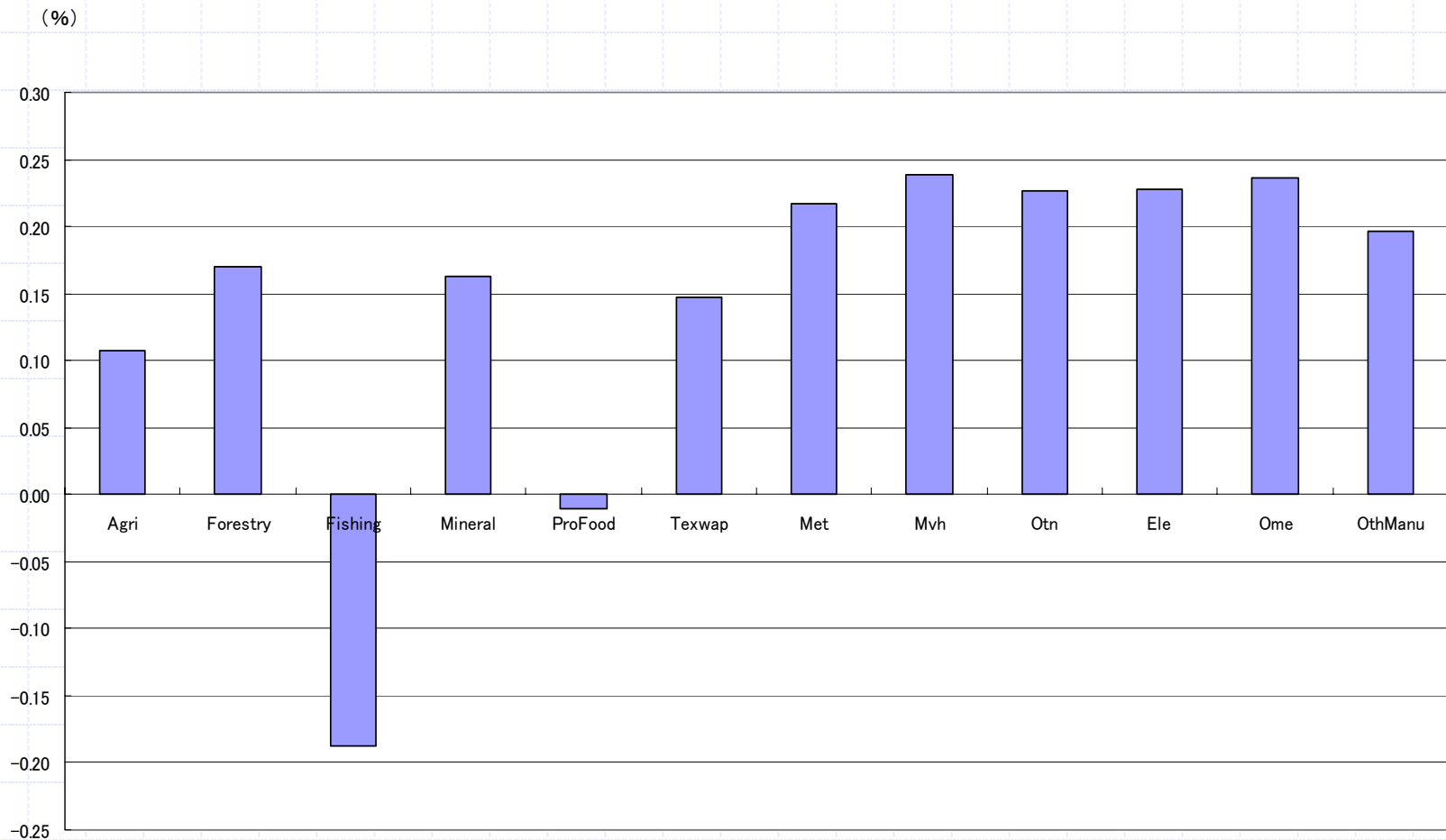


Figure 13: Change in Japan's Export Prices (px) (Short-Run)



Composite Import Nest in the Production Structure of GTAP Model

$$\begin{aligned} qxs(i,r,s) &= qim(i,s) - \underline{\sigma}_M(i) \\ &\quad * [pms(i,r,s) - pim(i,s)] \\ pim(i,s) &= \sum MSHRS(i,r,s) * pms(i,r,s) \end{aligned}$$

$qxs(i,r,s)$: exports of commodity i from region r to region s

$qim(i,s)$: imports of commodity i in region s

$pms(i,r,s)$: import price of commodity i from region r to region s

$pim(i,s)$: import price of commodity i in region s

$\underline{\sigma}_M(i)$: elasticity of substitution of imports by origin of commodity i

$MSHRS(i,r,s)$: the share of imports of i from region r in region s

Table5: Elasticity of Substitution of Imports by Origin (ESUBM or σ_M)

Agricultural products	4.52
Forest products	5.60
Fishery products	5.60
Mineral resources	5.60
Processed food	4.73
Textiles and wearing apparel	6.31
Metal products	5.60
Motor vehicle	10.40
Other transport equipment	10.40
Electronic equipment	5.60
Other machinery and equipment	5.60
Other manufacturing products	4.55
Source: GTAP database Ver.5	

Figure 14: Change in the ROK's Export Prices (px) (Short-Run)

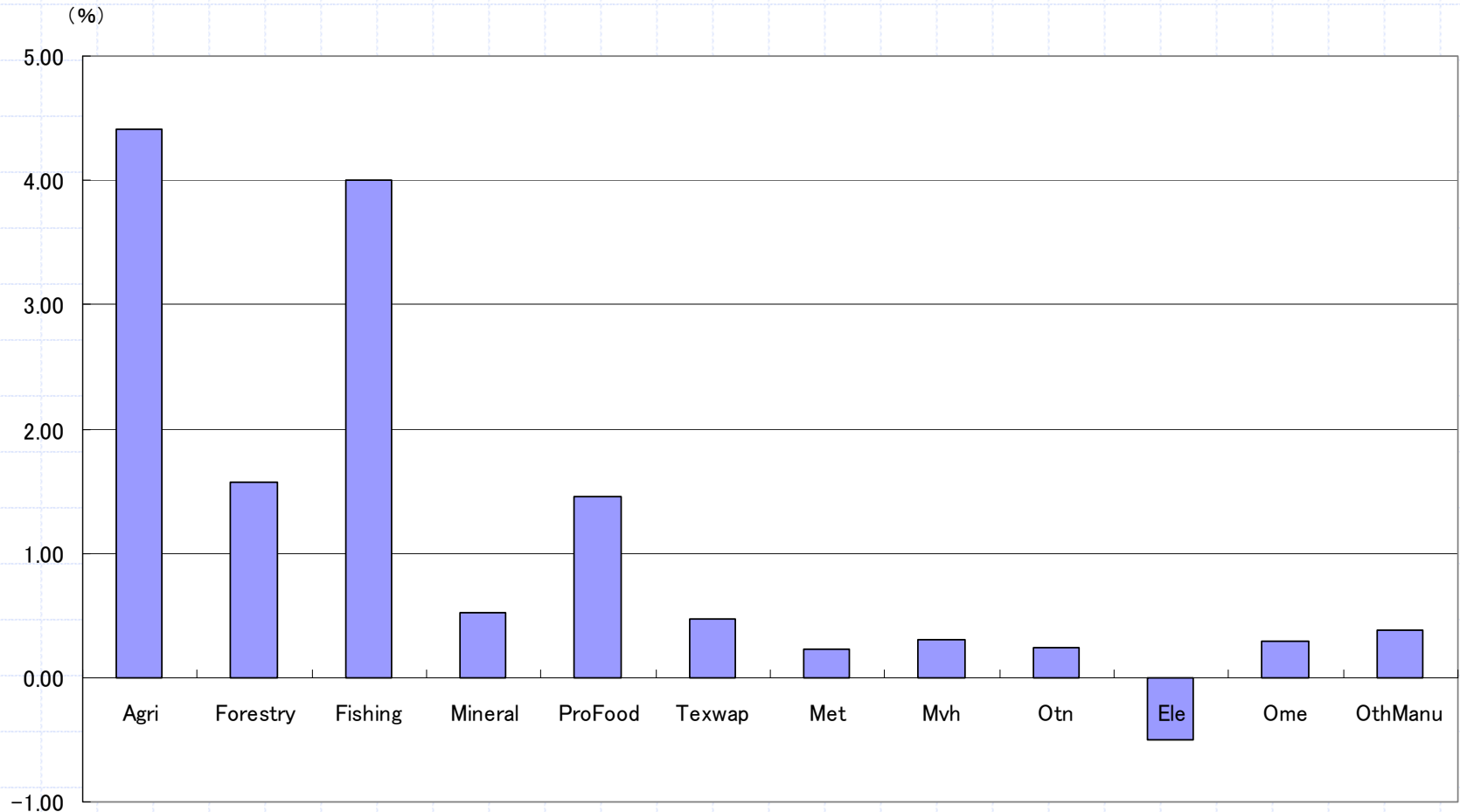
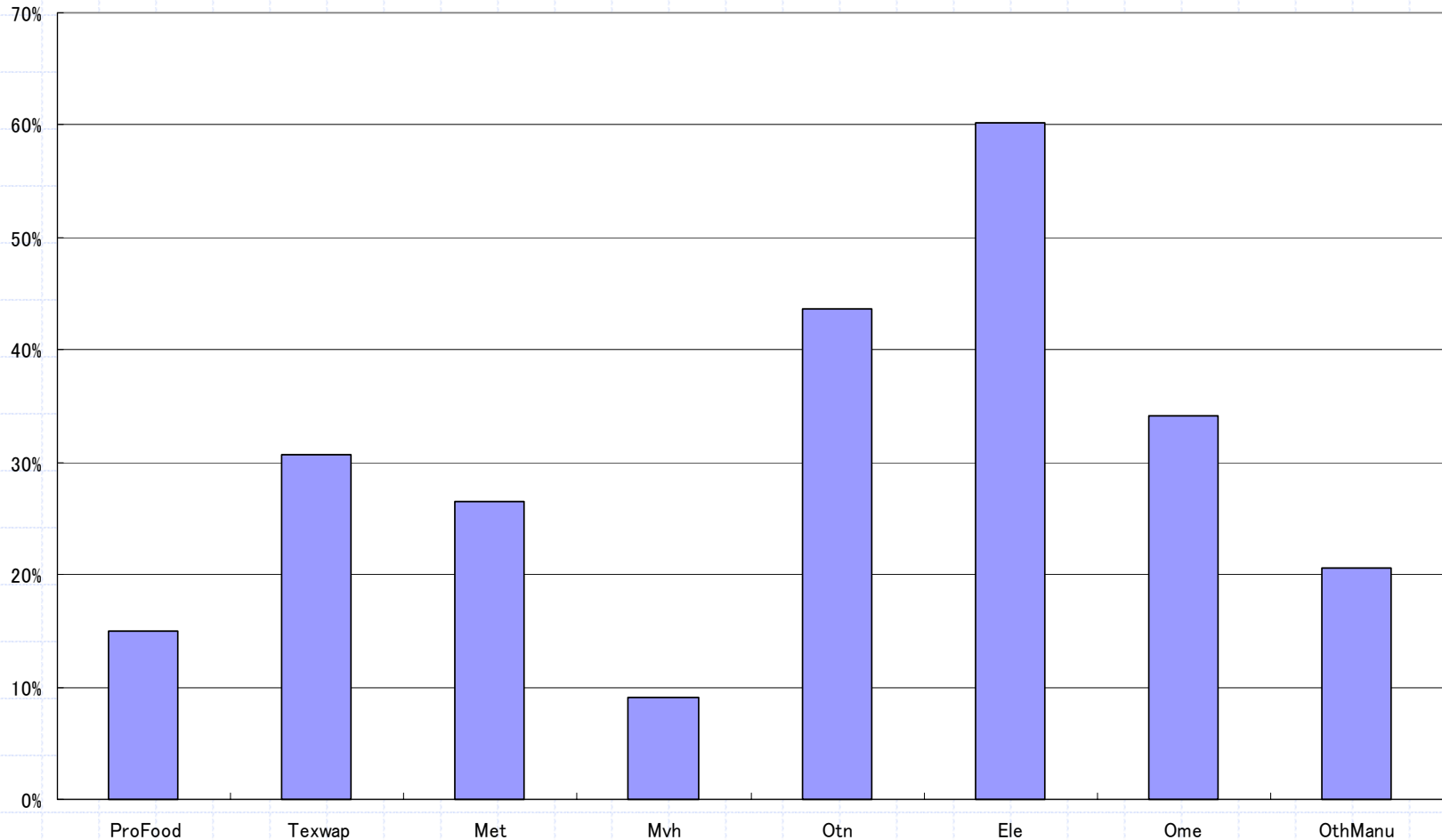


Figure 15: ROK's Import Ratio in Intermediates by Sector



5. Conclusion

- ◆ Our analysis resulted in a positive message about a Japan-Korea FTA.
- ◆ We saw a certain increase in the ROK's real GDP in the long-run case.
- ◆ Intra-industry trade will enlarge the static effects of the FTA.
- ◆ The elasticity of substitution of imports played a crucial role on sectoral effects.