U.S. and Japanese Direct Investment in China:

An Econometric Examination

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1. Introduction

Japan, the United States and China are the three largest economies in the Pacific Basin. Their economic relationships are of immense importance to the region and to the world. Since the opening up of China in 1979, its economic importance has grown rapidly. China has also become a magnet for foreign direct investment. In fact, in 2002, China was the largest recipient of foreign direct investment in the world, with investment inflows of about US$52 billion. Given the significance of the relationships among Japan, the United States and China and given the prominence of foreign direct investment in China, we propose to provide an econometric study of U.S. and Japanese direct investment in China.

More specifically, the aim of this paper is to examine the locational determinants of Japanese and U.S. direct investment in different regions and provinces of China. An examination of the geographic patterns of U.S. and Japanese investors is important for several reasons. First, despite the high growth rates of China, it is suffering from huge income inequality across regions. Such inequities can cause social and political unrest and ultimately can cause damage to the economy. The Chinese government is trying hard to lure more foreign direct investment to the interior and western parts of the country. Thus, an understanding of the factors behind why U.S. and Japanese firms locate in different regions may help in reducing income disparity in the country. Second, foreign direct investment, including U.S. and Japanese direct investment, contributes to economic growth in China. The locational preferences of these investors can help us understand the growth pattern of different regions of China. Third, factors explaining why U.S. and Japanese investors are attracted to different parts of China can also provide hints of whether China will remain a favorite destination for investment. For example, if U.S. and Japanese investors are attracted to regions of China where the domestic market is large, then a growing local market is essential to attract these multinationals. For these and other reasons, we will provide an empirical study of these issues. In the next section, we will discuss the econometric model to be estimated. We have a regional data set of U.S. and Japanese direct investment in China from 1990-2001. So in section 3, we will discuss the panel estimation that we will use. In section 4, we will present the estimation results. We will also provide some interpretation of these econometric results. Section 5 concludes.

2. Model specification

The analysis in this section is an attempt to assess the relative importance of factors in determining the flow of investment into each region of China from Japan and the United States for the period 1991 – 2001.

We start with the basic model that is derived from a reduced form specification for demand for inward direct investment. Let FDI_{ij} be the foreign direct investment from country i to region j. Then, the relationship between FDI and its determinants can be written as $FDI_{ij} = f(X_{j},)$, where X_j is a vector of variables that captures the overall attractiveness of region j to FDIs. The variables included in this vector are exclusively dependent on the regional characteristics of the host country.

The basic regression model above can be written as a linear specification of the following form:

$$\ln(FDI_{j,t}) = \alpha_j + \beta_1 \ln(GDP_{j,t}) + \beta_2 \ln(LAGWAGE_{j,(t-1)}) + \beta_3 \ln(HE_{j,t}) + \beta_4(RAIL_{j,t}) + \beta_5(WATER_{j,t}) + \beta_6(HIGHROAD_{j,t}) \text{ or } \beta_6(MEDROAD_{j,t}) + \beta_7(SEZ_{j,t}) + \beta_8(OCC_{j,t}) + \beta_9 \ln(ETDZ_{j,t}) + \beta_{10} \ln(STATE_{j,t})$$

Where the subscript "j" and "t" stands for region j at period t and the variables used in this analysis are defined below.

$FDI_{i,t}$: FDI from country i to region j at time t

$GDP_{j,t}$: GDP of region j at time t

$LAGWAGE_{j,(t-1)}$: Average wage of region j at time t-1

$HE_{j,t}$: the ratio of number of students enrolled in higher education in region j to its population.

$RAIL_{j,t}$: kilometers of railway in region j per square kilometer of land mass.

$WATERWAY_{j,t}$: kilometers of inland waterway in region j per square kilometer of land mass.

$HIGHROAD_{j,t}$: kilometers of high quality roadway in region j per square kilometer of land mass.

$MEDROAD_{j,t}$: kilometers of medium quality roadway in region j per square kilometer of land mass.

$SEZ_{j,t}$: the number of Special Economic Zones in region j

$OCC_{j,t}$: the number of Open Coastal Cities in region j

$ETDZ_{j,t}$: the number of Economic and Technological Development Zone in region j.

$STATE_{j,t}$: The proportion of manufacturing output produced by State Owned Enterprises in region j.

A great deal of papers has investigated the determinants of the locational choice of FDI.[1] The above variables have been identified as important factors in much of the existing literature.

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[1]Examples of such works are Lunn (1980), Kravis and Lipsey (1982), Owen (1982), Scaperlands and Balough (1983), Luger and Shetty (1985), Maki and Meredith (1986), Culem (1988), Wheeler and Mody (1991), Coughlin, Terza, and Arromdee

In order to examine the importance of size of the local market, Gross Domestic Product (GDP) of each region is used in the analysis. The importance of market size has been confirmed in many empirical studies. For the foreign investors, the size of host market, which represents the host country's economic condition and/or potential demand for their output, should be important element in their FDI decision-makings. As the variable is used as an indicator for market potential for the products of foreign investors, the expected sign for the variable is positive. It is also expected that the more foreign investors target the local market (instead of exporting the produced goods), the larger the magnitude of the positive coefficient.

Since labor cost is a major component of the cost function, the wage variables are frequently tested in the literature. A high nominal wage, other things being equal, deters inward FDI. This must be particularly so for the firms which engage in labor-intensive production activities. Therefore, conventionally, the expected sign for this variable is negative. However, regional wages may be high because of high local inflows of FDI. To avoid the potential simultaneity bias between investment and wages, we elect to use in our specification the nominal wage lagged one period.[2]

'HE' is included in the equation to capture the average level of human capital in each region. Although the expected sign of the variable is positive, the importance of this variable would be higher for technology- and capital-intensive industries than for labor- intensive industries. Furthermore, it is expected that the coefficient be larger for

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(1991), Friedman, Gerlowski, and Silberman (1992), Woodward (1992), Smith and Florida (1993), Hines (1996). For the case of China, the studies include Cheng and Zhao (1995), Head and Ries (1996), and Cheng and Kwan (2000)

[2]We would like to thank a referee for suggesting the use of the lagged wage as an explanatory variable to solve the simultaneity bias.

Japanese firms, which practice job rotation and demand their workers to make decisions at the shop floors (Aoki 1988, Friedman and Fung 1996).

The hypothesis that well-developed regions with superior transportation facilities are more attractive to foreign firms is examined by including the four proxies, density of inland waterway, the proxy, density of high quality roadway medium quality roadway, and railway. The foreign firms that are unfamiliar with regional production condition, especially in developing country like China, may have preference for better-developed regions. Since the correlation coefficient calculated between the two roadway variables is relatively significant at 0.79, they are not used in the regression analysis simultaneously. Therefore, the model is consisted of two sets of equations: one that includes the high quality roadway variable together with other explanatory variable and the other that includes medium quality roadway.

The model also includes three variables to examine the effects of policy incentives to attract FDI in SEZs (Special Economic Zones), OCCs (Open Coastal Cities), and ETDZs (Economic and Technological Development Zones). These areas are granted preferential tax and other policies and can deal flexibly with foreign businesses. The expected signs for all variables are positive.

The last variable, ‘STATE’, is included to test the degree of internal reforms measured by the share of the State owned enterprises (SOEs) in manufacturing output in each region. China’s economic reform has transformed the economy from a centrally planned economy dominated by the state sector to a market-oriented economy. Although the relative importance of SOEs in manufacturing output has been decreasing over time as economic liberalization in China proceeded, the degree of liberalization can vary from one region to another. All things being equal, the foreign firms may prefer the region with high degree of internal reforms, which creates better environment for their business.

The detailed explanation for the designation of each policy is given in Appendix A. The data sources are explained in Appendix B.

3. Panel Estimation

The estimation used to analyze the model above is the random effects model. The formulation of the model can be specified as follows.

$$y_{it} = \alpha + \beta' x_{it} + \varepsilon_{it} + u_i$$

Where the disturbance term, ε_{it} is associated with both time and the cross sectional units, which are regions in this analysis, and u_i is the random disturbance that is associated with ith region and is assumed to be constant through time. In another words, the region specific constant terms are assumed to be randomly distributed across cross-sectional units. The further assumption made for the model is as follows: $E[\varepsilon_{it}] = E[u_i] = 0$, $Var[\varepsilon_{it}] = \sigma^2_\varepsilon$, $Var[u_i] = \sigma^2_u$, $Cov[\varepsilon_{it}, u_j] = 0$ for all i, t, and j, $Cov[\varepsilon_{it}, \varepsilon_{js}] = 0$ if $t \neq s$ or $i \neq j$, $Cov[u_i, u_j] = 0$ if $i \neq j$.

The regression disturbance, w_{it}, can be written as; $W_{it} = \varepsilon_{it} + u_i$, the variance and covariance of all disturbances are; $Var[w^2_{it}] = \sigma^2 = \sigma^2_\varepsilon + \sigma^2_u$, and $Cov[w_{it}, w_{is}] = \sigma^2_{u.}$.

Therefore, the disturbances in different periods are correlated for a given i, because of their common component, u_i. The efficient estimator, then, is generalized lease squares (GLS). The two-step estimators are computed by first running ordinary least squares (OLS) on the entire sample. Then, the variance components are estimated by using the residuals from the OLS. These estimated variances are then used in the second step to compute the parameters of the model.

4. Estimation Results

Estimation results of the model for Japan and the United States are presented in Table 1 and 2, respectively.

[Insert Table 1 and Table 2]

The size of nominal regional GDP is an important factor for both countries in this analysis. The coefficients for the variable are all positive and statistically significant at the 1% level, confirming the hypothesis that the amount of FDI inflow is positively related to the host region's market size. Furthermore, the magnitude of the coefficient of the variable is one of the largest for both FDI sources among all variables examined in the analysis. Table 1 and 2 indicate that a one- percent increase in regional GDP is associated with a 0.81 and 0.93 percentage increases in Japanese direct investment, 0.68 and 0.78 percentage increases in U.S. investment, depending on the different road variables incorporated in two equations. The increasing importance of local demands for Japanese FDI is consistent with the fact that almost half of Japanese affiliates in the manufacturing sector in China target the local market for the sales of their products (Fung, Iizaka, and Siu, 2002). In addition, China aims to double its 2000 GDP by the year 2010. This increase in relative market size may leads to further growth of FDI inflow from both Japan and U.S. attempting to sell their products locally.

The coefficients on the wage rate on Japanese FDI in two equations, although insignificant, demonstrate the different signs. On the other hand, the coefficient was found to be positive and significant at the 5% level for U.S. in the first equation. This contradicts with a strong negative impact of the wage in Cheng and Kwan's (2000) findings. For the foreign firms that engage in relatively labor-intensive activities, one of the motives to move their production to China is to take an advantage of cheap labor. However, the wage level may also reflect the quality of labor force. The higher wage levels may imply the highly skilled, well-trained labor force, which in high technology sector for example, may work as an incentive to inward FDI. The positive and significant coefficient for the U.S. may indicate the need for those highly skilled workers.

Although the finding of a significant impact of labor quality/education attainment on Japanese direct investment in the U.S. manufacturing sector are reported in previous studies by Woodward (1992), and Smith and Florida (1993), the same strong influence of the variable is not evidenced in the regions of China. On the other hand, some evidence of the importance of labor quality is found for the U.S., however only in the second equation. The findings generally agree with previous studies by Cheng and Zhao (1995), and Cheng and Kwan (2000) using the aggregated amount of FDI.

Among four proxies for the quality of infrastructure, it is shown that density of both high quality and medium quality roadway has generally significant positive influence on FDI inflow in China from both sources. However, closer look reveals the difference in the level of significant and the magnitude of the effect of these variables on Japanese and the U.S. direct investment. The FDI elasticities of both roadway variables of Japanese FDI are approximately 50% larger than those of the U.S. FDI. Furthermore, the medium quality roadway was found to be significant only at the 5% level for the U.S.

A similar patter applies to the railroad variable. We find the variable to have positive and significant influence on Japanese FDI at the 5% level and the 1% level in equation (1) and (2), respectively, whereas only marginal influence is reported for the U.S. at the 10% level. Furthermore, its magnitude is much larger on Japanese FDI by 55% and 150% in equation (1) and (2), respectively than on the U.S. FDI.

On the other hand, it is shown that inland waterway does not have any explanatory power in the regressions. The coefficients for both FDI sources are not only extremely small, but also bear the wrong sign.

Overall, better-developed regions with superior transportation facilities appear to be more attractive to both Japan and the U.S., although the importance of the infrastructure as a determinant of FDI in China appears to be greater on Japan. However, relative to other variables examined in the analysis, the FDI elasticities of various infrastructure variables appear to be very small. This may be due to the fact that Japan and the U.S. place more emphasis on the local market. For export oriented investors, a good roadway and railway are essential to allow their goods to reach a port or an airport for export. By comparison, domestic Chinese distribution may need fewer miles of railroad and highways. Therefore, the impact of the quality of infrastructure on Japanese and the U.S. direct investment decision-making is smaller.

The three variables included to test the importance of policy incentives generate different degree of explanatory power on both Japanese and the U.S. FDI. The magnitude of the impact of the coefficients on both Japanese and the U.S. FDI are found to be one of the largest among all the variables examined in the analysis. The results support the hypothesis that the government investment policies employed in ETDZ are one of the key elements in determining the amount of FDI inflow from Japan and the U.S. in the regions of China. In other words, the regions designated with SEZ and OCC clearly show the advantage of improving the economic environment for Japanese and the U.S. FDI than the rest of the country by implementing special policies favorable to foreign investors. These areas are designed for enhancing FDIs from foreign firms that are technologically advanced. They are often located in or near provincial capitals or transport hub cities. Since direct investment from the U.S. is largely in capital- and technology-intensive industries such as electrical equipment, chemicals, electronics and transportation equipment, the ETDZ is suitable for U.S. firms. Similar things can be said for Japanese direct investment in China, although the extent of their investment in capital- and technology-intensive industries relative to labor- intensive industries seems to be less than that of the U.S.[3]

On the other hand, the impact of OCC is absent for both Japan and the U.S. and the effect of SEZ is only marginal in the second equation for Japan. Special Economic Zones are often said to have lost its competitive edges in attracting FDI as preferential treatment spread throughout China (from the south to the north and from the coastal areas to the interior.) This study seems to support the theory.

Tables report that the higher degree of domination by SOEs in the industrial sector impedes the inflow of both Japanese and the U.S. direct investment. The importance of the variable is magnified in equation (1) for both FDI sources. The coefficient for Japan and the U.S. are –1.15 and -.0.93, respectively, which are much

[3] For details, see Fung, Lau and Lee (2003).

larger than the coefficients on other influential variables we have reported, such as GDP or EDTZ. The industrial share of SOEs has dropped dramatically on average as Chinese Government has started domestic reform. The structural change is expected to proceed further because of China's accession of WTO. This suggests a great potential for further growth of inward FDI from Japan and the U.S. However, the degree of liberalization varies within China. Our results show that FDI from both sources are attracted to the regions, whose industries are less dominated by SOEs.

5. Conclusion

This paper examines the geographic determinants of U.S. and Japanese direct investment in China for the years 1990-2001. We use a random effect panel model of estimation to study their determinants. *Four* results emerge from our empirical study. First, the size of the domestic market matters. This is true in all our regressions. Thus U.S. and Japanese firms locate in China partly to sell in the Chinese market. Second, the share of manufacturing output accounted for by state-owned enterprises (SOEs) is negatively related to both U.S. and Japanese direct investments. This variable potentially captures all the *formal and informal* barriers that may exist against foreign investors. A large share of output by SOEs signal to the foreign investors that economic reforms are still far from complete and foreign investors should expect to face difficult political and economic challenges in that region. Thus as economic reforms deepen and spread to the interior and the western parts of China, U.S. and Japanese firms will increasingly migrate to those regions. In this respect, economic reforms generate *double dividends:* they are inherently efficient-enhancing and on top of that, they also attract U.S. and Japanese investors. Third, infrastructure is positively related to U.S. and

Japanese direct investment flows. This includes railroads as well as roads. Transportation matters to the manufacturing operations of U.S. and Japanese multinationals in China. Lastly, the policy variable representing the number of Economic and Technological Development Zones (ETDZs) is also conducive to attracting Japanese and U.S. investment.

Appendix A

Special Economic Zones:

Shenzhen, Zhuhai, and Shantou in Guangdong; Xizmen in Fujian; Hainan.

Open Coastal Cities:

Dalian in Liaoning; Qinhuangdao in Hebei; Tianjin; Yantai and Quingdao in Shandong; Lianyungang and Nantong in Jiangsu; Shanghai; Ningbo and Wenzhou in Zhejiang; Fuzhou in Fujian; Guangzhou and Zhanjiang in Guangdong; Beihai in Guangxi.

Economic and Technological Development Zones:

Dalian, Yingkou and Shenyang in Liaoning; Qinhuangdao in Hebei; Tianjin; Yantai, Quingdao and Weihai in Shandong; Lianyunggang, Kunshan and Nantong in Jiangsu; Guangzhou and Zhanjiang in Guangdong; Ningbo in Zhejiang; Fuzhou, Rongqiao and Dongshan in Fujian; Minhang, Hongqiao and Caohejin in Shanghai; Wenzhou in Zhejiang; Harbin in Heilongjizng; Changchun in Jilin; Wuhu in Anhui; Wuhan in Hubei; Chongqing in Sichuan; Dayawan and Pnyu's Nansha in Guangdong; Xiaoshan and Hangzhou in Zhejiang, Beijing; Urumqi in Xinjiang.

Appendix B: Data Sources

The following data are taken from the *Almanac of China Foreign Relations and Trade* (various issues):

Contracted Japanese direct investment (DI) for 1990 and 1993 to 2001

Contracted U.S. DI for 1990 and 1993 to 2001

The following data are taken from *China Foreign Economic Statistical Yearbook* 1994:

Contracted Japanese DI for 1991 and 1992

Contracted U.S. DI for 1991 and 1992

The following regional data for 1996 to 2001 are taken from the *China Statistical Yearbook* (various issues); for 1991 to 1995, they are taken from *China Regional Economy*: *A Profile of 17 years of Reform and Opening-Up* 1996:

GDP

Number of students enrolled in higher education

Inland waterway

Distance of roadway

Distance of railway

Average lagged nominal wage.

Table 1
Regression Results for Japanese Direct Investment in China 1990-2001

	Equation (1)			Equation (2)		
variable names	**coefficient**	**t-stat**	**level of significance**	**coefficient**	**t-stat**	**level of significance**
Constant	-2.01	-0.61		1.70	0.54	
GDP	0.81	3.45	1%	0.93	4.12	1%
LAGWAGE	0.27	0.76		-0.21	-0.62	
HE	0.34	1.13		0.33	1.07	
RAIL	0.34	1.93	5%	0.55	3.24	1%
WATER	-0.05	-0.67		-0.03	-0.36	
HIGHROAD	0.24	4.30	1%			
MEDROAD				0.12	2.50	1%
SEZ	0.53	1.05		0.67	1.32	10%
OCC	0.03	0.05		0.13	0.24	
ETDZ	0.72	1.94	5%	0.82	2.19	5%
STATE	-1.15	-4.62	1%	-0.88	-3.23	1%
d.f.	254			269		
ad. R^2	0.68			0.68		
LM test	71.6(1%)			82.48(1%)		

Table 2
Regression Results for the U.S. Direct Investment in China 1990-2001

	Equation (1)			Equation (2)		
variable names	**coefficient**	**t-stat**	**level of significance**	**coefficient**	**t-stat**	**level of significance**
Constant	-3.89	-1.38	10%	-0.01	0.00	
GDP	0.68	3.49	1%	0.78	4.02	1%
LAGWAGE	0.57	1.86	5%	0.14	0.49	
HE	0.19	0.77		0.43	1.69	5%
RAIL	0.22	1.46	10%	0.22	1.52	10%
WATER	-0.03	-0.41		-0.06	-0.86	
HIGHROAD	0.16	3.37	1%			
MEDROAD				0.08	2.09	5%
SEZ	0.15	0.32		0.26	0.55	
OCC	-0.45	-0.98		-0.19	-0.42	
ETDZ	0.87	2.76	1%	0.85	2.68	1%
STATE	-0.93	-4.193	1%	-0.65	-3.01	1%
d.f.	273			290		
ad. R^2	0.64			0.61		
LM test	36.23(1%)			34.18(1%)		

References

Aoki, Masahiko, *Information, Incentives, and Bargaining in the Japanese Economy*. Cambridge, NY: Cambridge University Press, 1988.

Cheng, Leonard K. and Zhao, Haiying, "Geographical Pattern of Foreign Direct Investment in China: Location, Factor Endowments, and Policy Incentives," Department of Economics, Hong Kong University of Science and Technology, Hong Kong, February 1995.

Cheng, Leonard K. and Kwan, Yum, "What Are the Determinants of the Location of Foreign Direct Investment? The Chinese Experience," *Journal of International Economics* **51**, 2:379-400, August 2000.

Coughlin, Cletis C., Terza, Joseph V., and Arromdee, Vachira, "State Characteristics and the Location of Foreign Direct Investment Within the United States," *Review of Economics and Statistics* **73**, 4:675-683, November 1991.

Culem, Claudy G., "The Locational Determinants of Direct Investments among Industrialized Countries," *European Economic Review* **32**, 4:885-904, April 1988.

Friedman, Joseph, Gerlowski, Daniel A., and Silberman Johnathan, "What Attracts Foreign Multinational Corporations? Evidence from Branch Plant Location in the United States," *Journal of Regional Science* **32**, 4:403-418, November1992.

Friedman, Daniel and Fung, K.C., "International Trade and the Internal Organization of Firms: An Evolutionary Approach," *Journal of International Economics*, **47**, 2:113-137, August 1996.

Fung, K.C. and Iizaka, Hitomi, "Japanese and U.S. Trade with China: A

Comparative Analysis," *Review of Development Economics* **2**, 2:181-190, June 1998.

Fun, K.C., Iizaka, Hitomi, and Siu, Alan, "Japanese Direct Investment in China and other Asian Countries, *China Economic Review*, forthcoming, 2003.

Fung, K.C., Lau, Lawrence J., and Lee, Joseph, *U.S. Direct Investment in China*. Washington, D.C.: AEI Press, forthcoming, 2003.

Head, Keith, and Ries, John, "Inter-City Competition for Foreign Investment: Static and Dynamic effects of China's Incentive Areas", *Journal of Urban Economics* **40**, 1:38-60, July 1996.

Hines Jr., James R., "Altered States: Taxes and the Location of Foreign Direct Investment in America," *American Economic Review* **86**, 5:1076-1094, December 1996.

Kravis, Irving B., and Lipsey, Robert E., "The Location of Overseas Production and Production for Export by U.S. Multinational Firms." *Journal of International Economics* **12**, 1-2:201-23, May 1982.

Lunn, John, "Determinants of US Direct Investment in the EEC." *European Economic Review* **13**, 1:93-101, January 1980.

Maki, Dennis R, and Meredith, Lindsay N., "Production Cost Differentials and Foreign Direct Investment: A Test of Two Models," *Applied Economics*, **18**, 13:1127-1134, October 1986.

Ministry of Foreign Economic Relations and Trade of the People's Republic of China, *Almanac of China's Foreign Economic Relations and Trade*. Beijing: Ministry of Foreign Economic Relations and Trade, various issues.

Owen, Robert F., "Inter-industry Determinants of Foreign Direct Investment: a Canadian Perspective," in Alan M. Rugman, Ed. *New Theories of Multinational Enterprises*, pp. 303-318. London: Croom Helm, 1982.

Scaperlanda, Anthony and Balough, Robert S., "Determinants of US Direct Investment in the EEC: Revisited." *European Economic Review* **27**, 4:381-90, May 1983.

Smith, Donald F, and Florida, Richard, D., "Agglomeration and Industrial Location: An Econometric Analysis of Japanese Affiliated Manufacturing Establishments in Automotive-Related Industries," *Journal of Urban Economics* **36**, 1:23-41, July 1994.

State Statistical Bureau of the People's Republic of China. *China Statistical Yearbook*, Beijing: State Statistical Bureau, 1997, and 1998.

State Statistical Bureau of the People's Republic of China. *China Foreign Economic Statistical Yearbook,* Beijing: State Statistical Bureau, 1994.

State Statistical Bureau of the People's Republic of China. *China Regional Economy: A Profile of 17 years of Reforms and Opening-Up,* Beijing: China Statistical Bureau, 1996.

Wheeler, David and Mody, Ashoka, "International Investment Location Decisions: The Case of U.S. Firms," *Journal of International Economics* **33**, 1-2:57-76, August 1992.

Woodward, Douglas P., "Locational Determinants of Japanese Manufacturing Startups in the United Stated," *Southern Economic Journal* **58**, 1:690-708, January 1992.