Factors Affecting Inward Foreign Direct Investment Flows into the United States: Evidence from State-Level Data

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***Abstract* - This paper investigates factors affecting the inward foreign direct investment (FDI) flows among fifty states of the United States. The analysis uses annual data for the period from 1997 to 2007. The study identifies several state-specific determinants of FDI and investigates the changes in their importance during the study period. Our results show that among the major determinants, the real per capita income, real per capita expenditure on education, FDI related employment, real research and development expenditure, and capital expenditure are found to have a significant positive impact on FDI inflows. There is also evidence that the share of scientists and engineers in the workforce exerts a small positive impact on inward FDI flows. In addition, per capita state taxes, unit labor cost, manufacturing density, unionization, and unemployment rate exert a negative impact on FDI inflows.**

1. Introduction

During the past three decades, foreign direct investment (FDI) undertaken by transnational corporations has become one of the leading factors promoting the process of globalization. Foreign direct investment in the United States in particular has grown significantly during this period. For example, according to the United Nations Conference on Trade and Development (UNCTAD)'s *World Investment Report 2010*, the stock of FDI in the U.S. grew from $83.0 billion in 1980 to $539.6 billion in 1990 and to $2,783.2 billion in 2000 and to $3,120.6 billion in 2009 (see Table 1). Though there has been a significant increase in the FDI to the developing countries in recent years, the majority of these inflows still goes to developed countries, with developed countries accounting for 50.8% of FDI in 2009. Of these total worldwide FDI inflows, the U.S. received 11.7% in 2009. The FDI inflows to the U.S. increased from $48.4 billion in 1990 to $324.6 billion in 2008 but dropped to $129.9 billion in 2009 (see Table 2).

While the FDI inflows to the U.S. has grown significantly over the past two decades, the largest part of these flows went to four states, namely, Texas, California, New York, and Illinois (see Table 3). These four states have been the top recipient states of FDI since 1990. A significant research effort has been directed at establishing the determinants of foreign direct investment (FDI). However, only a very limited of studies have focused on state-specific locational determinants. However, the empirical literature has been limited in several respects, with most work focused exclusively on host country tax regimes. This paper investigates locational determinants of the inward foreign direct investment (FDI) among fifty states of the United States. The analysis uses annual data for the period from 1997 to 2007.

The paper is structured as follows: The next section presents a survey of literature, whereas Section 3 presents the specification of the econometric model. Section 4 discusses the variables and data sources. The empirical results are presented and discussed in Section 5 and finally, Section 6 summarizes the main results and concludes with some policy implications.

2. Literature Review

In this section we present a brief overview of some related work. Although there has been considerable research concerning the locational determinants of foreign direct investment, we only present findings of studies that analyze the locational determinants of foreign investment in the U.S.

Axarloglou and Pournarakis (2007) investigate the impact of FDI inflows on the local economies of the US states that receive most of the FDI inflows in the country. It appears that FDI inflows in manufacturing have rather weak effects on local employment and wages in most of the states in the sample. However, these results are primarily due to the industry composition of the FDI. FDI inflows in Printing and Publishing, Transportation Equipment

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and Instruments have positive effects on local employment and wages, while FDI inflows in Leather and Stone/Clay/Glass have detrimental effects on local labor markets in most of the states in the sample. These findings indicate the importance of industry characteristics in evaluating the effects of FDI inflows on local communities. Also, they emphasize the need for US states to selectively target and attract FDI inflows in specific industries.

Table 1(a). Inward Foreign Direct Investment Stock, 1980-2009
(Billions of Current US Dollars)

Economy	1980	1990	2000	2009
Developed economies	401.6	1,555.6	5,653.2	12,352.5
of which: United States	83.0	539.6	2,783.2	3,120.6
Developing economies	298.6	524.5	1,728.5	4,893.5
Developing economies: Africa	41.1	60.7	154.2	514.8
Developing economies: America	41.8	111.4	502.1	1,472.7
Developing economies: Asia	214.2	349.6	1,067.7	2,893.8
Developing economies: Oceania	1.5	2.8	4.4	12.2
Developed economies: America	137.2	652.4	2,996.2	3,648.6
Developed economies: Asia	6.4	14.3	72.9	271.4
Developed economies: Europe	230.8	807.3	2,440.3	8,037.8
Developed economies: Oceania	27.1	81.6	143.8	394.7
World	**700.3**	**2,081.8**	**7,442.5**	**17,743.4**

Table 1(b). Share of Inward Foreign Direct Investment Stock, 1980-2009
(Percent)

Economy	1980	1990	2000	2009
Developed economies	57.4	74.7	76.0	69.6
of which: United States	11.9	25.9	37.4	17.6
Developing economies	42.6	25.2	23.2	27.6
Developing economies: Africa	5.9	2.9	2.1	2.9
Developing economies: America	6.0	5.4	6.7	8.3
Developing economies: Asia	30.6	16.8	14.3	16.3
Developing economies: Oceania	0.2	0.1	0.1	0.1
Developed economies: America	19.6	31.3	40.3	20.6
Developed economies: Asia	0.9	0.7	1.0	1.5
Developed economies: Europe	33.0	38.8	32.8	45.3
Developed economies: Oceania	3.9	3.9	1.9	2.2
World	**100.0**	**100.0**	**100.0**	**100.0**

Source: The United Nations Conference on Trade and Development (UNCTAD), *World Investment Report 2010* .

A study by Wijeweera, Dollery, and Clark (2007) analyzes the relationship between the corporate tax rates and foreign direct investment in the United States. The study uses a panel of nine investing tax exemption and tax credit countries over the period 1982-2000 to find answers to two questions, namely, are corporate income tax rates an important determinant of FDI in the US? and do investors from tax credit countries differ significantly in their tax response relative to those from tax exemption countries?

A study by Axarloglou (2005) evaluates the relative impact of industry and state specific economic factors on inward FDI in several U.S. states that compete for the same inward FDI. The study find evidence that relative labor productivity, relative spending on education, and relative crime rate are important in inter-state competition for the same inward FDI. The findings of the study also suggest that relative tax incentives also become important in attracting FDI inflows when the contest in attracting inward FDI comes down to two states.

In another study Axarloglou (2004) evaluates the impact of industry and state specific economic conditions on inward FDI in several U.S. states. The study uses annual data for the 1974-1991 period. The results of the study suggest that FDI inflows in the U.S. are strongly influenced by both industry and state-specific labor productivity and state spending on education. The findings of the study also suggest that the quality of the local labor force, along with the efforts to improve this quality, is pivotal in attracting FDI inflows.

Chung and Alcácer (2002) examine whether and when state technical capabilities attract foreign investment in manufacturing from 1987-1993. The study finds that on average state R&D intensity does not attract foreign direct investment. Most investing firms are in lower-tech industries and locate in low R&D intensity states, suggesting little interest in state technical capabilities. In contrast, the study finds that firms in research-intensive industries are more likely to locate in states with high R&D intensity. Foreign firms in the pharmaceutical industry value state R&D intensity the most, at a level twice that of firms in the semiconductor industry, and four times that of electronics firms. Interestingly, not only firms from technically lagging nations, but also some firms from

Table 2(a). Inward Foreign Direct Investment Inflows, 1980-2009
(Billions of Current US Dollars)

Economy	1980	1990	2000	2009
Developed economies	46.6	172.5	1,138.0	565.9
of which: United States	16.9	48.4	314.0	129.9
Developing economies	7.5	35.1	256.5	478.3
Developing economies: Africa	0.4	2.8	9.8	58.6
Developing economies: America	6.4	8.9	97.7	116.6
Developing economies: Asia	0.5	22.6	148.7	301.4
Developing economies: Oceania	0.1	0.7	0.2	1.9
Developed economies: America	22.7	56.0	380.9	148.8
Developed economies: Asia	0.3	1.9	15.3	15.8
Developed economies: Europe	21.4	104.4	724.9	378.4
Developed economies: Oceania	2.2	10.2	17.0	22.9
World	**54.1**	**207.7**	**1,401.5**	**1,114.2**

Table 2(b). Share of Inward Foreign Direct Investment Inflows, 1980-2009
(Percent)

Economy	1980	1990	2000	2009
Developed economies	86.1	83.1	81.2	50.8
of which: United States	31.3	23.3	22.4	11.7
Developing economies	13.8	16.9	18.3	42.9
Developing economies: Africa	0.7	1.4	0.7	5.3
Developing economies: America	11.9	4.3	7.0	10.5
Developing economies: Asia	1.0	10.9	10.6	27.0
Developing economies: Oceania	0.2	0.3	0.0	0.2
Developed economies: America	42.0	27.0	27.2	13.4
Developed economies: Asia	0.5	0.9	1.1	1.4
Developed economies: Europe	39.5	50.3	51.7	34.0
Developed economies: Oceania	4.1	4.9	1.2	2.1
World	**100.0**	**100.0**	**100.0**	**100.0**

Source: The United Nations Conference on Trade and Development (UNCTAD), *World Investment Report 2010* .

technically leading nations are attracted to R&D intensive states.

A study by Keller and Levinson (2002) estimates the effect of changing environmental standards on patterns of international investment. The study employs an 18-year panel of relative abatement costs covering the period from 1977 to 1994 and controls for unobserved state characteristics. The study finds robust evidence that abatement costs have had moderate deterrent effects on foreign direct investment.

Hines (1996) compares the distribution between U.S. states of investment from countries that grant foreign tax credits with investment from all other countries. The ability to apply foreign tax credits against home-country tax liabilities reduces an investor's incentive to avoid high-tax foreign locations. The study uses data for 1987 and finds evidence to suggest that state taxes significantly influence the pattern of foreign direct investment in the United States.

Japanese firm's R&D expenditures, the greater the probability it will manufacture in the U.S., but this is not the case for advertising expenditures. Some strategic factors are also important: Japanese firms with medium domestic market shares have the highest propensity to invest in the U.S. There is evidence of follow-the-leader behavior between firms of rival enterprise groups, but none of 'exchange-of-threat' between American and Japanese firms. Japanese investors are also attracted by concentrated and high-growth U.S. industries.

Coughlin, Terza, and Arromdee (1991) use a conditional logit model of the location decision of foreign firms investing in manufacturing facilities in the United States using annual data for the 1981-1983 period. The study find evidence to suggest that states with higher per capita incomes, higher densities of manufacturing activity, higher unemployment rates, higher unionization rates, more extensive transportation infrastructures, larger promotional expenditures attracted relatively more foreign direct investment. In addition, higher wages and higher taxes deterred foreign direct investment.

Table 3. Top 10 States with Largest Stock of Foreign Direct Investment, 1990-2007
(Millions of Current US Dollars)

1990		2000		2007	
State	FDI Stock	State	FDI Stock	State	FDI Stock
California	75,768	California	121,040	Texas	128,424
Texas	57,079	Texas	110,032	California	108,572
New York	36,424	New York	68,522	New York	80,474
Illinois	23,420	Illinois	48,425	Illinois	48,626
Ohio	20,549	Michigan	39,238	Ohio	43,438
Alaska	19,435	Florida	38,755	Pennsylvania	39,824
Florida	18,659	Ohio	37,530	New Jersey	38,425
New Jersey	18,608	New Jersey	35,115	Indiana	38,145
Louisiana	17,432	Pennsylvania	34,106	Florida	35,052
Georgia	16,729	Louisiana	31,160	Alaska	34,473

Source: U.S. Department of Commerce, *Bureau of Economic Analysis* .

A study by Friedman, et al. (1996) examines the aggregation bias in Coughlin, Terza, and Arromdee's (1991) study. The study finds evidence to show that marked differences exist between the locational preferences of those investing in new manufacturing plants and those investing in mergers and acquisitions.

A study by Hennart and Park (1994) examines the impact of location and governance factors, and of four types of strategic interactions, on a Japanese firm's propensity to manufacture in the U.S. The results support the view that foreign direct investment is explained by location, governance, and strategic variables. Economies of scale and trade barriers encourage Japanese FDI in the U.S. The larger a

The current study uses annual data on state-level foreign direct investment covering all 50 states over the 11-year period from 1997 to 2007. The study tests the importance of several state-specific determinants of foreign direct investment.

3. Model Specification

Drawing on the existing empirical literature in this area, we specify the following model:

$$FDI_{it} = \beta_0 + \beta_1 PCI_{it} + \beta_2 TAX_{it} + \beta_3 EDU_{it} + \beta_4 SE_{it} + \beta_5 FDIEMP_{it} + \beta_6 RD_{it} + \beta_7 CAP_{it} + \beta_8 LCOST_{it} + \beta_9 MANDEN_{it} + \beta_{10} UNION_{it} + \beta_{11} UNEMP_{it} + u_t \quad (1)$$

where FDI_{it} is the real foreign direct investment (FDI) inflows in state i in year t (i = 1, 2, ..., 50 and t = 1, 2, ..., 11); PCI_{it} is the per capita real disposable income of state i in year t; TAX_{it} is the per capita state taxes of state i in year t; EDU_{it} is the real per capita expenditure on education in state i in year t; SE_{it} is an indicator of labor quality as measured by the share of scientists and engineers in the workforce in state i in year t; $FDIEMP_{it}$ is the FDI related employment in state i in year t; RD_{it} is the real research and development (R&D) expenditure in state i in year t; CAP_{it} is the real capital expenditure in state i in year t; $LCOST_{it}$ is the unit labor cost in state i in year t; $MANDEN_{it}$ is the manufacturing density in state i in year t; $UNION_{it}$ is the share of the workforce that is unionized state i in year t; and $UNEMP_{it}$ is the unemployment rate in state i in year t.

The first variable, real state per capita income is a measure of market demand in a state and is expected to be related to foreign direct investment. Therefore, *a priori*, we would expect that $\beta_1 > 0$. The real per capita state taxes usually deter FDI flows and, therefore, is expected to be negatively related to foreign direct investment; thus, we would expect that $\beta_2 < 0$. Our third variable, the real per capita expenditure on education is expected to have a positive effect on foreign direct investment. Therefore, we would expect that $\beta_3 > 0$.

The next variable, the share of scientists and engineers in the workforce is expected to have a positive effect on foreign direct investment. Therefore, we would expect that $\beta_4 > 0$. Our fifth variable, the FDI related employment as a share of state total employment is expected to have a positive effect on foreign direct investment. Therefore, we would expect that $\beta_5 > 0$. Our sixth variable, the real research and development expenditure is expected to have a positive effect on foreign direct investment. Therefore, we would expect that $\beta_6 > 0$. Our seventh variable, the real capital expenditure is expected to have a positive effect on foreign direct investment. Therefore, we would expect that $\beta_7 > 0$. Our eighth variable, the unit labor cost is expected to have a negative effect on foreign direct investment. Therefore, we would expect that $\beta_8 < 0$.

States with higher densities of manufacturing activity is expected to attract more foreign direct investment because the foreign investors might be serving existing manufacturers. As Coughlin, Terza, and Arromdee (1991) and Head, Ries and Swenson (1995, 1999) point out, manufacturing density could also be used as a proxy for agglomeration economies. The manufacturing density is expected to be related positively to foreign direct investment. Therefore, we would expect that $\beta_9 > 0$. The next variable, unionization of the workforce is considered to be a deterrent and therefore expected to be related negatively to foreign direct investment. Thus we would expect that $\beta_{10} < 0$. The effect of unemployment on foreign direct investment could either be positive or negative. On one hand, unemployment rate reflects a pool of potential workers, thus higher unemployment rates across states will likely be related positively to foreign direct investment. On the other hand, as Coughlin, Terza, and Arromdee (1991) argue, higher unemployment rates could increase the amount that a firm must pay in unemployment insurance premiums. This would deter foreign firms with low labor turnover from investing in a state because they would be required to subsidize the unemployed workers who were released by other firms. Thus the expected sign of β_{11} could either be positive or negative.

4. Data Sources and Variables

In order to test the implications of our models, we collected a panel of aggregate data on foreign direct investment on all U.S. states, excluding the District of Columbia. The entire data set includes 50 states for which foreign direct investment and all other relevant variables are reported over the 1997–2007 period.

The real stock of FDI is measured in this study as the nominal stock of FDI deflated by the GDP deflator in constant (2000) U.S. dollars. The data on nominal stock of FDI are from the U.S. Department of Commerce, *Bureau of Economic Analysis* (BEA). The GDP deflators for states are derived by dividing the nominal gross state product by the real gross state product (base year = 100), both of which are obtained from the *Bureau of Economic Analysis*. The real per capita disposable income is measured as the nominal per capita disposable income deflated by the GDP deflator in constant (2000) U.S. dollars.

The real per capita taxes is measured by dividing the real state tax revenue by the state population. The nominal tax revenue for states are from various issues of the *Annual Survey of State Government Finances* published by the U.S. Department of Commerce. The nominal tax revenue was deflated by the GDP deflator to derive the real state tax revenue. The data on state population are from the *U.S. Census Bureau*. The real per capita expenditure on education is measured by dividing the real state education expenditure by the state population. The nominal education expenditure for states are from various issues of the *Annual Survey of State Government Finances* published by the U.S. Department of Commerce. The nominal education expenditure was deflated by the GDP deflator to derive the real state education expenditure.

The share of scientists and engineers in the workforce, a proxy for labor quality, is collected from the National Science Foundation, Division of Science Resources Statistics, *Science and Engineering Indicators 2010*. The FDI related employment variable is measured as the ratio of FDI related employment to total state employment. The data on FDI related employment are collected from the *Bureau of Economic Analysis* while the data on state employment are collected from the U.S. Department of Labor, *Bureau of Labor Statistics*. The information on real research and development expenditure is collected from the National Science Foundation, Division of Science Resources Statistics, *Science and Engineering Indicators 2010*. Data on real capital expenditure at the state level is not readily available. Therefore, the capital expenditure on manufacturing is used as a proxy. The information on capital expenditure on manufacturing is collected from the U.S. Census Bureau, *Annual Survey of Manufactures: Geographic Area Statistics* series.

The unit cost variable is measured following the procedure used by Axarloglou (2004). The unit labor cost is defined as:

$$LCOST_{it} = \frac{w_{it}}{APL_{it}} \qquad (2)$$

where w_{it} is the average wage rate in state i in year t and APL_{it} is the average product of labor in state i in year t. The average product of labor is calculated as:

$$APL_{it} = \frac{RGSP_{it}}{EMP_{it}} \qquad (3)$$

where $RGSP_{it}$ is the real gross state product of state i in year t and EMP_{it} is the total employment in state i in year t. The data on the average wage and total state employment are collected from the U.S. Department of Labor, *Bureau of Labor Statistics*. Following Coughlin, Terza, and Arromdee (1991), the manufacturing density variable is measured as the manufacturing employment per square mile of state land excluding federal land. The data on manufacturing employment are collected from the U.S. Department of Labor, *Bureau of Labor Statistics*. The information on union membership is collected from http://www.unionstats.com/ maintained by Barry Hirsch (Georgia State University) and David Macpherson (Trinity University). The data on state unemployment rate are collected from the U.S. Department of Labor, *Bureau of Labor Statistics*.

5. Empirical Results

The results of our empirical analysis are presented in Table 4. In addition to the eleven independent variables included in Equation (1), we experimented with several other variables including the growth rate of real GSP, highway mileage, land area, number of airports, railway mileage, labor productivity, average hourly wage rate, real per capita exports, and right-to-work regulation. However, they were dropped from the model to minimize the problems of multicolinearity and incorrect signs. All the variables presented in Table 4 are expressed in logarithm and the coefficient of each variable can be interpreted as elasticities.

Table 4: Determinants of FDI in the United States
Panel Least Squares Estimates
(Dependent variable: Real FDI Inflows)

Variable	Coefficient	t-statistic
Constant	33.2684***	3.25
Real Per Capita Income	0.8839	0.92
Real Per Capita Taxes	- 3.3844**	-2.41
Real Education Expenditure	0.5549*	1.80
Scientists and Engineers	0.0558	0.29
FDI Related Employment	2.2268***	8.49
Research and Development	0.2373***	4.31
Real Capital Expenditure	0.5568***	7.68
Unit Labor Cost	- 2.5333	-1.00
Manufacturing Density	- 0.1328***	-3.53
Unionization	- 0.7159*	-1.83
Unemployment	- 3.5858***	- 13.60
Adjusted R^2	0.3669	
Number of Observations	376	

Note: ***, **, and * indicate the statistical significant at the 1%, 5%, and 10% level, respectively.

Real per capita disposable income variable has the expected positive sign but it is not statistically significant. This result is similar to the findings of studies by Coughlin, Terza, and Arromdee (1991) and Axarloglou (2004). The real per capita taxes also has the expected negative and it is statistically significant at the 5% level of significance. This finding is also consistent with the findings of previous studies.

The results of the study suggest that the real inflow of FDI in the U.S. is influenced by the state spending on education. The coefficient of this variable is positive and statistically significant at the 10% level of significance. This result is consistent with the findings of the study by Axarloglou (2004). The share of scientists and engineers in the workforce has the expected positive sign but it is not statistically significant.

The FDI related employment variable has a positive and highly statistically significant effect on the real inflow of FDI. This variable is statistically significant at the 1% level of significance. This could be due to the fact that the states with high level of FDI inflows also have larger FDI related employment. The state's expenditure on research and development is also found to have a positive effect on the real stock of FDI. This variable is statistically significant at the 1% level of significance. The real capital expenditure variable also has the expected positive sign and it is statistically significant at the 1% level of significance. This could be due to the fact that capital expenditure on manufacturing larger part of FDI flows is in the manufacturing sector.

The unit labor cost variable has the expected negative sign. However, this variable is not statistically significant. Manufacturing density variable has an unexpected negative sign but it is statistically significant at the 1% level of significance. This variable is also expected to capture the agglomeration economies. Unionization variable has the expected negative sign and it is statistically significant at the 10% level of significance. This result is not consistent with the findings of Coughlin, Terza, and Arromdee (1990, 1991), Beeson and Husted (1989) and Bartik (1985). Finally, the results show that the unemployment rate is a negative, statistically significant determinant of foreign direct investment. This result is not consistent with our prior expectations. Generally, the unemployment rate is a signal of the availability of labor that affects investors.

6. Summary and Conclusions

This paper investigates locational determinants of the inward foreign direct investment (FDI) flows among fifty states of the United States. In order to test the implications of our models, we collected a panel of aggregate data on foreign direct investment on all U.S. states, excluding the District of Columbia. The entire data set includes 50 states for which foreign direct investment and all other relevant variables are reported over the 1997–2007 period.

Findings of our results show that real per capita disposable income variable has the expected positive sign but it is not statistically significant. The real per capita taxes also has the expected negative sign it is statistically significant at the 5% level of significance. These findings are consistent with the findings of previous studies.

The results of the study also suggest that the real inflow of FDI in the U.S. is influenced by the state spending on education. The coefficient of this variable is positive and statistically significant at the 10% level of significance. As expected, the share of scientists and engineers in the workforce has the expected positive sign. However, it is not statistically significant.

The FDI related employment variable has a positive and highly statistically significant effect on the real inflow of FDI. This could be due to the fact that the states with high level of FDI inflows also have larger FDI related employment. The state's expenditure on research and development is also fond to have a positive and significant effect on the real stock of FDI. This variable is statistically significant at the 1% level of significance. The real capital expenditure variable also has the expected positive sign and it is statistically significant at the 1% level of significance. This could be due to the fact that capital expenditure on manufacturing larger part of FDI flows is in the manufacturing sector.

Among other findings, the unit labor cost variable has the expected negative sign; manufacturing density variable has an unexpected negative sign but it is statistically significant at the 1% level fo significance; unionization variable also has the expected negative sign and it is statistically significant at the 10% level of significance; and the unemployment rate is a negative, statistically significant determinant of foreign direct investment. Some of these findings are consistent with findings of previous studies.

Given that the current results suggest that state government taxation negatively affect foreign direct investment inflows, state governments may consider providing more fiscal incentives to foreign investors in order to attract more foreign direct invest to their states. Another way for states to attract more investment is to spend more on educations, improvements in labor quality, research and development activities and capital expenditure. This could, however, be a long term goal. While the present study used the aggregate data, another avenue of future research could be to investigate the possibility that the location determinants vary across both countries and industries.

References

[1] Axarloglou, K. And Pournarakis, M. 2007. Do All Foreign Direct Investment Inflows Benefit the Local Economy? *The World Economy* 30(3), 424-432.

[2] Axarloglou, K. 2005. What Attracts Foreign Direct Investment Inflows in the United States. *The International Trade Journal* 19(3): 285-308.

[3] Axarloglou, K. 2004. Local Labor Market Conditions and Foreign Direct Investment Flows in the U.S. *Atlantic Economic Journal* 32(l):62-66.

[4] Bartik, T. J. 1985. Business Location Decisions in the United States: Estimates of the Effects of

Unionization, Taxes, and other Characteristics of States. *Journal of Business and Economics Statistics* 3:14-22.

[5] Beeson, P. E. and Husted, S. 1989. Patterns and Determinants of Productive Efficiency in State Manufacturing. *Journal of Regional Science* 29(1): 15-28.

[6] Chung, W. and Alcácer, J. 2002. Knowledge Seeking and Location Choice of Foreign Direct Investment in the United States. *Management Science* 48(12): 1534-1554.

[7] Coughlin, C. C, Terza, J. V., and Arromdee, V. 1990. State Government Effects on the Location of Foreign Direct Investment. *Regional Science Perspectives* 20:194-207.

[8] Coughlin, C. C, Terza, J. V., and the Location of Foreign Direct Investment Within the United States. *Review of Economics and Statistics* 73:675-683.

[9] Friedman, J., Fung, H. G., Gerlowski, D. A., and Silberman, J. 1996. A Note on State Characteristics and the Location of Foreign Direct Investment Within the United States. *Review of Economics and Statistics* 78(2):367-368.

[10] Head, C. K., Ries, J. C, and Swenson, D. L. 1995. Agglomeration Benefits and Location Choice: Evidence from Japanese Manufacturing Investments in the United States. *Journal of International Economics* 38:223-247.

[11] Head, C. K, Ries, J. C, and Swenson, D. L. 1999. Attracting Foreign Manufacturing: Investment Promotion and Agglomeration. *Regional Science and Urban Economics* 29: 197-218.

[12] Hennart, J-F. and Park, Y-R. 1994. Location, Governance, and Strategic Determinants of Japanese Manufacturing Investment in the United States. *Strategic Management Journal*. 15(6): 419-436.

[13] Hines, Jr. J. R. 1996. Altered States: Taxes and the Location of Foreign Direct Investment in America. *The American Economic Review*. 86(5): 1076-1094.

[14] Hirsch, B. and Macpherson, D. 2010. http://www.unionstats.com/.

[15] Keller, W. and Levinson, A. 2002. Pollution Abatement Costs and Foreign Direct Investment Inflows to U.S. States. *The Review of Economics and Statistics*. 84(4): 691-703.

[16] National Science Foundation, Division of Science Resources Statistics, *Science and Engineering Indicators 2010*.

[17] United Nations Conference on Trade and Development (UNCTAD), *World Investment Report 2010*.

[18] U.S. Census Bureau, *Annual Survey of Manufactures: Geographic Area Statistics* (various issues).

[19] U.S. Department of Commerce, *Bureau of Economic Analysis* (BEA).

[20] U.S. Department of Commerce, *Annual Survey of State Government Finances* (various issues).

[21] U.S. Department of Labor, *Bureau of Labor Statistics*.

[22] Wijeweera, A., Dollery, B. and Clark, D. 2007. Corporate tax rates and foreign direct investment in the United States. *Applied Economics* 39(1): 109-117.