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Public Capital and Small Firm Performance

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ABSTRACT: Previous research on the role of public capital (infrastructure) in private production has emphasized potential complementarities between public and private capital at an aggregate level. Presumably such effects, if they exist, arise from benefits enjoyed by individual units of production. Because of the potential for them to be location-specific or capital constrained, it is conceivable that small businesses may benefit disproportionately from public capital. Tests using financial data for 871 small firms from 1992 to 1996 indicate a positive and statistically significant elasticity between private labor productivity and the level of public capital in the area where the firms are located. Such a positive elasticity provides further evidence that public and private capital are complementary inputs into production, and has important policy implications.

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1. Introduction

Regions and states exhibit important differences when it comes to the apparent health of their business environments for entrepreneurial activity. There are clearly differences among the states with respect to small-business starts and failures, and distinctions among regions and states may extend to financial performance. Table 1 displays one set of statistics for 1998, concerning the viability of new and small business activity across the states. Rates of business startups range from a low of .36 to a high of .84 starts per 1,000 residents. Ratios of business failures to business starts exhibit similar variability, ranging from a low of 1.02 to a high of 7.16. Such statistics lead naturally to questions about what makes one region or state more “entrepreneurial” than another for new business development and success.

This paper investigates the potential role of public capital, or infrastructure, in creating or sustaining an environment conducive to the viability and success of small businesses. Specifically, it investigates the possible influence of location in areas with relatively high amounts of public capital on the financial performance of individual firms. While not all small businesses are entrepreneurial enterprises in the sense in which that phrase is often used, it is probably the case that most new businesses begin small. Thus, even though entrepreneurialism is often equated with self-employment, not smallness of enterprise, the authors believe that our focus on the financial performance of small businesses represents a suitable proxy for entrepreneurialism.

The starting point for the analysis in this paper is the proposition that small businesses may benefit disproportionately from high levels or high quality of infrastructure. Small businesses face many constraints that large firms do not, such as

restricted access to capital and low levels of purchasing power in input markets.

Additionally, it has long been recognized that small firms are "locus locked," i.e. small firms, unlike large corporations, are economically "tied" to the state and city of the residence of the entrepreneur (Schmenner, 1982). Because of these (and other) financial and business decision constraints, small firms may benefit comparatively more than do large firms from "free" inputs such as public infrastructure. The policy implication of this proposition is that public capital investment in infrastructure may contribute to an enhanced entrepreneurial environment by making the business environment more conducive to small business success.

2. Public Capital and Productivity

The potential contribution of public capital to regional economic environments has been the subject of study since at least the mid 1960s. Early discussions of the topic distinguished between social public capital (educational and public health facilities) and economic public capital (infrastructure that indirectly supports production activities), and outlined the differential roles these categories of public capital may play in contributing to regional economic growth [Hansen, 1965]. Early research into the effects of public capital investment generally followed three lines of investigation: (1) the relationship between public capital investment and economic development as measured by changes in population, employment, income or the number of firms; (2) the effect of such investment upon over-all productivity; and (3) the effect of such investment upon new business starts [Bartik, 1991; Wasylenko, 1991; Munnell, 1992; Fox and Murray, 1993; and Fisher, 1997].

There are at least three ways in which public capital investment could affect business performance: (1) as an un-priced input to production, (2) as a reduction in the price paid by business for services provided by public capital investment, and (3) as a production complement to private inputs that generates reductions in the user cost of those private inputs [Bartik,1991]. Some examples of these effects are obvious. For any individual firm, public highways provide an un-priced input; public airports reduce the cost of air transportation; and public education reduces the quality-adjusted price of labor. One study that specifically addressed the possible link between public capital investment and entrepreneurial activity investigated the relationship between highway miles per square mile upon (1) small business startups and (2) new business plants, and reported positive, but not statistically significant relationships [Bartik, 1989, 1991].

Specific estimates of the aggregate cost savings provided to private enterprise by public capital investment can be both surprising and controversial. One set of research, using annual state-level data from 1970 to 1987 to study the effects of highways and water and sewer systems upon manufacturing costs found that there were large, significant savings for private enterprise [Morrison and Schwartz,1996]. In 1982, for example, the marginal dollar of such infrastructure in the South saved manufacturers an estimated 31 cents per year in operating costs; while in other regions, the analogous figures ranged from 16 cents to 18 cents.

In the early 1990s, research in this area tended to focus on what came to be known as the "public capital hypothesis", with specific investigations into the role of public investment on regional and national productivity and output [Aschauer, 1989, 1997; Munnell,1990a]. Theoretical and empirical inquiries were prompted by the "rough

coincidence” of a slowdown in U.S. public infrastructure investment with a decline in U.S. productivity growth in the late 1960s and 1970s [Berndt and Hansson, 1991; Hulten and Schwab, 1992]. Generally, the hypothesis argued that investment in nonmilitary public capital had both a direct and an indirect influence on national output. The direct effect arises as public capital, such as transportation systems, provides direct inputs to the production process. The indirect effect arises from the assertion that public capital makes private capital more productive – that the two kinds of capital are complements in the production process. If public capital and private capital are complements, then expenditures on public capital should be associated with higher marginal productivity of private capital. By extension, private firms should be able to reap benefits of public investment, and realize higher returns on their own investment. Standard tests of the public capital hypothesis (or variants of it) typically employ Bureau of Economic Analysis data on public capital stocks, disaggregated among the 48 contiguous states [Costa, Ellson, and Martin, 1987; Munnell, 1990b].

Regarding functional forms used in empirical investigations, previous research into potentially beneficial effects of public capital on the private sector generally falls into one of two categories reflective of the dual nature of the firm’s optimization problem. The first category of research uses a production function approach to test whether public and private capital are complements in the production process [Aschauer, 1989, 1997; Munnell, 1990a; and Tatom, 1991]. A second category of empirical research uses cost functions to test whether public capital reduces the costs of production [Lynde and Richmond, 1992; and Morrison and Schwartz, 1996]. This research has generated a variety of estimates concerning the importance of infrastructure investment. No

researchers, to our knowledge, have concluded that investments in public capital are detrimental. Some have concluded that the influence is negligible. Most, however, have concluded that public capital does have some beneficial effects at an aggregate level, particularly for manufacturing.

All of this earlier research investigates the influence of public capital at an aggregate level, testing for influence at a national or regional level. Presumably, however, if public capital does generate beneficial production effects, those effects must originate at a basic level of production such as the individual firm. Testing for this potential influence is best done with data for small firms, since such firms are more likely to undertake investments locally.¹ Thus, differences among the states in levels of public capital might be correlated with differences in returns for small firms.

3. Public Capital and Private Inputs

To model the potential influence of public capital on private production, the analysis described here begins with a simple three-factor production function for firm output:

$$Y_i = Af(N_i, K_i, G_i) \quad (1)$$

Where Y_i = the market value of firm i 's output, A is a technology parameter, N_i and K_i are measures of the firm's labor and private capital inputs respectively, and G_i represents a flow of services from the public sector. In adopting this econometric approach, the

¹ Large firms often undertake business investment across state and international borders. An underlying assumption used here is that small firms are more likely to undertake business investment in a local area, specifically, within one state.

authors focus solely on the role of public capital as a free input to the firm's production process, and on the possible providential effects of that input on labor productivity. This paper does not focus directly on the question of whether public capital reduces costs of production. This choice of functional form places this paper within the realm of the first category of empirical research mentioned at the end of section 2.

Adoption of a generalized Cobb-Douglas technology, and an assumption that public services are in proportion to the public capital stock allows restatement of the production function in logarithmic form:

$$y_i = a_0 + a_1 n_i + a_2 k_i + a_3 g_i + \varepsilon_i \quad (2)$$

where the lower case represents the natural log of the variables, and g_i is some measure of public capital stock relevant at the firm level. Assumption of constant returns to scale allows expression in factor-intensive form, yielding output per unit of labor input:

$$y_i - n_i = b_0 + b_1(k_i - n_i) + b_2(g_i - n_i) + \varepsilon_i \quad (3)$$

In this form, the coefficient b_2 is interpretable as an elasticity relating output per unit of labor to the relative intensity of public capital. If public capital contributes to individual firm performance via higher output per labor, then the coefficient b_2 will be positive.

Alternatively, assume that the production function exhibits constant returns to scale in the private inputs, but increasing returns to scale over all inputs, private and public. If this were the case, then in equation (2) $a_1 + a_2 = 1$, while $a_1 + a_2 + a_3 > 1$, and the revised factor intensive form of equation (3) is

$$y_i - n_i = d_0 + d_1(k_i - n_i) + d_2 g_i + \varepsilon_i \quad (4)$$

Equations (3) and (4) correspond to the equations to be estimated:

$$y_i - n_i = b_0 + b_1(k_i - n_i) + b_2(g_i - n_i) + \alpha \mathbf{X}_i + \beta \mathbf{Z}_i + \varepsilon_i \quad (5)$$

$$y_i - n_i = d_0 + d_1(k_i - n_i) + d_2g_i + \alpha\mathbf{X}_i + \beta\mathbf{Z}_i + \varepsilon_i \quad (6)$$

where y_i is the natural log of the firm's net sales, k_i is the natural log of the firm's total assets, n_i is the natural log of the number of people employed by the firm, g_i is the natural log of the public capital stock per square mile in the state in which the firm is located. \mathbf{X}_i is a vector of state and industry dummy variables, and \mathbf{Z}_i is a vector of firm-specific dummy variables capturing the age and ownership characteristics of the firms. The inclusion of such firm characteristics follows common convention in entrepreneurial research [Bird, 1989; Blanchflower and Oswald, 1998; Brock and Evans, 1986; Devine, 1994; Schiller and Crewson, 1997; Wortman, 1987].

4. Empirical Analysis

The empirical analysis estimates the foregoing models for 881 small firms during the five years from 1992 to 1996. Firm level data on net sales, employment, and total assets, as well as firm characteristics are derived from the Kauffman Financial Statements database. While most entrepreneurial research equates entrepreneurial activity with self employment, the authors use data from small businesses as a proxy for entrepreneurial activity in order to contribute something useful to the discussion of conditions necessary for entrepreneurial success. Presumably, if entrepreneurs are successful, they eventually either grow into a small business or sell the business concept to other, larger, successful firms. Further, not all self-employed people fill the traditional role of entrepreneur – one who conceives of and brings to fruition a new business concept. For example, someone who cleans houses for others is only an entrepreneur in a limited sense. Thus, when

selecting a metric for entrepreneurial activity, small business activity may be just as useful a proxy as self employment.

Data on state-level public capital stocks are taken from the authors' own estimates of such stocks, and are assigned to individual firms based on the state location of those firms. Thus, while the unit of analysis is the firm, the key variable under investigation is common to all firms within a state. This raises one potential caveat in interpretation of any results. This caveat is best explained with a hypothetical example.

Imagine two firms, identical in all respects, the first of which resides in a "high" public capital state, and second of which is located in a "low" public capital state. If the first firm enjoys higher labor productivity, when controlling for all other observable traits, can one assume that it is the influence public capital that accounts for the higher labor productivity? Not necessarily, because public capital intensity can vary greatly *within* a state. The authors cannot rule out the possibility that the first firm was located in an area of the high public capital state that actually enjoyed little access to that public capital, and that the higher labor productivity is actually attributable to some other unobserved influence. Herein resides a limitation of this analysis that could only be overcome with a more finite matching up of public capital intensity and firm location. Matching up firms with their physical surroundings as such a level of detail is beyond the scope of possibility for now.

Another challenge in making the theoretical model operational is that the data on public capital is an aggregate (state-level) variable, while the other variables are firm-specific. The public capital input, therefore, must be scaled down in some fashion so as to make it relevant at the firm level. One possibility is to measure it on a per capita basis.

In 1992 the per capita public capital stock for the United States was \$10,802. Public capital stocks, however, are probably driven by geography as well as population. Thus in 1992 the state with the highest per capita public capital stock was Wyoming at \$20,093, and the state with the lowest per capita public capital stock was New Hampshire at \$6,472.

Since this study considers the influence of public capital on the basis of physical location, the authors have chosen instead to use a variable that measures the relative *spatial intensity of public capital*, specifically public capital per square mile, measured at the state level. In 1992, the mean value of this variable was \$1,653,066. The state with the highest public capital intensity, as measured in this manner, was New Jersey, and the state with the lowest was Montana. This seems to be a more realistic approach to the issue at hand than the use of per-capita data. The use of public capital per square mile, however, introduces one other consideration. As constructed, public capital per square mile is highly correlated with population density. Therefore, if the coefficient estimate on this variable is positive, one might rightfully ask whether it is the public services input that contributes to higher labor productivity, or whether there is something intrinsic about operating in an area of dense population. It is the authors' contention that the state dummy variables adequately capture and control for state characteristics such as population density.

When doing empirical work on public capital, the way in which estimates of it are constructed are very important because public capital builds up and depreciates over very long time periods. The public capital stock at a given point in history is the culmination of a long historical process. The Bureau of Economic Analysis has published aggregate

estimates of public capital stocks (tangible wealth) for the U.S. from 1925 to 1997. As briefly noted in Section 2, disaggregation of such data into a state-by-state panel is central to most investigations of the regional effects of public capital on private production. Generally, the disaggregation process involves compilation of state-level data on capital expenditures for long time periods, depreciation of different classes of capital expenditures, and the "building up" of public capital stock estimates for each state.

For this paper, the authors compiled capital expenditure data from 1957 forward, employed BEA depreciation techniques, and generated a state-level panel of the net stock of public capital for 1970 to 1996. The authors then compared their own aggregate capital stock estimate to that of the BEA, and found that for 1970 to 1996 the authors' estimates were never at variance with the BEA total by more than 2%. Finally, the authors compared the properties of their public capital panel with the state-by-state data previously employed by other researchers, and were satisfied that the estimates of state-level public capital stocks employed here were in concert with, and in some respects, superior to those employed in previous research.²

Descriptive statistics for key variables are provided in Table 2. The sample is limited to firms with at least five employees, but fewer than 500. The average firm in the sample has 48 employees. Firms with fewer than five employees were excluded in an attempt to ensure that the sample truly was comprised of firms in the traditional sense of a business with a payroll. Net sales were used instead of net income as a proxy for the market value of output instead of net income. The authors hypothesize that for small

² Details concerning the construction of this new data set on public capital are available from the authors upon request.

(and often privately held) firms, net sales offers a better gauge of labor productivity than does net income. Total assets serve as a proxy for capital inputs. Public capital per square mile is measured in current year dollars, and ranges from \$63,000 (Montana, 1992) to \$12.7 million (New Jersey, 1996), with a mean value of about \$1.7 million (1992). Generally, the data exhibit significant, and potentially meaningful, differences among the states in the level and growth rates of public capital stocks. The median growth rate of public capital stock from 1970 to 1996 (not reported in Table 2) was 3.28%, while the mean growth rate was 3.32%. West Virginia accumulated capital at the slowest pace, 2.1%, while Nevada's public capital stock grew at the fastest pace – 4.86% annually. Over a 27-year period, such differences in growth rate result in significant changes in the distribution of public capital across states. Of course such differences are naturally driven by geography and population trends. Measuring public capital on a per square mile basis factors in the geographic element.

Tables 3 presents OLS regression results for equation 5 for the full sample of firms, as well as for manufacturing and service sectors. Generally, the results presented here are robust to random changes in sample composition and size. Both the private and public capital elasticity coefficients are measured with a high degree of precision and have the expected signs. The primary coefficient of interest, b_2 , may be interpreted as the elasticity of the output per worker to public capital intensity per worker. Specifically, the dependant variable measures sales per employee, while the key independent variable measures public capital per square mile per employee. The 1992 full sample coefficient estimate for b_2 of 0.115 implies that a 1% change in the ratio of public capital per square

mile to a firm's employee level is associated with an 11 basis point increase in the ratio of net sales per employee.

To put this result into perspective, consider that in 1992 the average firm in the sample had 48 employee, and sales of \$4.698 million on assets of \$2.337 million, implying a sales to asset ratio of 2.01, and \$97,468 sales per employee. A 1% increase in the public capital variable, associated with an 11 basis point increase in sales per employee, would increase sales per employee to \$97,581. While statistically significant, the economic importance of this result may be open to question. Nevertheless, it is important to recall that significant differences exist among the states with regard to the spatial intensity of public capital. For example, Ohio's public capital per square mile is 74% greater than its neighboring state to the west, Indiana. These results imply that increases in the ratio of public capital per square mile are associated with higher labor productivity (and, by extension, higher private capital productivity). While at the firm level, these differences may be slight, the differences among the states are significant enough to be meaningful for firms that are making location decisions.

There is a sharp difference between this coefficient estimate for the manufacturing and services subsets of the sample. The public capital elasticity appears to be stronger for service firms than for manufacturing firms. Service firms are traditionally less capital intensive than are manufacturing firms. Such results are at odds with findings of previous research. One potential interpretation of these results is that businesses for which private capital inputs are relatively less significant benefit disproportionately from public capital inputs. A potential policy implication of such a finding would be that

public capital plays a relatively important role for areas seeking to attract and nourish a service-oriented economy.

Regarding sensitivity of these results to functional form, Table 4 presents the analogous results for equation 6, in which the assumption of constant returns to scale across all inputs is dropped. Here evidence of a strong relationship between public capital and private output disappears, suggesting that the results may be dependent on functional form. The difference in results between Tables 3 and 4 also may suggest that increasing returns to scale in public and private inputs is an unreasonable hypothesis at the individual firm level.

None of the firm-specific age and ownership variables exhibit any significant influence. More than anything, such a lack of statistical significance probably supports an efficient markets hypothesis. At least for this data, the age or tenure of firms or the characteristics of its ownership do not seem to grant firms any specific benefits or impose any specific barriers.

5. Summary

The role of small businesses in a market economy has been the subject of volumes of research, and the belief that small businesses are pivotal to economic development has led to many policy initiatives aimed at assisting small businesses. At the same time, urban and regional economists have long pondered the factors that contribute to a vibrant business environment. This paper bridges the gap between these two fields of study by investigating the potential influence of public capital – usually thought of as infrastructure – on the viability and success of small businesses.

One obvious question that proceeds from the analysis in section 4 is what aggregate value would such increases in returns on private assets have if the analysis were extended to the economy as a whole? That question is not part of our analysis, but has been addressed indirectly by those who have studied the effect of public capital using *aggregate* production functions. Such studies have usually found a positive effect. The authors' perspective is from the other end of the microscope. If positive returns to public capital accrue in the aggregate, then they must arise via uncountable small effects on firms throughout the economy. In this respect, this study is the first of its kind to test for firm-level effects. One would not have expected for these effects to be earth-shattering in magnitude. That they seem to exist at all lends further credence to the view that public capital has positive external effects on private business, and suggest that these effects may benefit small firms in particular.

One might extrapolate from these results that investment in public capital should be increased on all fronts. This may not be so. Public capital may have nonlinear effects on private productivity [Aschauer, 1997]. In other words, there may exist an optimum ratio of public to private capital, and by extension to our paper, an optimal level of public capital per square mile. Such an optimal level might easily be expected to differ across states because of their different geographic natures. One would not expect the same optimal level of public capital per square mile to apply with equal validity to New Jersey and Montana. This is an area open to further study.

Nevertheless, the results of this paper do have some clear policy implications. The notion that public spending on infrastructure does contribute to an environment conducive to the success of small business provides an important argument for

maintaining and extending high quality infrastructure. Furthermore, it will be important to keep this potential relationship in mind as the meaning of public infrastructure changes. Today's infrastructure initiatives are as likely to be the laying of fiber optic networks as the construction of highways. Because it was constructed from historical data on state capital outlays, the public capital data used in this study is heavily weighted with the latter type of public capital. There would seem to be extensive opportunities to investigate the influence of "new economy" infrastructure on private business activity. Such observations point the way for future research.

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Table 1
Business Starts and Failures by State, 1998

	Mean	Standard Deviation	Minimum	Maximum
Starts/Failures Ratio	3.17	2.78	0.76	18.14
Starts/Failures Ratio*	2.87	1.71	1.02	7.16
Starts per 1,000 residents	0.54	0.15	0.34	1.03
Starts per 1,000 residents*	0.53	0.12	0.36	0.84
Failures per 1,000 residents	0.24	0.14	0.04	0.66
Failures per 1,000 residents*	0.23	0.11	0.07	0.54

Source: *Statistical Abstract of the United States*, 1999.

* Trimmed statistics, excluding top and bottom two states of the distribution. Such statistics are more meaningful because they exclude the influence of Delaware, a clear outlier in terms of business incorporations.

Table 2
Descriptive Statistics

	Mean	Median	Minimum	Maximum	Standard Deviation
Employees	48.2	24	5	450	65.6
Net Sales (000s)					
1992	4,698	1,912	5	137,000	9,457
1993	5,248	2,169	15	169,000	10,433
1994	6,030	2,498	176	335,000	14,786
1995	6,725	2,773	103	420,000	17,565
1996	7,167	2,835	67	504,000	20,481
Total Assets (000s)					
1992	2,337	740,687	12,329	121,000	6,864
1993	2,455	800,464	13,133	94,612	6,529
1994	2,824	946,152	18,355	136,000	7,814
1995	3,044	1,079,470	15,561	204,000	8,936
1996	3,332	1,097,137	7,795	344,000	13,069
Public Capital / Sq. Mi. (000s)					
1992	1,653	750	63	10,552	2,318
1993	1,736	786	66	11,085	2,434
1994	1,817	821	69	11,607	2,547
1995	1,906	860	72	12,187	2,673
1996	1,990	897	75	12,729	2,791

Financial data and employment statistics are based on firm level data ($N = 871$). Public Capital per Square Mile

statistics are based on state-level data as described in the Section 3 ($N = 48$).

Table 3
OLS Regression Results

$$\text{Model: } y_i - n_i = b_0 + b_1(k_i - n_i) + b_2(g_i - n_i) + \alpha X_i + \beta Z_i + \varepsilon_i$$

	1992	1993	1994	1995	1996
	Full Sample				
<i>N</i>	881	881	881	881	881
<i>b</i> ₀	4.079** (0.353)	4.389** (0.352)	4.496** (0.323)	4.633** (0.344)	4.610** (0.362)
<i>b</i> ₁	0.598** (0.022)	0.591** (0.023)	0.581** (0.021)	0.583** (0.022)	0.555** (0.022)
<i>b</i> ₂	0.115** (0.020)	0.098** (0.020)	0.101** (0.018)	0.093** (0.018)	0.117** (0.019)
\bar{R}^2	.566	.547	.590	.585	.558
	Manufacturing				
<i>N</i>	334	334	334	334	334
<i>b</i> ₀	3.183** (0.642)	3.678** (0.582)	4.063** (0.536)	4.148** (0.547)	4.306** (0.539)
<i>b</i> ₁	0.736** (0.041)	0.683** (0.039)	0.663** (0.036)	0.668** (0.036)	0.638** (0.034)
<i>b</i> ₂	0.105** (0.032)	0.086** (0.028)	0.069** (0.025)	0.051* (0.030)	0.062* (0.026)
\bar{R}^2	.560	.566	.588	.582	.585
	Services				
<i>N</i>	233	233	233	233	233
<i>b</i> ₀	3.756** (0.896)	3.764** (0.902)	3.891** (0.917)	3.301** (0.921)	3.780** (1.052)
<i>b</i> ₁	0.497** (0.047)	0.477** (0.048)	0.482** (0.050)	0.544** (0.052)	0.470** (0.055)
<i>b</i> ₂	0.232** (0.049)	0.239** (0.048)	0.219** (0.046)	0.211** (0.045)	0.257** (0.052)
\bar{R}^2	.463	.437	.413	.443	.354

Standard errors are provided in parentheses.

** Statistically significant at a 1% level of confidence.

* Statistically significant at a 5% level of confidence.

Table 4
OLS Regression Results

$$\text{Model: } y_i - n_i = d_0 + d_1(k_i - n_i) + d_2g_i + \alpha\mathbf{X}_i + \beta\mathbf{Z}_i + \varepsilon_i$$

	1992	1993	1994	1995	1996
	Full Sample				
<i>N</i>	881	881	881	881	881
d_0	5.657** (0.548)	5.592** (0.541)	5.685** (0.496)	5.935** (0.525)	6.163** (0.557)
d_1	0.614** (0.021)	0.607** (0.022)	0.595** (0.020)	0.597** (0.021)	0.564** (0.022)
d_2	-0.025 (0.037)	-0.014 (0.036)	-0.007 (0.032)	-0.018 (0.033)	-0.007 (0.035)
\bar{R}^2	.548	.538	.579	.579	.544
	Manufacturing				
<i>N</i>	334	334	334	334	334
d_0	3.249** (1.103)	3.725** (0.871)	3.780** (0.790)	3.994** (0.815)	3.898** (0.800)
d_1	0.713** (0.039)	0.670** (0.035)	0.660** (0.032)	0.650** (0.032)	0.625** (0.031)
d_2	0.055 (0.068)	0.054 (0.058)	0.058 (0.052)	0.051 (0.053)	0.085 (0.051)
\bar{R}^2	.524	.557	.596	.587	.600
	Services				
<i>N</i>	233	233	233	233	233
d_0	5.011** (1.306)	3.886** (1.328)	4.811** (1.307)	4.124** (1.312)	5.004** (1.485)
d_1	0.505** (0.044)	0.504** (0.046)	0.500** (0.047)	0.553** (0.048)	0.472** (0.051)
d_2	0.028 (0.082)	0.107 (0.081)	0.049 (0.077)	0.057 (0.075)	0.065** (0.086)
\bar{R}^2	.401	.372	.361	.404	.312

Standard errors are provided in parentheses.

** Statistically significant at a 1% level of confidence.

* Statistically significant at a 5% level of confidence.