

March 2, 2006

Are Japanese Companies Closed in Their Local Procurement Practices?

A Case Study of Auto Makers Operating in China

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Japanese manufacturing companies operating overseas are sometimes criticized by their host countries for not being positive about purchasing parts and materials from indigenous firms. However, the selection of vendors is liable to be influenced by the technological capability of suppliers as well as the existence of an information network, which develops only after a long period of operation in the host country. This study is a statistical analysis of automobile makers operating in China to ascertain whether Japanese enterprises are “closed” in their procurement practices even after these factors are taken into account.

“Rational” if Based on an Assessment of Technological Capability

There has been persistent criticism in host countries, which expect technology transfer through transactions between foreign companies and indigenous enterprises, that Japanese companies operating overseas are not positive about procurement from indigenous firms and that their transactions are primarily with Japanese parts makers. Japanese companies have the disadvantage of not having formed sufficient networks with indigenous parts makers, because they have not operated overseas as long as their Western counterparts. However, it has often been pointed out that practices unique to Japanese companies, such as heavy trading with affiliate, or “keiretsu” companies, stand in the way of procurement from indigenous firms.

It could be argued that such practices result from the high marks that Japanese assemblers give to the technological capability (high productivity) of Japanese parts makers and that this is a rational decision. The question is whether there are some forms of “closed” business practice on the part of Japanese companies, even after taking into account the technological capabilities of parts makers and the periods of host-country operations by assemblers.

This study has analyzed whether or not there are differences in the modes of local procurement by Japanese, U.S. and European auto assemblers operating in China. It forms part of “Multinational Firms’ Strategies in East Asia” (Organizer, Kyoji Fukao, Professor, Hitotsubashi University), a study being undertaken by JCER.

Twenty-eight Japanese, U.S. and German Auto Makers Examined

Data on whether there were transactions between the approximately 350 automobile partsmakers and the 28 automobile assemblers operating in China, as well as the attributes of each firm were obtained from two types of statistics found in China Automotive Industry Yearbook 2004 and China Auto Parts Supplier Directory 2004. Then, a probit analysis was conducted to find out the degree of influence of the following explanatory variables on the approximately 9,800 trading relationships (350 x 28) that were observed.

Variables that represent the attributes of parts suppliers are (1) nationalities (Japanese, U.S. and German); (2) labor productivity (or capital-labor ratio); (3) amount of assets; (4) location (Hubei, Tianjin, Jiangsu and Jilin), and others. The distance between the parts supplier and the assembler and the number of years of operation in China of the assembler were also used as variables. Manufacturers' nationality and location are represented by a dummy variable that takes the value 1 if relevant enterprise and 0 otherwise.

The parts suppliers in the sample include a considerable number of Chinese enterprises as well as Japanese, U.S. and European firms, while assemblers do not include Chinese enterprises. The key lies in the coefficient of the dummy variable representing the nationality, after taking into account the scale and productivity of the parts supplier. The coefficient is obtained by using Chinese parts suppliers as the base. If it is positively (negatively) significant, it means that the Japanese, U.S. or European nationality of the parts supplier is contributing to an increase (or a decline) in the probability of transactions with the assemblers, as compared with Chinese parts suppliers. Then the magnitude of the coefficient in comparison with U.S. and German dummies will be examined.

Like labor productivity, the capital-labor ratio is a proxy variable of the technological capability of a parts supplier. The location dummy was used to examine the benefit of being located in an automotive-industry cluster, or the effect of economies of agglomeration.

“Something” Other Than Productivity and Years of Operation Is at Work

Table 1 shows the results of probit analysis about determining factors of Japanese companies' procurement practices. The coefficient for nationality (Japanese) is very high compared with American or German assemblers. Table 2, on the other hand, shows the results when the dependent variable is the existence or non-existence of trading relations with German or American assemblers. The coefficient for the

Japanese nationality is negative. Examining the magnitude of the nationality dummy when the parts supplier and assembler are of the same nationality, unlike in the case of Japanese companies, the trend that transactions are concentrated in the same-country companies is not observed in the case of U.S. or German companies.

Table 1. Procurement Behavior of Japanese Auto Makers

(Figures are coefficients obtained from estimations based on a Probit Model.

*Denotes the level of significance of the coefficient)

Explanatory variables		Combination of variables that explain transactions with Japanese assemblers				
		Model 1	Model 2	Model 3	Model 4	Model 5
Constant term		-1.63 ***	-1.69 ***	-1.70 ***	-1.69 ***	-1.69 ***
Parts supplier attributes						
Nationality (dummy variable)	Japanese	0.89 ***	1.34 ***	1.47 ***	1.32 ***	1.45 ***
	U.S.	0.26	0.26	0.22	-0.06	0.18
	German	0.37 *	0.36 *	0.35 *	-0.06	0.01
Productivity	Labor productivity	-0.14	0.06		-0.04	
	Capital-labor ratio			0.06		0.03
Labor productivity	Japanese only		-1.49 *		-1.36	
	U.S. only				2.92	
	German only				3.86 **	
Capital-labor ratio	Japanese only			-0.94 *		-0.09 *
	U.S. only					0.07
	German only					0.78 *
Amount of capital		3.32	2.48	1.97	2.61	2.19
Location (dummy variable)	Hubei	-0.73 **	-0.74 **	-0.76 **	-0.73 **	-0.75 **
	Tianjin	-0.02	-0.05	-0.06	-0.03	-0.06
	Jiangsu	-0.41	-0.43 *	-0.42 *	-0.36	-0.38
	Jilin	-0.22	-0.29	-0.23	-0.25	-0.21
Distance from the assembler						
Distance		-0.78 ***	-0.69 ***	-0.74 ***	-0.69 ***	-0.73 ***
Square of distance		0.18 ***	0.15 **	0.18 ***	0.15 **	0.17 ***
Distance (Japanese part suppliers only)			-0.53	-0.43	-0.52	-0.43
Square of distance (Japanese part suppliers only)			0.17	0.12	0.17	0.12
Assembler s years of operation in China		1.53	1.63 *	1.49	1.67 *	1.49
No. of samples		4152	4152	4152	4152	4152
McFadden s coefficient of determination		0.10	0.11	0.10	0.12	0.10

Notes: ***: Significant at the 1 percent level; **: Significant at the 5 percent level; and *: Significant at the 10 percent level.

Table 2. Procurement Behavior of German and U.S. Auto Makers

(Figures are coefficients obtained from estimations using the Probit Model
*Denotes the level of significance of the coefficient)

Explanatory variables		Transactions with German assemblers			Transactions with U.S. assemblers		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Constant term		-2.38 ***	-1.38 ***	-1.41 ***	-0.27 *	-0.31 **	-0.37 **
Parts supplier attributes							
Nationality (Dummy variable)	Japanese	-0.42	-0.22	-0.22	-0.82 *	-0.81 *	-0.82 *
	U.S.	0.93 ***	0.52 ***	0.48 ***	0.69 ***	1.18 ***	1.56 ***
	German	1.15 ***	0.80 **	0.84 **	0.67 ***	0.67 ***	0.64 ***
Productivity	Labor productivity	0.70 **	0.38 **		0.40 *	0.39 *	
	Capital-labor ratio			0.13 **			0.15 **
Labor productivity	Home country only		1.33			0.23	
Capital-labor ratio	Home country only			0.15			-1.19
Amount of capital		-2.88	-1.08	-1.54	-9.79	-9.91	-9.43
Location (Dummy variable)	Hubei	-0.36	-0.22	-0.28	-0.58 **	-0.58 **	-0.64 **
	Tianjin	-1.30 ***	-0.66 ***	-0.67 ***	-0.18	-0.18	-0.23
	Jiangsu	-0.00	0.03	0.01	0.18	0.18	0.16
	Jilin	-0.12	-0.11	-0.07	-0.83 **	-0.84 **	-0.55 ***
Distance from the assembler							
Distance		-2.47 ***	-1.31 ***	-1.27 ***	-1.47 ***	-1.41 ***	-1.35 ***
Square of distance		0.75 ***	0.39 ***	0.38 ***	0.34 ***	0.32 ***	0.31 ***
Distance (home country suppliers only)			-3.07 ***	-3.09 ***		-0.68	-0.60
Square of distance (home country suppliers only)			1.47 ***	1.48 ***		0.15	0.10
Assembler's years of operation in China		12.92 ***	7.18 ***	7.24 ***	-5.00 **	-5.05 **	-4.68 **
No. of samples		1384	1384	1384	1730	1730	1730
McFadden's coefficient of determination		0.14	0.16	0.16	0.19	0.20	0.18

Notes: ***: Significant at the 1 percent level; **: Significant at the 5 percent level; and *: Significant at the 10 percent level.

The results of these analyses lead to the conclusion that Japanese auto assemblers operating in China are concentrating their sources of parts to Japanese suppliers for factors which cannot be explained by the level of productivity of parts suppliers or the number of years of operation of the assemblers in China. Unlike U.S. or European companies, Japanese assemblers do not appear to be basing their purchasing decisions on the level of productivity of parts suppliers. It is possible that factors other than economic rationality are at work here.

Even though the results of these analyses are only provisional, they nevertheless attest to the peculiar character of the procurement practices of Japanese companies. We hope to make further analyses of the impact of these procurement practices peculiar to Japanese companies on corporate profitability, as well as to further examine the

reliability of these results by scrutinizing other explanatory variables that affect corporate procurement behavior.

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