Comparing the Management Practices and Firm Performance in Korean and Japanese Firms

-An Empirical Study Using Interview Surveys-

Presented at the workshop on Intangible Investment, Innovation, and Productivity

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Contents

1. Motivation of the Paper(1)

- Until 2008, the US economy and the Chinese economy led the world economy.
- The EU and the Korean economies also kept the good economic performance.
- The Japanese economy suffered from the low growth rate.
- After the Lehman Shock, China, Korea, and the other Asian countries excluding Japan are leading the world economy.

GDP Growth Rate in China, EU, Japan, Korea, and the US

(%)

	China	EU 15	Japan	Korea	the US
1980-90	9.3	2.4	4.6	9.7	3.2
1990-2000	10.4	2.3	1.2	6.5	3.4
2000-09	10.2*	2.0*	0.5	3.9	1.5

(Source) SNA in Japan, Korea and the US and APO Asia Productivity Databook 2010

(Note) * shows that the average growth rate is calculated in the period 2000-07.

1. Motivation of the Paper (2)

- **Growth accounting with intangible assets reflects the difference in economic performance in Japan and Korea after the financial crises.**
- **In Japan, we find that the contribution of intangible assets to economic growth declined after 1998.**
- **On the other hand, the contribution rate in intangible assets in Korea increased after 1998.**
- **The comparison of firm performance between Japan and Korea: Fukao et, al. (2008), Jung, Lee, and Fukao (2008), Jung and Lee (2010), and Joo and Lee (2010)**

Growth Accounting with Intangibles in Japan and Korea

（%）

	Japan		Korea	
	1990-97	1998-2004	1990-97	1998-2004
Labor productivity growth	2.11	1.73	6.05	4.17
Capital deepening	1.55	1.01	2.16	0.79
Tangible assets	1.19	0.75	1.79	0.38
Intangible assets	0.36	0.25	0.37	0.41
TFP Growth	0.56	0.72	3.89	3.38

(Source) Miyagawa and Takizawa (2011)

1. Motivation (3)

- **Intangible assets play a key role when IT assets contribute to productivity growth.**
- **Measurement in aggregate intangible investment：Corrado, Hulten and Sichel (2006, 2009) , Marrano, Haskel and Wallis (2009) , Hao, Manole, and van Ark (2008) , Fukao et al. (2009), Pyo, Chun and Rhee (2011).**
- **However, studies on the measurement of aggregate intangible investment imply that it is difficult to measure expenditures in firm-specific resources.**
- **To overcome this difficulty, many researchers focus on the measurement in intangibles at the firm level and examine their effects on firm performance.**

International Comparison in Intangible Investment/GDP Ratio

		Total investment	Computerized information	Innovative property	Economic competencies
Japan	All industries (2000-05)	11.1	2.2	6.0	2.9
	Manufacturing (2000-05)	16.6	2.1	11.5	3.0
	Service (2000-05)	9.2	2.4	3.6	3.2
Australia	Market economy (2005-06)	9.6	1.3	3.6	4.7
Canada	All industries （2005）	9.8	1.0	5.0	3.8
France	Market economy （2004）	8.3	0.9	3.1	4.4
Germany	Market economy （2004）	7.1	0.8	3.5	2.9
Italy	Market economy （2004）	5.2	0.7	2.3	2.2
Korea	All industries (2000-05)	7.9	1.8	3.6	2.5
Netherlands	All industries （2005）	8.4	1.4	1.8	5.2
Spain	Market economy （2004）	5.2	0.8	2.5	2.0
UK	Market economy (2004)	13.0	2.1	3.9	6.9
US	Non-farm business (2000-2003)	13.8	1.9	5.3	6.6

(Source) Barnes and McClue (2009), CHS (2009), Fukao et al (2009), Marrano, Haskel and Wallis(2009), Pyo, Chun, and Rhee(2011)

1. Motivation (4)

Å **The purpose of our paper**

(1) To examine the relationship between intangibles (in particular, organizational management and human resource management) and the firm performance.

(2) To compare firm performances in Japan and Korea from the perspective of contribution of intangible assets.

2. Bloom and Van Reenen's Work on the Effects of Management Practices on Firm Performance (1)

- **Bloom and Van Reenen (2007) conducted telephone interview surveys regarding organizational reforms and human resource management with 735 manufacturing firms in France, Germany, the UK, and the US. The response rate was 54%.**
- **18 interview questions were grouped into four main categories: operations (3 questions), monitoring (5 questions), targets (5 questions) and incentives (5 questions).**

2. Bloom and Van Reenen's Work on the Effects of Management Practices on Firm Performance (2)

- **Based on their survey, they constructed scores indicating management practices.**
- **They estimated a production function including the management score and examined their effects on firm performance. In addition, they looked for what kind of factors improved management practices.**

2. Bloom and Van Reenen's Work on the Effects of Management Practices on Firm Performance (3)

- **Main conclusions of their paper**

(1)They found significant cross-country differences in management practices showing that US firms are better managed than firms in other countries.

(2)High management scores are related to better firm performance.

(3)Inferior management practices appeared in firms in less competitive environments and family-owned firms.

3. Interview Surveys on Management Practices in Japan and Korea (1)

- **Following Bloom and Van Reenen (2007), we conducted interview surveys regarding organizational reforms and human resource management in Japanese and Korean firms.**
- **Based on the results of our interview surveys, we constructed a measure evaluating the management practices of the firm and examined the effects of management practices on firm performance.**
- **Related literature: Kurokawa and Minetaki (2006), Kanamori and Motohashi (2006)→These studies examined the effects of management in ICT section within a firm on firm performance.**

3. Interview Surveys on Management Practices in Japan and Korea (2)

- **Although our interview questions are based on Bloom and Van Reenen (2007), we excluded interview questions on product management, because our survey extended not only manufacturing firms but also firms in the service sector.**
- **We added questions regarding informal meetings, on the job training and recent organizational reforms. All questions are shown in Appendix 1 in Miyagawa et, al. (2010).**
- **We classified our interview questions into two parts: Questions 1 to 4 are related to organizational management and Questions 5 to 13 are related to human resource management.**

3. Interview Surveys on Management Practices in Japan and Korea (3)

- **Each main question was comprised of three sub-questions. If the firm manager answers 'no' to the sub-first question→the score is 1for this main question and we move to the next main question. If he answers 'yes' to the first sub-question and answers 'no' to the second sub-question →the score is 2 for the main question and we move to the next main question. If he answers 'yes' to the second question and answers 'no' to the third sub-question → the score is 3 for the main question and we move to the next main question. If he answers 'yes' to the sub-third question → the score is 4 for the main question.**
- **As for organizational management (Questions 1 to 4), a high score suggests that the organization is more transparent and each employee has the same information with respect to firm performances.**
- **As for human resource management (Questions 5 to 13), a high score reflects more flexible human resource management. Firms with high scores with respect to human capital swiftly promote employees who show good performance and place more value on improvements in human capital through the job training.**

Examples of our interview questions

2. Implementation of organizational goals

2 Are there specific numerical goals on multiple levels that go beyond being just a vision or a slogan, regardless of the level of the goals (such as company-wide or divisional or sectional goals)?

3 Are the goals of each division adjusted in each division to ensure consistency between divisions?

4 Is consistency maintained between these goals and the goals of the management principles or of the long-term company-wide goals?

6. Schemes to improve motivation

2 Are there any schemes other than promotion-related or pay-related systems to increase the motivation of the employees? Please give an example.

3 Is that scheme used on an institutional basis throughout the company?

4 Do you monitor when the employees' motivation, retention rate or job performance increases as a result of such scheme?

3. Interview Surveys on Management Practices in Japan and Korea (4)

- **Our survey focused on four industries in the manufacturing sector (Electric machinery, Information and communication equipment , Motor vehicle , and Precision machinery) and three industries in the service sector (Internet-based services and information services, Media activities, and Retail service).**
- **In Japan, we obtained our data from 573 firms. As the total sample was 1086 firms, the response rate in Japan was 52.8%. In Korea, we obtained data from 350 firms among 591 firms.**
- **The interview surveys were conducted from February to October, 2008 in Japan, and from May to July, 2008 in Korea.**

4. Comparison of Management Practices between Japan and Korea (1)

- **The distributions of surveyed firms by industry: In Japan, the share of manufacturing firms surveyed was 34% of the total firms surveyed, the share of firms in information related industries was 26%, and the share of retail firms was 40%. On the other hand, the share of manufacturing firms was 85% of the total firms in Korea.**
- **The distributions of surveyed firms by employee size: In Japan, the share of large sized firms is almost equal to that of small and medium sized firms. On the other hand, the share of small and medium sized firms in the entire sample firms in Korea was 74%.**

The Distribution of Firms in Japan and Korea by Industry

	Japan		Korea	
Industry	Number of Firms		Number of Firms	
Electric machinery	44	(7.7%)	51	(14.6%)
Information and communication machinery	73	(12.7%)	96	(27.4%)
Motor vehicles	52	(9.1%)	140	(40.0%)
Precision machinery	25	(4.4%)	10	(2.9%)
Internet-based services	135	(23.6%)	15	(4.3%)
Information service			11	(3.1%)
Media activities	14	(2.4%)	9	(2.6%)
Retail	230	(40.1%)	18	(5.1%)
Total	573		350	

The Distribution of Firms in Japan and Korea by Number of Employees

Industry	Japan						Korea					
	Number of Employees					Total	Number of Employees					
	50-99	100-299	300-499	500-999	1000-		50-99	100-299	300-499	500-999	1000-	Total
Manufacturing	25	63	31	32	43	194	42	180	31	30	14	297
Information related services	43	59	13	17	17	149	5	22	3	0	5	35
Retail	43	80	42	40	25	230	0	11	1	0	6	18
Total	111	202	86	89	85	573	47	213	35	30	25	350

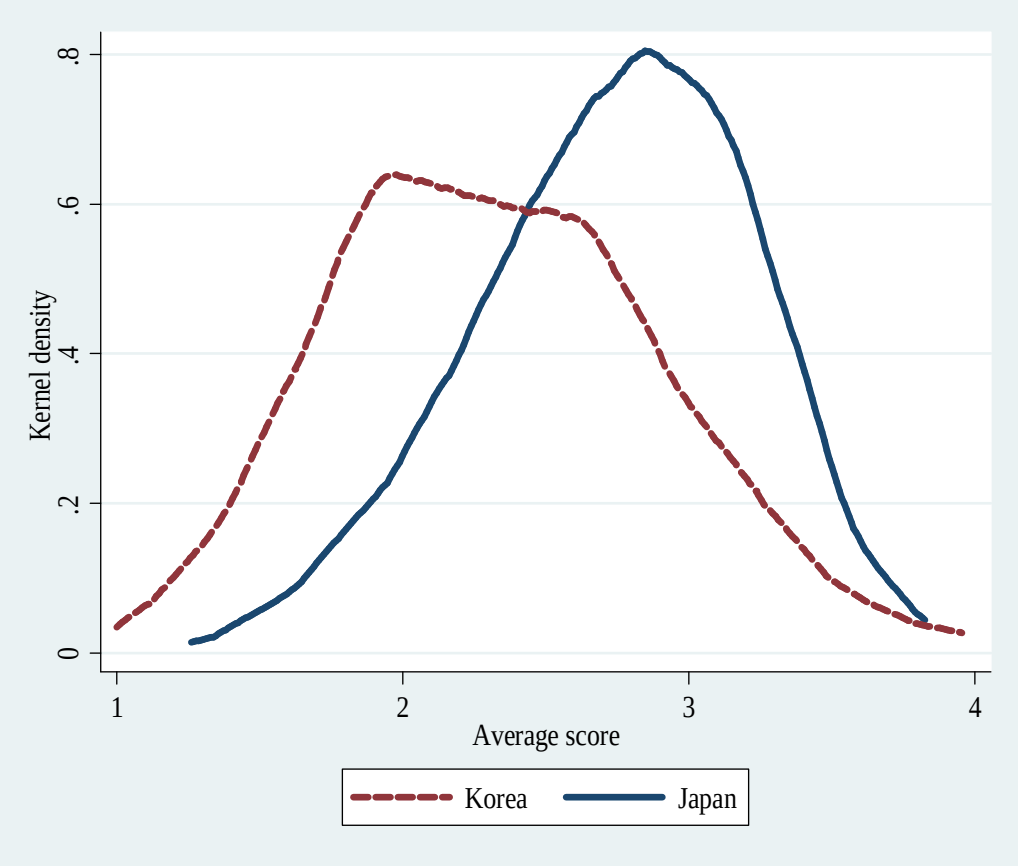
4. Comparison of Management Practices between Japan and Korea (2)

- **The distribution of average scores：The mean in the distribution of average scores in Japan (2.74) is higher than that in Korea (2.33). However, the difference between the two means is not significant.**
- **The distribution of average scores (Manufacturing sector): The mean in the distribution of average scores in Japan (2.77) is also higher than that in Korea (2.29).**

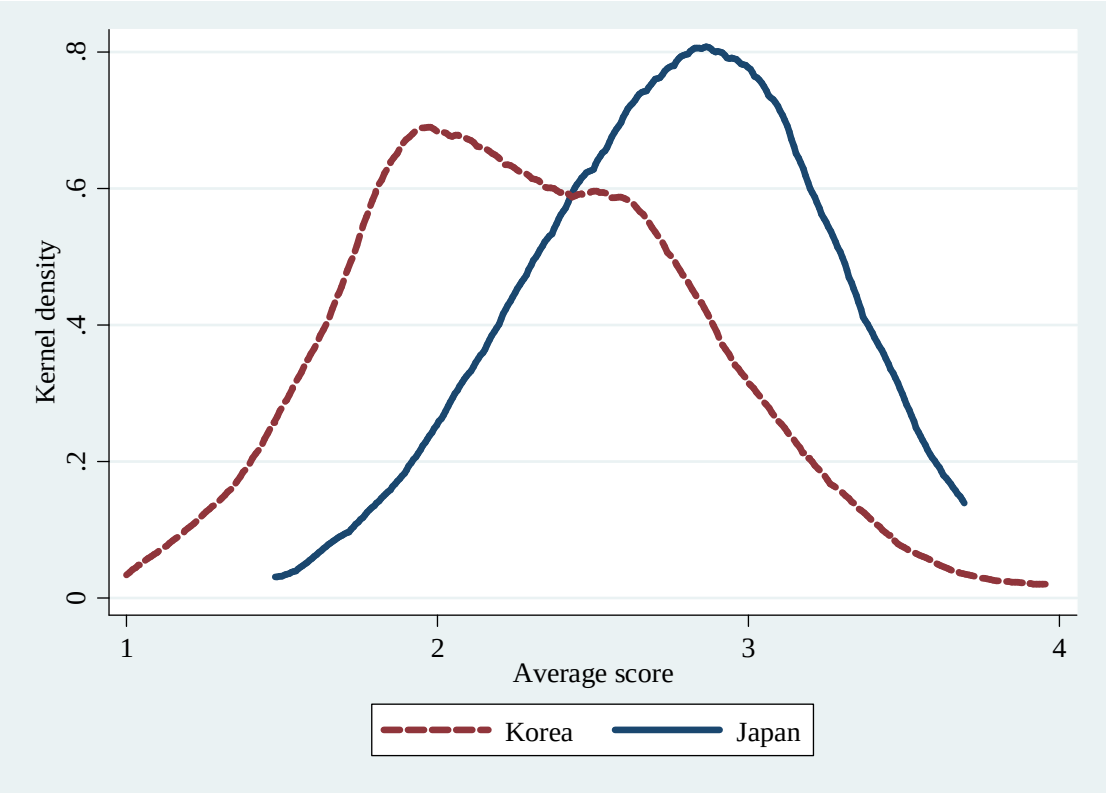
Summary of Management Scores

	Japan		Korea	
	mean	variance	mean	variance
MS (all questions)				
All samples	2.735	0.229	2.328	0.321
Manufacturing firms	2.766	0.215	2.294	0.294
Service firms	2.719	0.236	2.515	0.438
Large firms	2.788	0.224	2.508	0.387
Small and Medium sized	2.661	0.228	2.255	0.277

Distribution of Management Scores (All firms)



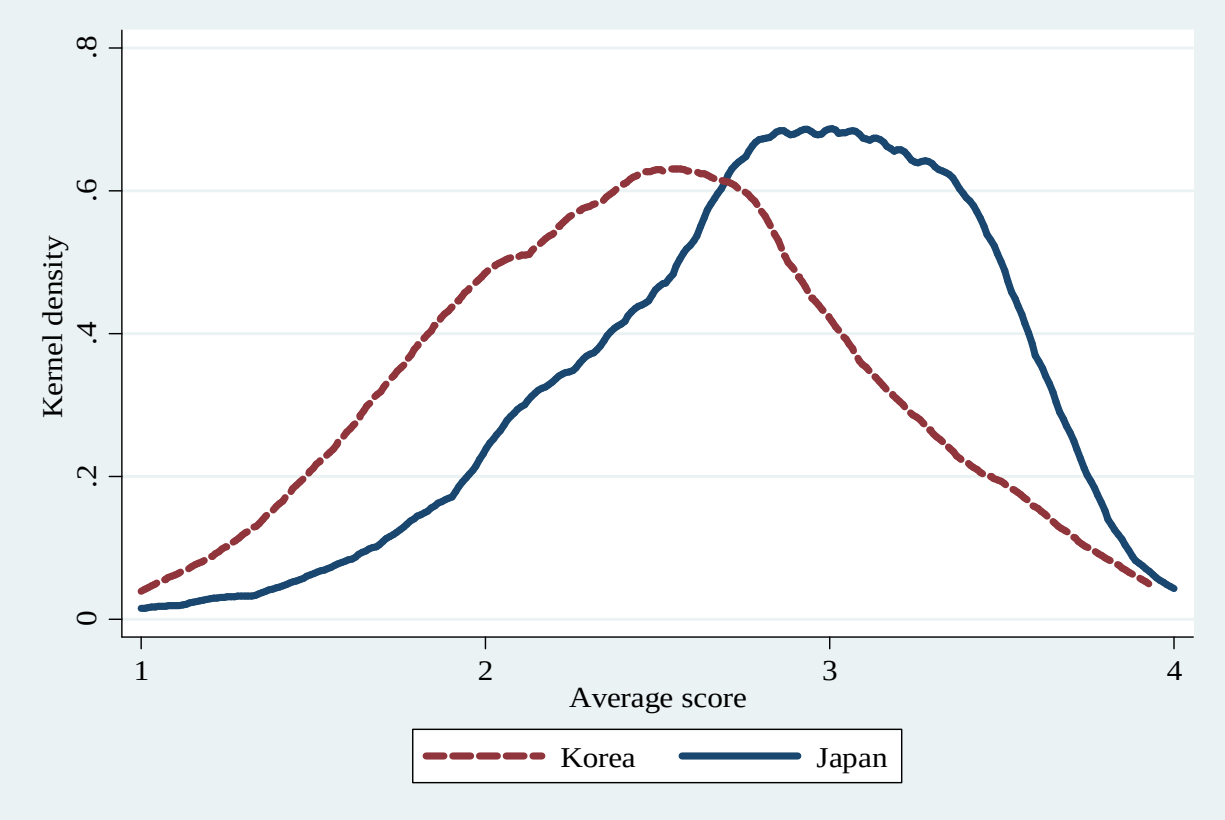
Distribution of Management Scores (Manufacturing firms)



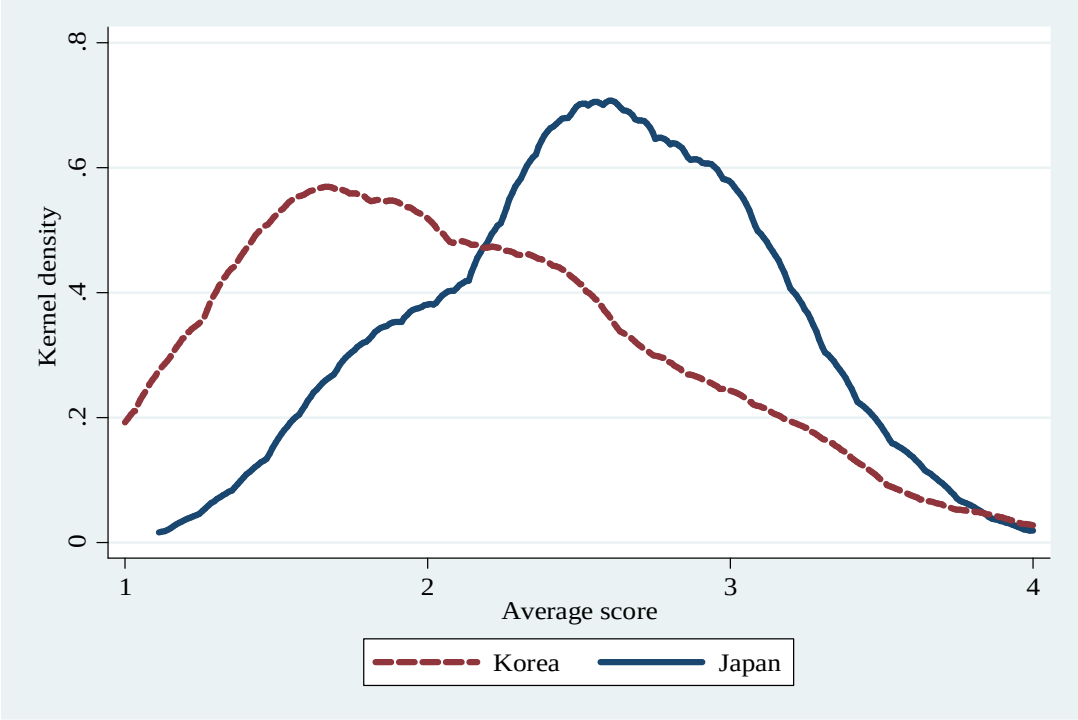
4. Comparison of Management Practices between Japan and Korea (3)

- **The distribution of average scores (organizational management): The mean in the distribution of average scores in Japan (2.85) is also higher than that in Korea (2.47).**
- **The distribution of average scores (human resource management): The means in the distribution of average scores with respect to human resource management are lower than those with respect to organizational management in both countries. In particular, the mean in Korean firms is low, implying that human resource management in Korean firms is more conservative.**

Distribution of Management Scores (organizational management)



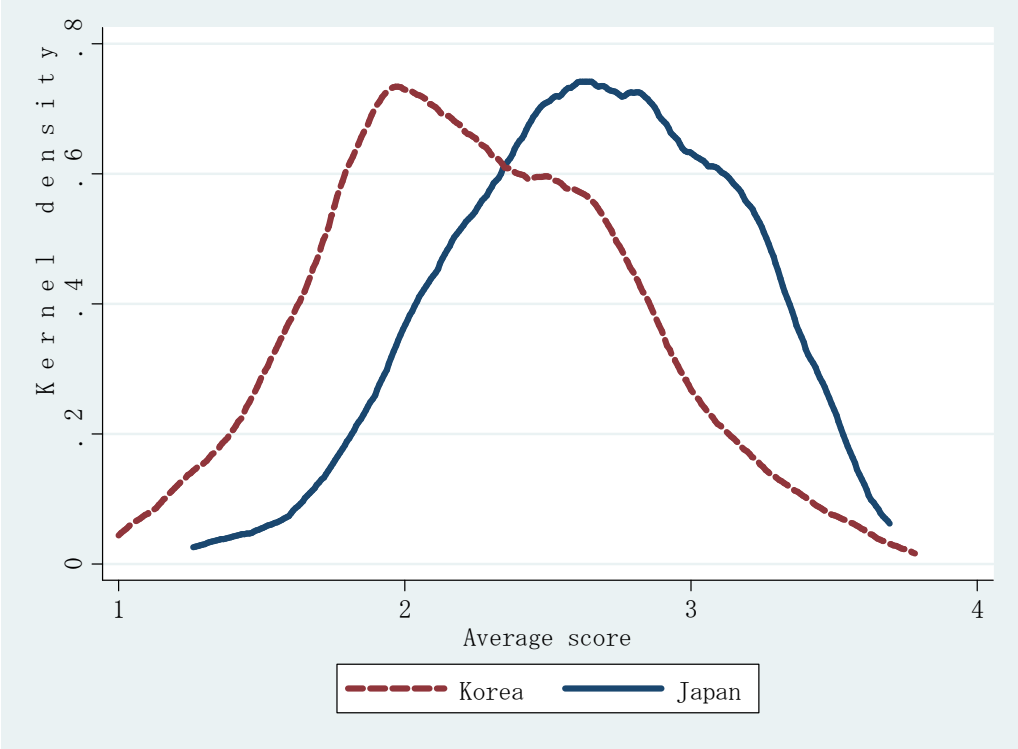
Distribution of Management Scores (human resource management)



4. Comparison of Management Practices between Japan and Korea (4)

- **The distribution of average scores (Small and medium-sized firms): average scores in Korean firms are concentrated at lower levels, because the average score in human capital in Korean small and medium sized firms are relatively low.**
- **The management scores in our survey imply that human resource management is less flexible in Korean small and medium-sized firms.**

Distribution of Management Scores (small and medium-sized firms)



4. Comparison of Management Practices between Japan and Korea (5)

- When we compare means in the above distributions, we cannot conclude that the average management score in Japanese firms is significantly larger than Korean firms.
- However, the Kolmogorov= Smirnov Test show that the distributions in Japanese firms are significantly more shifted to the right than those in Korean firms.

Kolomogolov =Smirnov test

	All items		Organizational managemnt		Human resource management	
	Distance	P-value	Distance	P-value	Distance	P-value
Japan<Korea*	0.007	0.977	0	1	0.0062	0.983
Japan>Korea**	-0.3277***	0	-0.2976***	0	-0.3417***	0
Combined test	0.3277***	0	0.2976***	0	0.3417***	0

1) * means that sample values in Japan are smaller than those in Korea

2)** means that sample values in Japan are smaller than those in Korea

5. Management Practices and Firm Performance (1)

- **Using the management scores, we examine the relationship between management practices and firm performances in Japan and Korea.**
- **We estimate the following equations.**

$$\ln Y_i = const. + \alpha_1 MS_i + \alpha_2 ORG_i + \alpha_3 \ln K_i + \alpha_4 \ln L_i + \alpha_5 X_i + \varepsilon_i$$

$$\ln Y_i = const. + \alpha_1 MS_i + \beta_1 MS_i * KD + \alpha_2 ORG_i + \beta_2 ORG_i * KD + \alpha_3 K_i + \beta_3 \ln K_i * KD + \alpha_4 \ln L_i + \beta_4 \ln L_i * KD + \beta_5 KD + \beta_6 X_i + \mu_i$$

5. Management Practices and Firm Performance (2)

- **Y: output, L: labor input, K: capital input, M: intermediate input,**
- **MS: management score or the first principal factor calculated by factor analysis, FP:**
- **Human R Mgt Scores**
- **ORG: organizational reform dummy**
- **a measure of firm performance (labor productivity or TFP),**
- **KD: Korean dummy,**

Capital/Labor ratios and Average productivity of Labor and Capital

Mil. Yen	Country	Obs.	Mean	SD	Min.	Med.	Max.
K/L	**Japan**	1,604	7	10	0	4	203
(person)	**Korea**	775	14	16	0	10	165
K/LH	**Japan**	931	0.003	0.007	0.000	0.002	0.110
(hour)	**Korea**	764	0.007	0.008	0.000	0.005	0.082
K/Wage	**Japan**	1,600	1.7	2.2	0.0	1.2	46.9
(wage sum)	**Korea**	794	6.5	13.7	0.0	2.9	155.4
VA/L	**Japan**	1,582	6	4	0	5	53
	Korea	743	8	9	0	6	131
VA/K	**Japan**	1,577	12.8	57.3	0.0	1.1	995.0
	Korea	758	1.4	5.1	0.0	0.6	104.4

First Look: K/L ratios and Average Productivity

- **K/L, K/LH (labor hours), K/Wage sum, all are higher in Korea and lower in Japan**
- **-> Korean firms hiring more capital, whereas Japanese firm hiring more labor**
- **Labor productivity (gross or net output divided by labor, labor hours, or wage sum), all higher in Korea**
- **Capital Productivity higher in Japan**

- **Results holds for gross or net output; manufacturing vs. service, large and SMEs**

First estimation results with the management score

(1) **Better management practices improve firm performance in the estimation using the whole sample). This effect is significant in Korean firms in particular.**

(2) **The average management score is divided into an organizational management score and a human resource management score: the human resource management score is positively correlated to firm performance.**

Table . Estimation Results Using All Samples (2006-2008): gross output

lnY	(4)	(5)	(6)	(10)	(11)	(12)
	(Whole)	(Japan)	(Korea)	(Whole)	(Japan)	(Korea)
Average score	0.041***	0.015	0.022*			
	[4.523]	[1.137]	[1.842]			
Org. score				0.001	-0.01	-0.008
				[0.062]	[-0.806]	[-0.563]
Human R.M score				0.038***	0.023**	0.028*
				[4.026]	[2.207]	[1.825]
lnK	0.03***	0.025***	0.032***	0.031***	0.026***	0.033***
	[6.040]	[5.262]	[2.986]	[6.237]	[5.282]	[3.230]
lnL	0.138***	0.154***	0.117***	0.138***	0.153***	0.115***
	[17.593]	[18.147]	[7.363]	[17.570]	[18.245]	[7.080]
lnM	0.83***	0.814***	0.866***	0.828***	0.814***	0.865***
	[96.743]	[89.425]	[55.779]	[98.819]	[89.653]	[57.577]
Collage graduate	0.014	0.013	0.005	0.016	0.017	0.001
	[0.643]	[0.579]	[0.113]	[0.740]	[0.758]	[0.025]
Observation	1,632	890	742	1,632	890	742

Table . Estimation Results Using All Samples (2006-2008): value-added

lnVA	(4)	(5)	(6)	(10)	(11)	(12)
	(Whole)	(Japan)	(Korea)	(Whole)	(Japan)	(Korea)
Average score	0.115***	0.001	0.051			
	[3.701]	[0.032]	[1.113]			
Org. score				-0.039	-0.087**	-0.077
				[-1.167]	[-1.996]	[-1.507]
Human R.M score				0.143***	0.083**	0.116***
				[5.013]	[2.204]	[2.839]
lnK	0.212***	0.185***	0.282***	0.212***	0.185***	0.285***
	[14.966]	[11.627]	[8.150]	[15.231]	[11.676]	[8.491]
lnL	0.769***	0.783***	0.734***	0.762***	0.778***	0.72***
	[35.703]	[31.172]	[16.200]	[35.682]	[30.800]	[16.443]
Collage graduate	0.429***	0.384***	0.654***	0.432***	0.402***	0.623***
	[5.552]	[4.177]	[4.681]	[5.619]	[4.298]	[4.572]
Observation	1,611	889	722	1,611	889	722

Table . Estimation Results Using Manufacturing : value-added

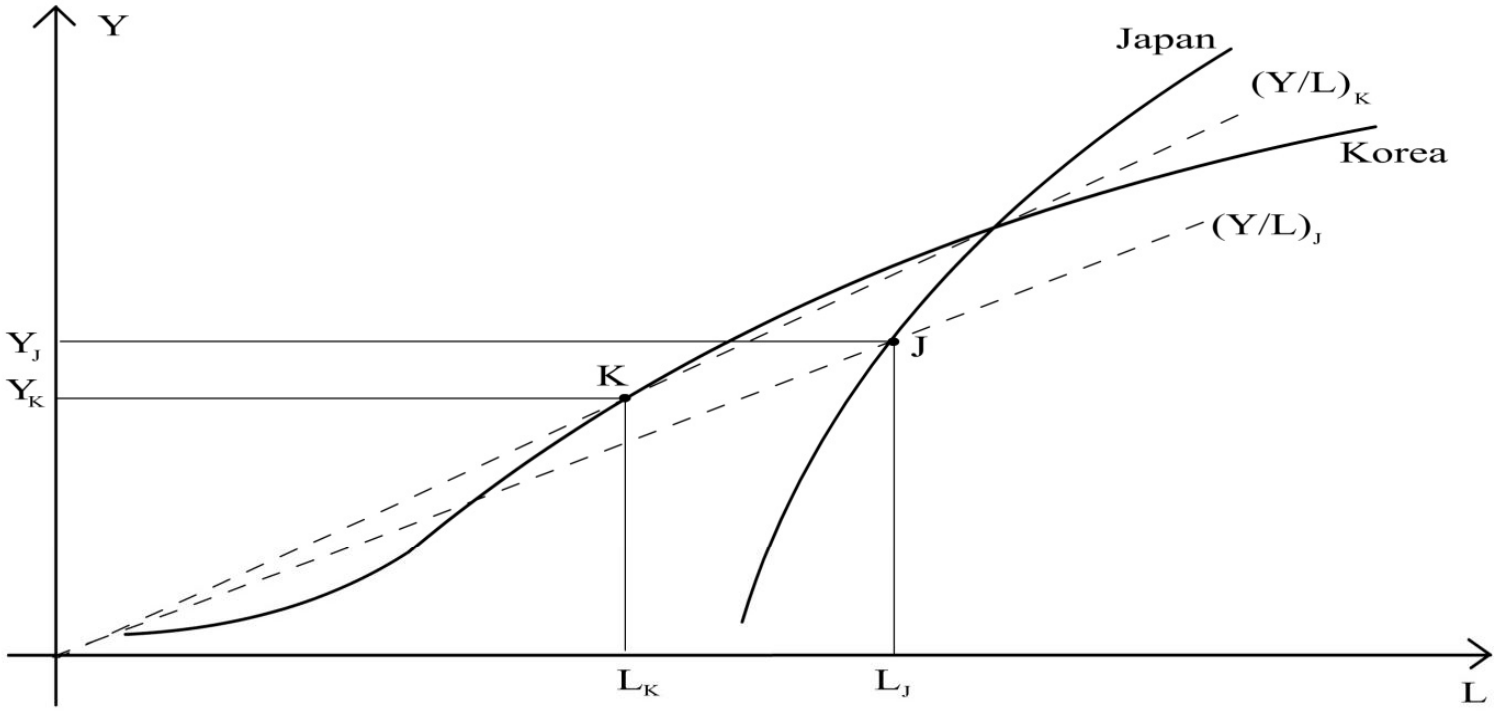
lnVA	(Whole)	(Japan)	(Korea)	(Whole)	(Japan)	(Korea)
Average score	0.123***	-0.012	0.041			
	[3.063]	[-0.180]	[0.818]			
Org. score				-0.024	-0.195***	-0.054
				[-0.504]	[-2.649]	[-0.979]
Human R.M score				0.133***	0.157***	0.085*
				[3.568]	[2.607]	[1.945]
lnK	0.263***	0.283***	0.298***	0.264***	0.29***	0.299***
	[7.731]	[5.952]	[6.469]	[7.979]	[6.172]	[6.642]
lnL	0.785***	0.766***	0.712***	0.775***	0.743***	0.702***
	[18.270]	[12.699]	[11.909]	[18.434]	[12.255]	[12.068]
Collage graduate	0.616***	0.657***	0.727***	0.601***	0.679***	0.7***
	[4.805]	[3.833]	[4.397]	[4.756]	[3.847]	[4.330]

Marginal and Average Productivity

- **marginal productivity of labor higher in Japan,**
  marginal productivity of capital higher in Korea.
  -> In whole sample, manufacturing, service, large, SMEs
  -> In separate regressions or in merged regressions

- **But average productivity of labor high in Korea;**
  average productivity of capital higher in Japan;
  -> in whole sample, manuf. Service, and large and SMEs

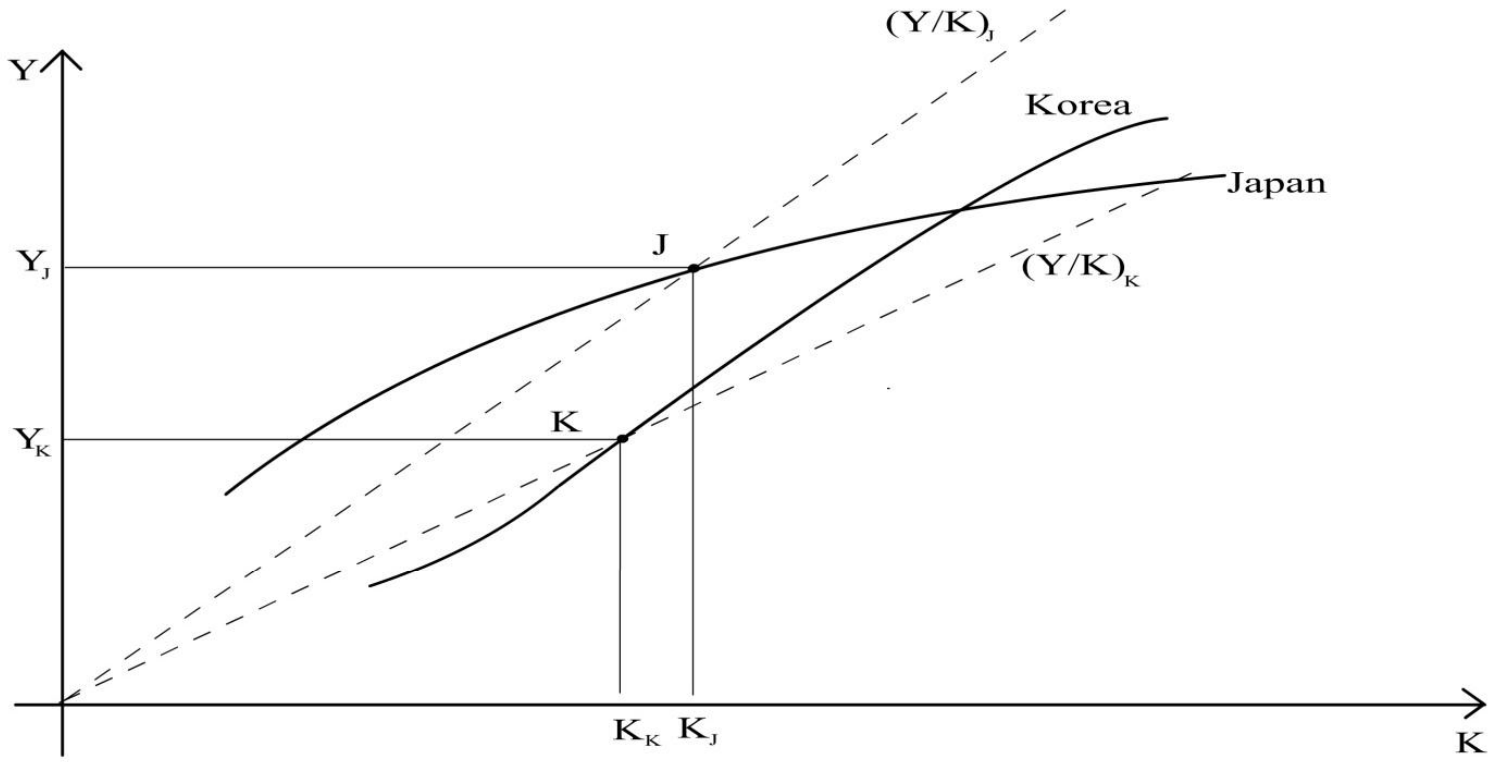
- **They (Japan and Korea) are on different production functions**



Average : $\frac{Y_K}{L_K} > \frac{Y_J}{L_J}$ Marginal : $\frac{dY_K}{dL_K} < \frac{dY_J}{dL_J}$

Basic : $L_K < L_J$, $Y_K < Y_J$, $(\frac{K}{L})_K > (\frac{K}{L})_J$

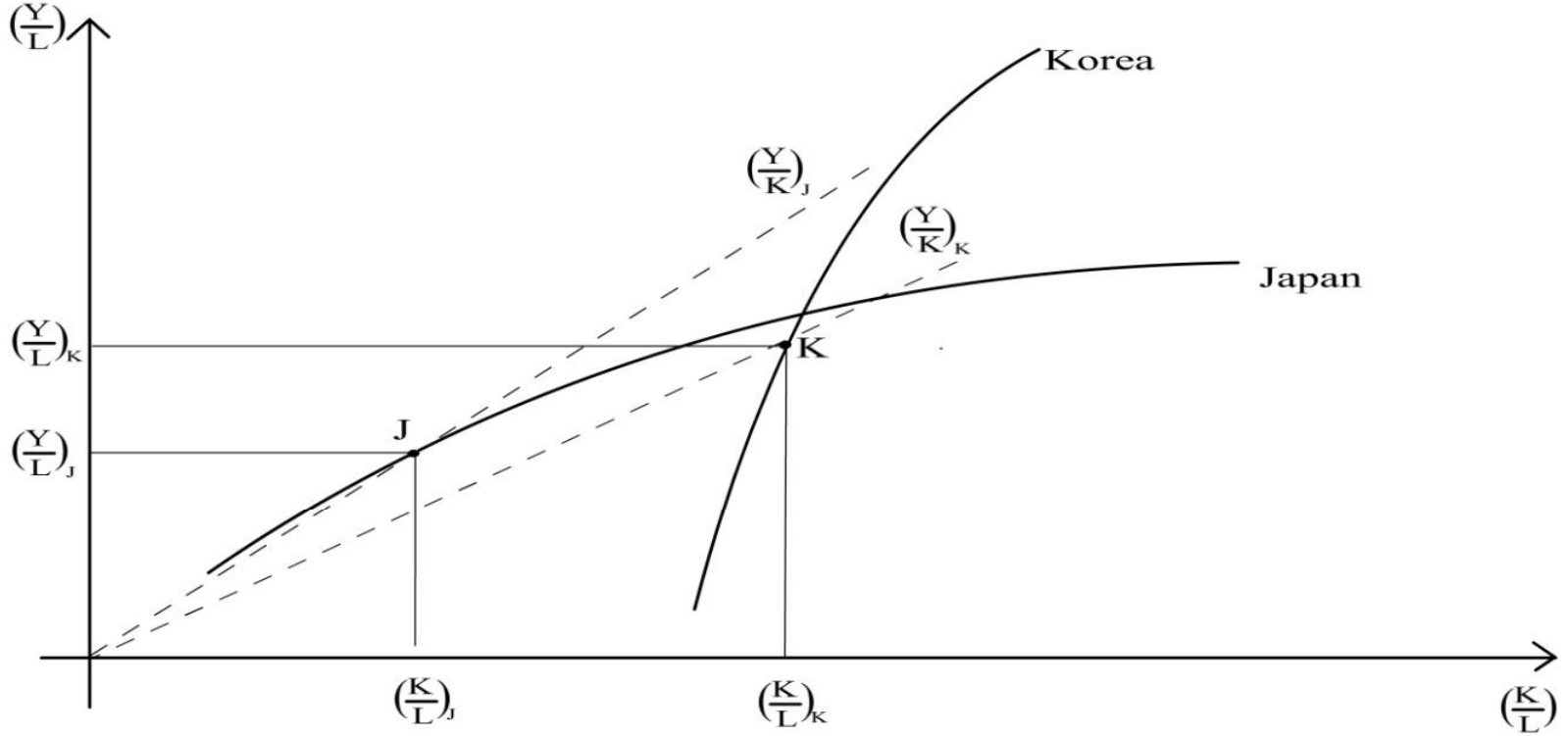
Figure 1 : Labor-to-output function of Japan & Korea



Average : $\frac{Y_K}{K_K} < \frac{Y_J}{K_J}$ Marginal : $\frac{dY_K}{dK_K} > \frac{dY_J}{dK_J}$

Basic : $K_K < K_J$, $Y_K < Y_J$

Figure 2 : Capital-to-output function of Japan & Korea



Average : $\frac{(Y/L)_K}{(K/L)_K} < \frac{(Y/L)_J}{(K/L)_J} = (\frac{Y}{K})_K < (\frac{Y}{K})_J$ Marginal : $\frac{d(Y/L)_K}{d(K/L)_K} > \frac{d(Y/L)_J}{d(K/L)_J}$

Basic : $(\frac{K}{L})_K > (\frac{K}{L})_J$, $(\frac{Y}{L})_K > (\frac{Y}{L})_J$

Figure 3 : Capital-labor ratio to output-labor ratio function of Japan & Korea

5. Overall Efficiency: Japan vs. Korea : Results with Korean dummy

Korean dummy added as a shift term:

minus and significant:

-> lower efficiency of the Korean firms

But, that significance dissappears when the cross term of the Korean dummy with capital and labor are included

-> Any efficiency difference comes not from technical efficiency but from factor efficiency

Impact of Mgt Practices (HR scores) remains

. Estimation Results Using All Samples (2006-2008) with and without Korean dummies

lnVA	(2)	(4)	(6)	(8)
Average score	0.068**	0.004		
	[2.116]	[0.082]		
Average score × 1(Korea)		0.086		
		[1.362]		
Org. score			-0.063*	-0.081*
			[-1.872]	[-1.852]
Org. score × 1(Korea)				0.029
				[0.438]
Human R.M score			0.121***	0.08**
			[4.241]	[2.115]
Human R.M score × 1(Korea)				0.05
				[0.889]
Organization reform	-0.071*	-0.058	-0.02	-0.009
	[-1.951]	[-1.081]	[-0.531]	[-0.164]
Organization reform × 1(Korea)		-0.031		-0.037
		[-0.424]		[-0.489]
1(Korea)	-0.246***	-0.649	-0.242***	-0.522
	[-6.054]	[-1.353]	[-5.981]	[-1.094]
lnK	0.231***	0.191***	0.231***	0.191***
	[15.474]	[12.101]	[15.690]	[12.228]
lnK × 1(Korea)		0.122***		0.123***
		[3.709]		[3.792]
lnL	0.742***	0.774***	0.736***	0.769***
	[33.897]	[30.231]	[33.836]	[29.787]
lnL × 1(Korea)		-0.063		-0.07
		[-1.282]		[-1.438]
Collage graduate	0.499***	0.361***	0.501***	0.375***
	[6.436]	[4.048]	[6.473]	[4.155]
Collage graduate × 1(Korea)		0.288**		0.248*
		[2.058]		[1.788]

Estimation Results in the Manufacturing Sector (2006-2008)

lnVA	(2)	(4)	(6)	(8)
Average score	0.026	-0.013		
	[0.645]	[-0.188]		
Average score		0.052		
×1(Korea)		[0.624]		
Org. score			-0.081 *	-0.194 ***
			[-1.744]	[-2.694]
Org. score				0.14
×1(Korea)				[1.531]
Human R.M score			0.094 ***	0.157 ***
			[2.595]	[2.596]
Human R.M score				-0.073
×1(Korea)				[-0.969]
Organization reform	-0.059	0.015	-0.012	0.173
	[-1.224]	[0.128]	[-0.243]	[1.470]
Organization reform		-0.093		-0.219 *
×1(Korea)		[-0.723]		[-1.694]
1(Korea)	-0.37 ***	0.142	-0.369 ***	0.061
	[-7.813]	[0.189]	[-7.839]	[0.082]
lnK	0.29 ***	0.282 ***	0.291 ***	0.286 ***
	[8.344]	[6.406]	[8.614]	[6.636]
lnK × 1(Korea)		0.015		0.012
		[0.237]		[0.205]
lnL	0.735 ***	0.767 ***	0.726 ***	0.746 ***
	[16.977]	[13.022]	[17.182]	[12.604]
lnL×1(Korea)		-0.053		-0.042
		[-0.637]		[-0.513]
Collage graduate	0.721 ***	0.674 ***	0.706 ***	0.704 ***
	[5.671]	[4.178]	[5.658]	[4.202]
Collage graduate		0.051		-0.007
×1(Korea)		[0.225]		[-0.033]

Estimation Results in the Service Sector (2006-2008)

lnVA	(2)	(4)	(6)	(8)
Average score	0.077	0.009		
	[1.548]	[0.166]		
Average score		0.336 ***		
×1(Korea)		[3.355]		
Org. score			-0.031	-0.05
			[-0.662]	[-0.972]
Org. score				0.007
×1(Korea)				[0.065]
Human R.M score			0.108 **	0.06
			[2.368]	[1.250]
Human R.M score				0.318 ***
×1(Korea)				[2.810]
Organization reform	-0.056	-0.06	-0.019	-0.037
	[-1.024]	[-1.000]	[-0.345]	[-0.627]
Organization reform		-0.163		-0.089
×1(Korea)		[-1.144]		[-0.634]
1(Korea)	0.134 *	0.148	0.137 *	0.285
	[1.828]	[0.241]	[1.903]	[0.493]
lnK	0.168 ***	0.156 ***	0.169 ***	0.157 ***
	[10.076]	[8.898]	[10.173]	[8.966]
lnK × 1(Korea)		0.145 ***		0.151 ***
		[3.958]		[4.117]
lnL	0.767 ***	0.782 ***	0.763 ***	0.778 ***
	[29.630]	[28.113]	[29.509]	[27.740]
lnL×1(Korea)		-0.129 **		-0.14 **
		[-2.099]		[-2.389]
Collage graduate	0.167 *	0.223 **	0.181 *	0.233 **
	[1.747]	[2.089]	[1.890]	[2.140]
Collage graduate		-0.312		-0.327
×1(Korea)		[-1.417]		[-1.548]

Estimation Results in Large Firms (2006-2008)

lnVA	(2)	(4)	(6)	(8)
Average score	0.064	-0.013		
	[1.479]	[-0.259]		
Average score		0.17 *		
×1(Korea)		[1.920]		
Org. score			-0.032	-0.087 *
			[-0.682]	[-1.787]
Org. score				0.19
×1(Korea)				[1.433]
Human R.M score			0.09 **	0.073
			[2.115]	[1.579]
Human R.M score				-0.018
×1(Korea)				[-0.160]
Organization reform	-0.038	0.006	0.008	0.064
	[-0.602]	[0.077]	[0.130]	[0.805]
Organization reform		-0.11		-0.171
×1(Korea)		[-0.858]		[-1.213]
1(Korea)	-0.24 ***	0.158	-0.236 ***	0.122
	[-3.978]	[0.174]	[-3.931]	[0.135]
lnK	0.315 ***	0.273 ***	0.312 ***	0.271 ***
	[13.523]	[12.898]	[13.443]	[13.083]
lnK × 1(Korea)		0.156 **		0.158 **
		[2.378]		[2.251]
lnL	0.614 ***	0.669 ***	0.614 ***	0.667 ***
	[18.981]	[20.236]	[19.131]	[20.190]
lnL×1(Korea)		-0.162 *		-0.159 *
		[-1.820]		[-1.742]
Collage graduate	0.443 ***	0.282 ***	0.441 ***	0.283 ***
	[4.490]	[2.662]	[4.499]	[2.681]
Collage graduate		0.417		0.416
×1(Korea)		[1.491]		[1.494]

Estimation Results in Small and Medium Sized Firms (2006-2008)

lnVA	(2)	(4)	(6)	(8)
Average score	0.031	0.013		
	[0.715]	[0.185]		
Average score		0.009		
×1(Korea)		[0.109]		
Org. score			-0.082 *	-0.084
			[-1.871]	[-1.162]
Org. score				-0.025
×1(Korea)				[-0.278]
Human R.M score			0.102 ***	0.089
			[2.887]	[1.567]
Human R.M score				0.029
×1(Korea)				[0.408]
Organization reform	-0.075 *	-0.045	-0.033	-0.003
	[-1.766]	[-0.627]	[-0.761]	[-0.044]
Organization reform		-0.052		-0.048
×1(Korea)		[-0.574]		[-0.518]
1(Korea)	-0.176 ***	1.82 *	-0.174 ***	2.099 **
	[-3.170]	[1.827]	[-3.137]	[2.014]
lnK	0.172 ***	0.116 ***	0.173 ***	0.118 ***
	[9.768]	[5.485]	[9.916]	[5.559]
lnK × 1(Korea)		0.162 ***		0.165 ***
		[4.576]		[4.719]
lnL	0.757 ***	0.848 ***	0.731 ***	0.829 ***
	[17.400]	[16.766]	[16.467]	[16.001]
lnL×1(Korea)		-0.249 ***		-0.27 ***
		[-2.907]		[-3.069]
Collage graduate	0.687 ***	0.557 ***	0.691 ***	0.587 ***
	[6.169]	[3.707]	[6.215]	[3.892]
Collage graduate		0.171		0.12
×1(Korea)		[0.963]		[0.680]

6. Concluding Remarks (1)

(1) Interview surveys on management practices in 573 Japanese and 350 Korean firms.

-> constructed the measure of management practices.

(1) Average management scores in Japan are higher than in Korea;

-> distribution of the scores in Japan is significantly to the right than that in Korea.

(3) Estimating a production function with management scores;

-> (whole sample) better firm performance is correlated with high management score.

6. Concluding remarks (2)

(4) When we divide the average management score into an organizational management score and a human resource management score, the latter score is positively associated with firm performance.

(5) marginal productivity of labor (of capital) higher in Japan (in Korea); average prod. of labor (of capital) higher in Korea (in Japan),

-> They are on different production functions

(6) Japan-Korea gap disappears with the cross term of the Korean dummy with capital and labor

-> Any efficiency difference comes not from technical efficiency but from factor efficiency

A Puzzle and Interpretation: Japan vs. Korea :

Japan: MP*l*/MP*k* = (0.778/0.185) = 4.21 (total), 2.51 (large firm)

labor more productive, relatively (despite lower K/L)

Korea: MP*l*/MP*k* = (0.720/0.285) = 2.53 (total), 1.58 (large firm)

capital more productive, relatively (despite higher K/L)

-> A puzzle?

Japan facing labor shortage and aging, pursued optimization of labor uses: labor-saving growth;

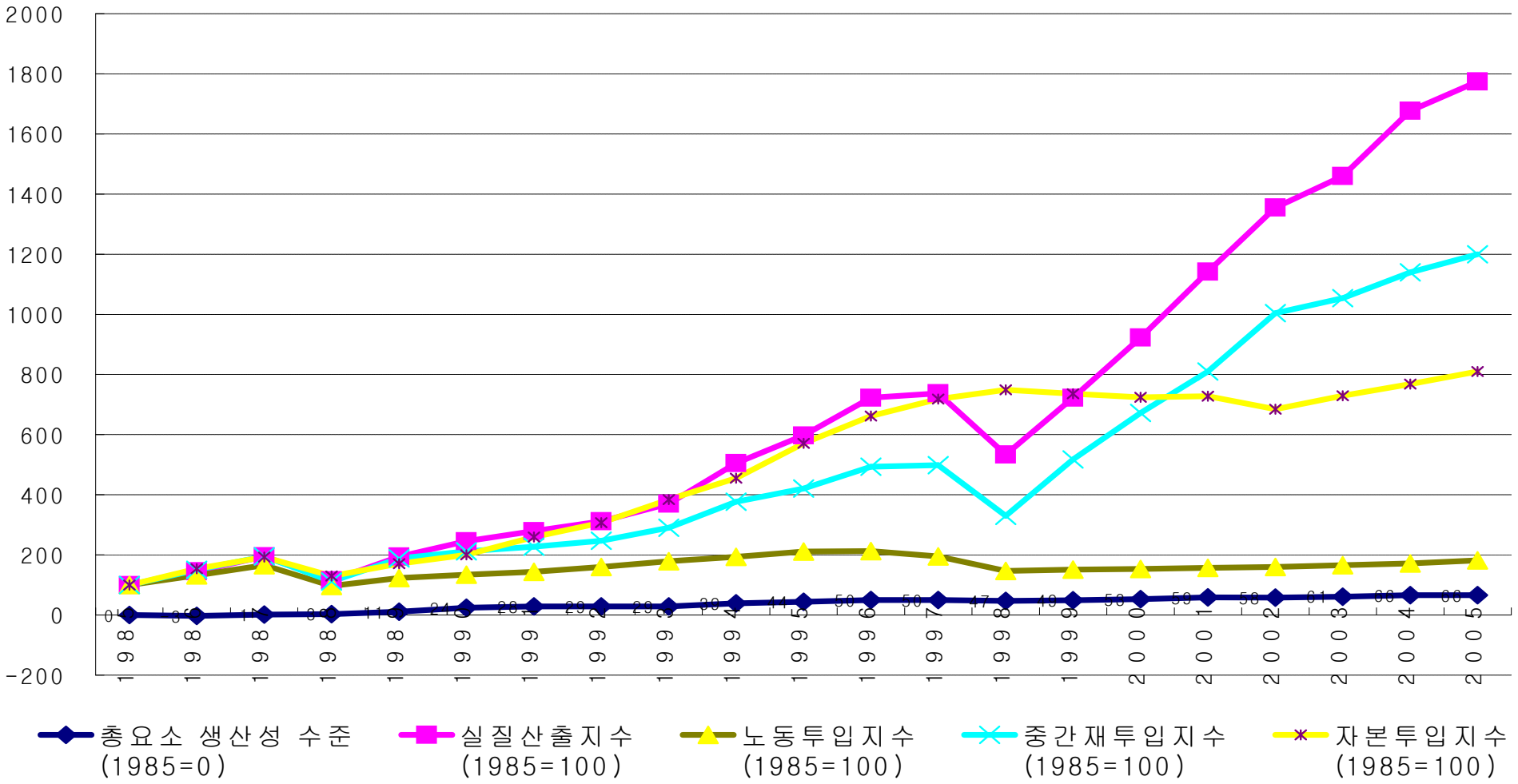
K/L 2 times over 1985-2005

Korea facing aggressive labor, relied on capital for growth (renovating and updating capital);

(new) investment-driven growth;

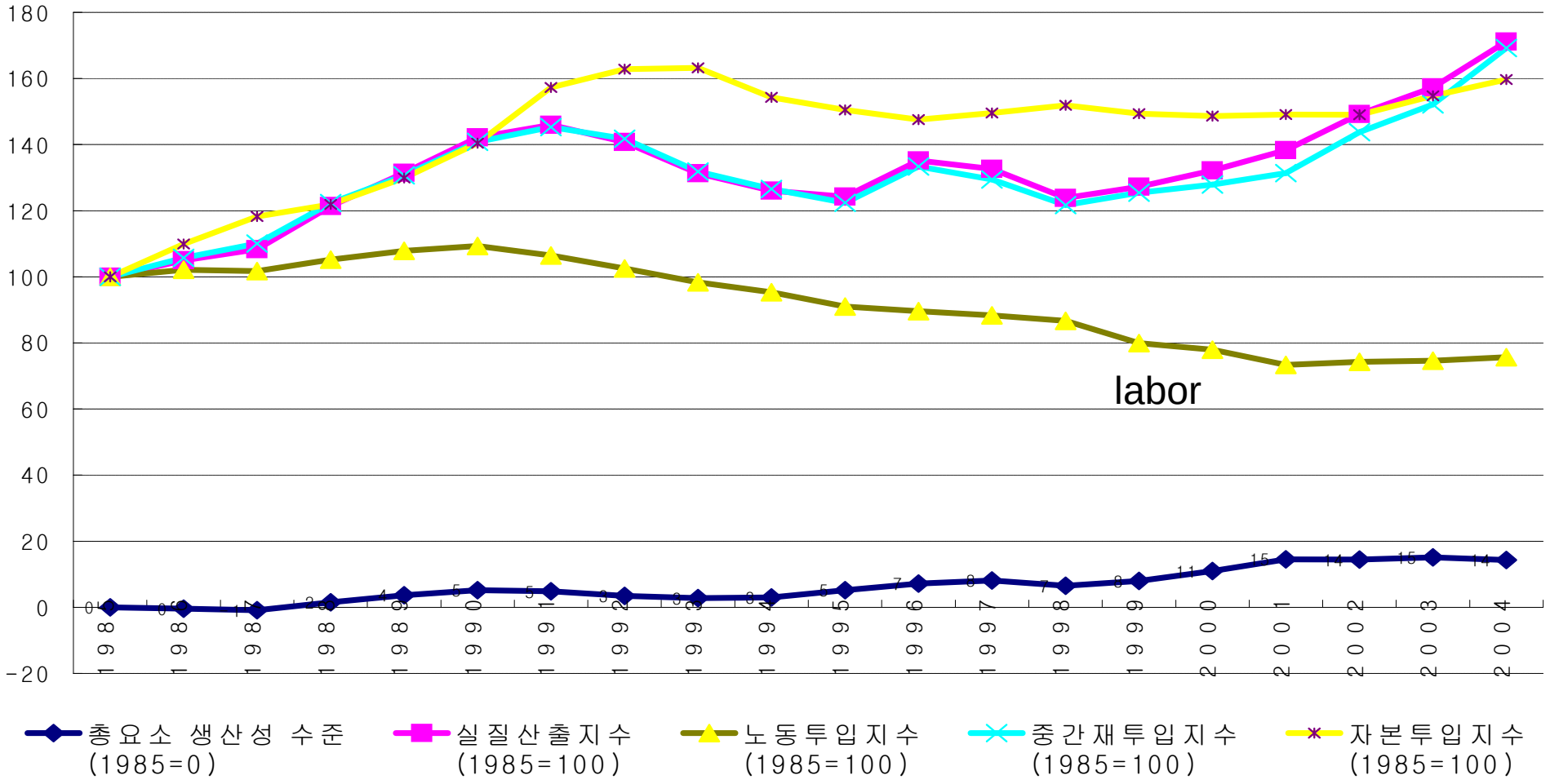
K/L 4 times over 1985-2005

Input-output trend in Korea: Auto top 5 : labor doubled, capital 8 times, K/L 4times, output 18 times



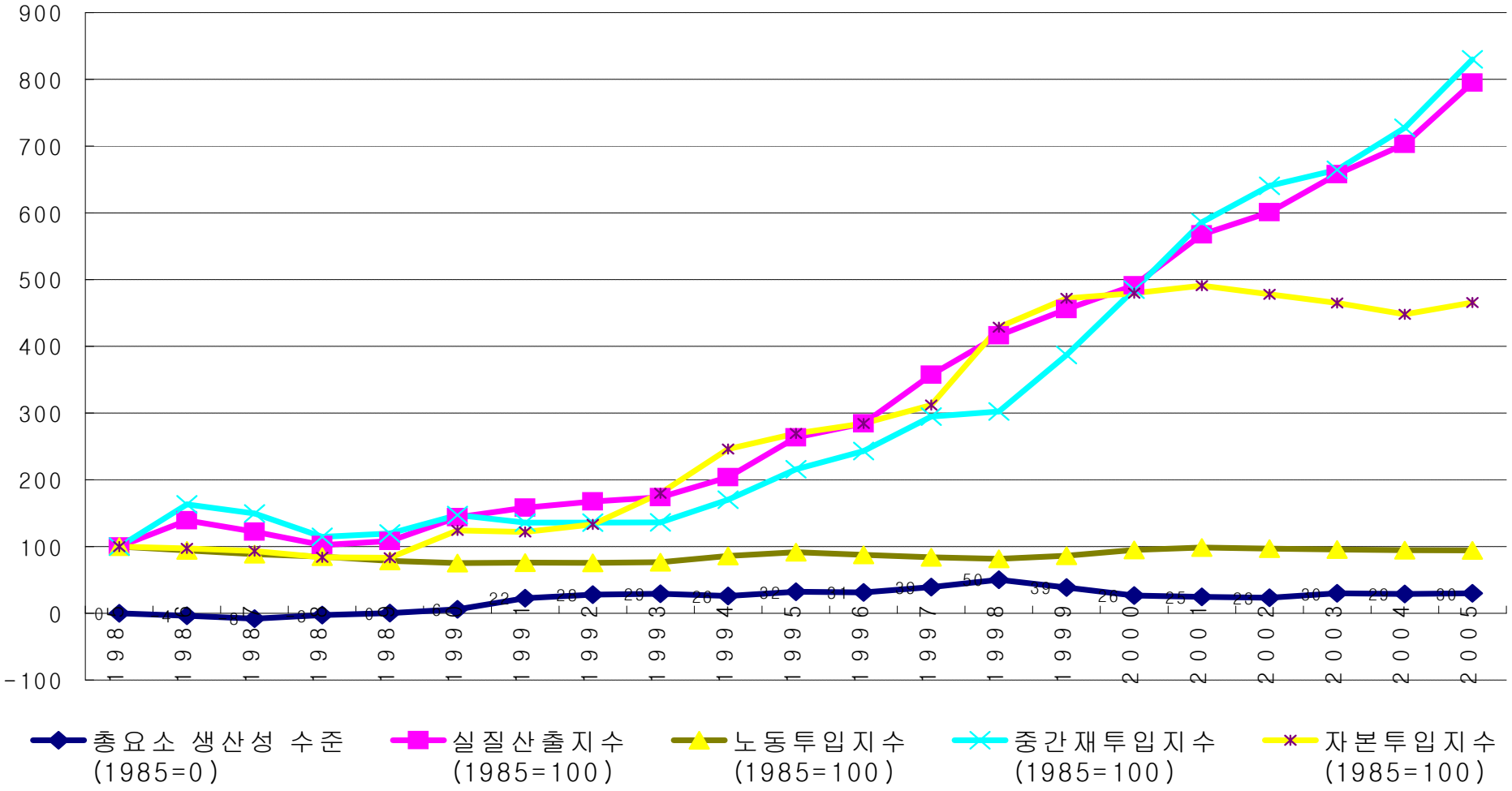
TFP real output labor intermediate capital

Input-output trend in Japan : Auto top 5 :
labor 20% less, capital slow (1.8times), K/L 2times, output slow



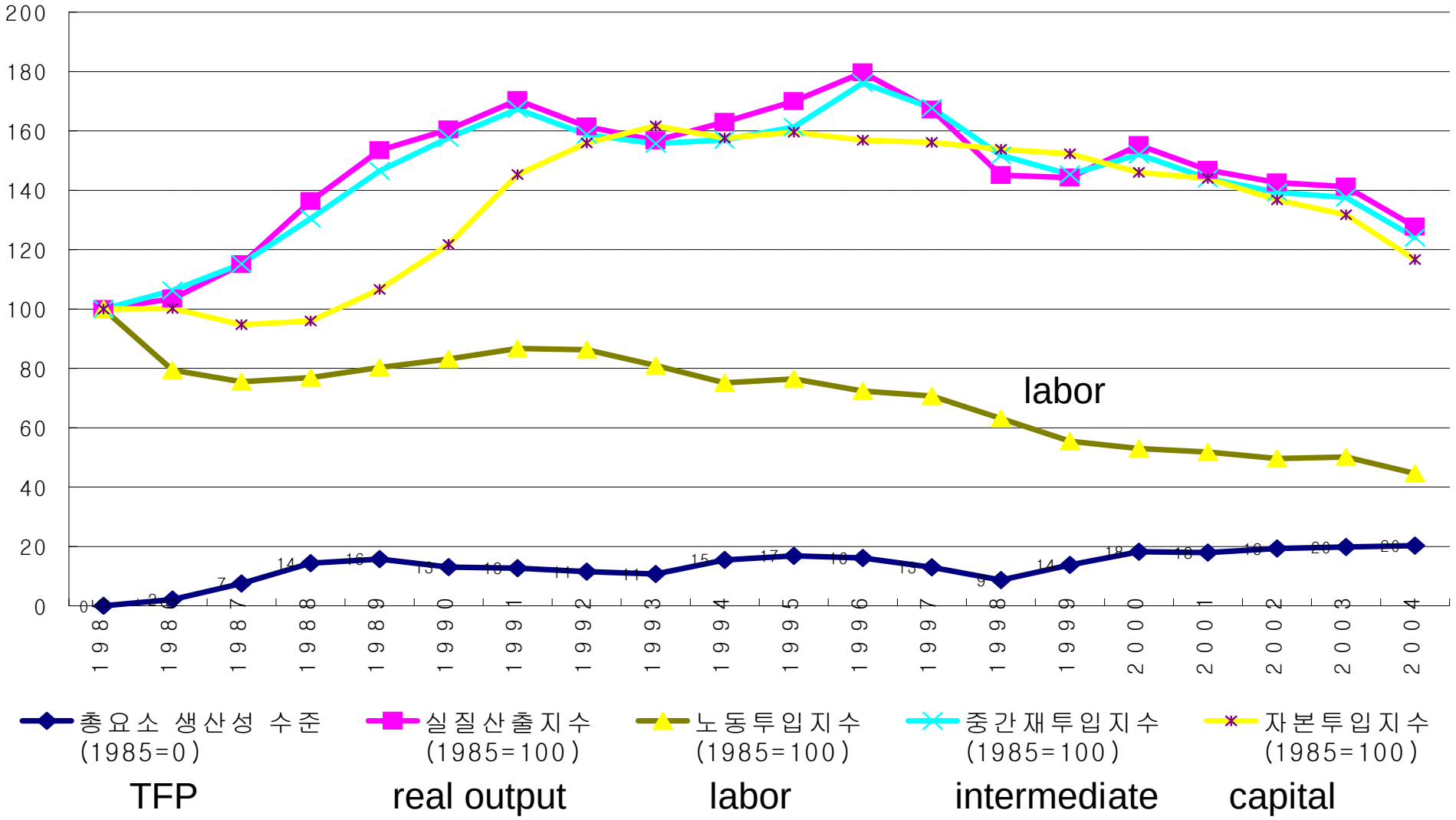
TFP real output labor intermediate capital

Input-output trend in Korea: shipbuilding top 5 : stagnant labor, capital 5 times, K/L 5times, output 8 times



TFP real output labor intermediate capital

Input-output trend in Japan : shipbuilding top 5 : labor halfed, capital (20%+)and output declining since mid 90s



7. Future Research Agenda

- **The second interview survey in Japan and Korea which started in last November.**

(1) Focusing on listed firms in the manufacturing sector.

(2) Interviewing production system as well as organizational management and human resource management.

(3) Examining the impact of management practices on firm value in the stock market.

Thank you for your attention!