

# Social Capital and Economic Performance in the American States

**ABSTRACT:** Do areas with higher levels of social capital have stronger economies? Robert Putnam has advanced this proposition most recently in *Bowling Alone*, his magisterial study of civic engagement in the United States. Regrettably, he offers only anecdotal evidence to support his contention. Determining the empirical veracity of the economic implications of social capital is crucial to applying the concept to broader questions of economic policy and development. This article thus tests Putnam's hypothesis by analyzing his social capital index measures against state-level output data and measures of physical and human capital. The results show that social capital is not a significant factor compared to other drivers of economic performance, with the exception of a small but positive relationship with employment. The implication is that social capital is not a general prerequisite for prosperity, but may serve to reinforce a particular mode of communitarian economic development.

Terrence Casey  
Assistant Professor of Political Science  
Dept. of Humanities and Social Sciences  
Rose-Hulman Institute of Technology  
Terre Haute, IN 47802  
(812) 877-8281  
Terrence.Casey@rose-hulman.edu

Kevin Christ  
Assistant Professor of Economics  
Dept. of Humanities and Social Sciences  
Rose-Hulman Institute of Technology  
Terre Haute, IN 47802  
(812) 872-6226  
Kevin.Christ@rose-hulman.edu

A previous version of this paper was presented at the 2002 American Political Science Association Conference, Boston, MA. The authors would like to thank Dale Bremmer for suggestions on earlier drafts.

Do areas with higher levels of social capital have stronger economies? Few concepts have precipitated so much research as that of social capital, promoted particularly in the work of Robert Putnam. According to Putnam, it provides widespread social benefits, not the least of which is a vibrant, productive economy. He presents a logical, compelling case for the salutary effects of social capital, but what he does not present is any coherent data -- beyond anecdotal evidence -- to show that there is a consistent correlation, let alone a causal connection, between social capital and economic performance in the US. This paper presents an empirical analysis of social capital and economic performance for the American states. The 14-variable state-level social capital index presented by Putnam in *Bowling Alone* is used to gauge variations in social capital across states. The impact of social capital on numerous economic output indicators (i.e., per capita income, growth in gross state product, etc.) will be analyzed over the last two decades.

This analysis shows that by itself social capital is a poor indicator of state-level economic performance. To further clarify the relationship, measures of both physical and human capital are brought into the equation. Regression analysis incorporating these factors shows that connection between social capital and economic performance is either negative or statistically insignificant. There is, however, limited evidence for a slight but positive connection between social capital and employment. The implication is that social capital is not, as Putnam claims, a general prerequisite for prosperity, but may serve to reinforce a particular mode of communitarian economic development.

### **Social Capital as an Economic Asset**

Social capital is defined as features of social organization, such as social networks and norms of interaction, that enable people to act collectively (Putnam, 2000, p. 19; Woolcock and Narayan, p.

226). The lineage of the concept goes back to the early 20<sup>th</sup> century,<sup>1</sup> but until a decade ago it was only the rare sociologist that gave it any concern. All that changed in 1993 with the publication of Robert Putnam's *Making Democracy Work*, in which he attributed the superior governance of northern versus southern Italy to greater stocks of social capital. Putnam extended this idea into the American context with his 1995 'bowling alone' article (Putnam, 1995), in which he attributed various social and political pathologies to a general decline in social capital in the US since the 1950s, an argument more fully elaborated in a recent book under the same title (Putnam, 2000).<sup>2</sup> Putnam's work captured the imagination of researchers across a wide range of disciplines and policy areas. In the early 1990s perhaps a dozen or so articles were published each year on social capital. Now the figure is closer to 200 (PIU, p. 9). The theory has been invoked to provide explanations for such wide-ranging topics as education, health care, juvenile delinquency, crime rates, economic development, business organization, and so on (Woolcock, 1998, pp. 193-96, fn 20). Social capital has been treated as an explanation for a plethora of social dynamics.

There are many and sundry applications of the concept,<sup>3</sup> but the concern here is how networks and norms are translated into an economic asset. How do social interactions become economic 'capital'? Everyone is familiar with the aphorism, "It's not what you know; it's who you know." Conceived of in this way, social capital ('who you know') is an asset possessed by individuals and used to advance their personal economic standing (i.e., using 'connections' to land a lucrative job). This idea is hardly controversial, but social capital theorists take it one step further to suggest that the proliferation of networks and bonds of trusts – that is, social capital proper -- are in fact traits possessed by communities, not just individuals. Extensive social connections, feelings of

---

<sup>1</sup> The commonly accepted well-spring for the idea of social capital is L. J. Hanifan, a superintendent of schools in West Virginia in the 1920s (Woolcock and Narayan, p. 228; Putnam, 2000, p. 19)

<sup>2</sup> The somewhat odd title refers to the fact that, although Americans are bowling more than ever, the number of bowling leagues has declined. Hence we are 'bowling alone', a point indicative of American's general trend toward social disconnectedness.

<sup>3</sup> For general reviews and critiques of the social capital literature, see Baron, Field and Schuller, and Dasgupta and Serageldin.

generalized trust, and prevalent norms against opportunism and malfeasance serve to enhance the efficient operation of markets by creating positive externalities or by reducing transaction costs (PIU, p. 51-52, Whiteley, pp. 449-50). Social capital is thus transformed from a private into a public good that provides collective and cumulative economic benefits (Putnam, 2000, p. 21). “Those communities endowed with a rich stock of social networks and civic associations will be in a stronger position to confront poverty and vulnerability, resolve disputes, and/or take advantage of opportunities.” (Woolcock, 2001, p. 12) Areas well-endowed with ample stocks of social capital are likely to be more prosperous communities and to stay that way (Putnam, 1993a).

Empirical analyses of the economic implications of social capital have been undertaken at the macroeconomic, regional, and microeconomic levels, both in the US and abroad. Macroeconomic studies have found significant correlations between elements of social capital, particularly trust, and indicators of aggregate economic performance (Knack and Keefer, 1997; Whiteley, 2000). Whiteley, indeed, argues that, if other factors are controlled, social capital is at least as important as human capital in explaining national growth. Analyses at the regional or sub-national level have provided more mixed results. Working with John F. Helliwell, Putnam found that social capital explains economic as well as political difference in Italy (Helliwell and Putnam, 1995). Similarly, Rupasingha, Goetz and Freshwater found that social capital was positively and significantly related to growth among US counties, but more in tandem with other economic and social factors (i.e., ethnic diversity, income inequality). In contrast, Schneider, Plummer and Bauman’s (2000) study showed that economic rather than social factors were the driving forces of economic growth in the (sub-national) regions of Europe. Casey (2003) similarly demonstrated that while there were positive correlations between trust, civic associations and economic performance across the regions of Great Britain, economic associations (i.e., labor unions) were negatively correlated with economic growth. At the microeconomic level, Narayan and Pritchett’s (1997) study of Tanzanian villages

found a direct correlation between average household incomes and social capital. A similar connection was found by Robinson et al. (2000) in Michigan and Illinois in the US.

As the review above indicates, the net results of empirical analyses are mixed and inconclusive.<sup>4</sup> Putnam for his part staunchly defends the connection in *Bowling Alone*, with a map detailing the differences in social capital across states (p. 293, reproduced here in Figure1) and with an entire chapter devoted to discussing the mechanisms by which social capital produces stronger economies (Chapter 19). What he does not do, however, is provide empirical data to support this causal connection.<sup>5</sup> Surprisingly, no one has yet to undertake the simple test of comparing Putnam's social capital data for the US states against measures of economic performance. This article seeks to fill that void and add a further piece of evidence toward understanding the utility of social capital for general questions of economic development.

### **Social Capital and State Economic Performance**

Is there a correlation between stocks of social capital and prosperity? Putnam specifically states: "At the local or regional level, there is mounting evidence that social capital among economic actors can produce aggregate economic growth" (2000, p. 323). In *Bowling Alone*, he constructed a 14-variable index of social capital at the state level (pp. 291-3). Collectively these are intended to measure the core traits and behaviors underlying the concept of social capital: community organizational life, engagement in public affairs, community volunteerism, informal sociability, and

---

<sup>4</sup> Partly this results from shortcomings in available data. Long-term data on social trust, for example, are simply not available in some countries. A greater problem is the lack of common metrics. Different authors often 'fix' perceived theoretical problems with the formulation of the social capital concept prior to undertaking empirical work. This may be theoretically valid, but it makes comparison of empirical findings difficult. It would be best for empirical studies to endeavor to stick to the dominant (Putnam) formulation of social capital while undertaking empirical work and only then use these findings to correct theoretical flaws. Otherwise, it becomes nearly impossible to assess the validity of these arguments.

<sup>5</sup> As one review of *Bowling Alone* put it, "Putnam is making a case rather than testing a hypothesis..." (Edwards and Foley, 2001, p. 227).

social trust. The distribution of these traits across the states, according to Putnam, is analogous to barometric pressure systems, with a social capital “high pressure system” centered over Minnesota, a “low pressure system” centered over Mississippi, and various gradations in between. By the logic of his argument, we should thus find a pattern of state economic outcomes similar to that found for social capital.

In order to test this proposition, state-level data on economic performance was gathered and compared against Putnam’s social capital index.<sup>6</sup> Six measures were examined for each state from 1980 through 2001 for the 48 contiguous US states.<sup>7</sup> Alaska and Hawaii are excluded from this analysis not because of a lack of economic data, but because Putnam does not provide a comprehensive social capital score for these states due to shortcomings in the available survey data. In order to gauge relative economic performance, we first measure the output of state economies both per capita output and as the annual percentage change in per capita output, both in constant 1992 dollars.<sup>8</sup> Secondly, more productive states are likely to be more prosperous states, so productivity is a key indicator of economic health. Unfortunately, there is no comprehensive figure for productivity published at the state level. In order to get some indication of cross-state differences in productivity, value-added per production worker in manufacturing was calculated for each state.<sup>9</sup>

---

<sup>6</sup> The question in this paper is not the conceptual accuracy of Putnam’s state-by-state index, but whether there is an empirical connection between variations in social capital and variations in economic performance as Putnam claims. Therefore we have simply adopted his index scores for each state. This data was downloaded from the publicly available website that accompanied *Bowling Alone*. See <http://www.bowlingalone.com/data.php3>. To allow easy comparability with economic data, this was converted to a 100-point scale.

<sup>7</sup> The logic for this particular timeframe is twofold. First, performance had to be gauged over a relatively long period of time in order to account for business cycle effects. Secondly, although there are variations in the number of years covered by individual indicators in Putnam’s data, much of his polling data goes back to the late 1970s. Beginning the analysis in 1980 thus offers a reasonable comparability in years across dependent and independent variables.

<sup>8</sup> This data was gathered from the Bureau of Economic Analysis website ([www.bea.gov](http://www.bea.gov)).

<sup>9</sup> This was calculated as value-added in manufacturing divided by the number of production workers in each state. This was based on data from the Economic Census, which is conducted every five years on the ‘2’s’ and ‘7’s’. This study includes data for 1982, 1987, 1992, and 1997. Data from the Annual Survey of Manufactures was included for 2000. See Census Bureau, *Annual Survey of Manufacturers: Geographic Area Statistics* (Washington: Bureau of the Census) 1994 and 2000.

Finally we measure employment generation, specifically the percentage growth in employment and the unemployment rate.<sup>10</sup>

At least in terms of simple correlations, there is little evidence that greater stocks of social capital produce stronger economies. The last row of Table 1 reports the correlations between the respective economic indicators and Putnam's social capital index. On most measures, the relationship is one of very small positive or negative values ( $r = -0.146$  for productivity;  $0.022$  for per capital gross state product), indicating essentially no connection between the variables. The one exception is unemployment, with a moderately strong  $-0.584$ , indicating that unemployment falls as social capital rises. Since previous studies (Knack and Keefer, 1997; Whiteley, 2000) have found positive relationships between some elements of social capital (i.e., social trust) but not others, Table 1 also includes correlations with some of the specific components of social capital. Rather than include all 14 of Putnam's measures, many of which are overlapping or redundant,<sup>11</sup> included are the variables from each of his five underlying traits of social capital that had the highest correlation with his overall index (See Putnam, 2000, p. 291, Table 4). The pattern of correlations with these variables largely remains one of a range of very small positive and negative correlations. The exception again is unemployment, again indicating a moderate inverse relationship. Ironically, employment growth shows a negative correlation with almost all elements of social capital. Social capital may not increase income, growth, or create new jobs, but states with higher levels of social capital do tend to have lower levels of unemployment.

\*\*\*\*\*

Table 1 about here

\*\*\*\*\*

---

<sup>10</sup> This data was gathered from the Bureau of Labor Statistics website ([www.bls.gov](http://www.bls.gov)).

<sup>11</sup> He includes, for example, both the percentage of people who served on the committee of a local organization and the percentage that served as an officer in a club or organization. This would seem to tap the same underlying values and behaviors.

If Putnam's hypothesis is correct, then mapping variations in economic performance across states should produce a map that looks similar to his map of social capital differences (Figure 1). In order to assess the similarities, Figure 2 maps the average growth in per capita GSP from 1980-2001, indexed so that the US average is equal to 100. Contrary to Putnam's findings, the "high pressure systems" of growth do not reside in the high social capital states of the northern Great Plains, which saw average or below average growth. Rather, the sunbelt and northeast have been the centers of growth over the last two decades. Indeed, states near the bottom of the social capital scale had some of the fastest growing economies (i.e., Georgia) while high social capital states experienced stagnant growth (i.e., Montana). At first glance, then, social capital serves as a rather poor indicator of economic performance.

\*\*\*\*\*

Figures 1 and 2 about here

\*\*\*\*\*

### **Social Capital and Other Capitals**

Of course, social capital advocates would retort that the concept cannot be examined in isolation. Social capital is simply one form of capital among many others – physical capital, natural capital, human capital, cultural capital, and financial capital (PIU, p. 13). Stocks of these "other capitals" obviously have a major influence on any given area's potential for prosperity. Putnam and others are certainly not maintaining that social capital is a sufficiently powerful influence on economic outcomes that it can counter shortcomings in other factors. All else being equal, however,

“...most researchers agree that social capital does help individuals to prosper. The only real debate is over how big a role social capital plays relative to human or financial capital” (Putnam, 2000, p. 322). It is thus necessary to bring these other forms of capital into the equation so as to decipher just how big a role social capital plays.

The first additional factors to consider are physical and financial capital. While these two are not identical economic inputs, at least in the context of an advanced industrial economy like the United States we tend to conceive of financial capital as a fungible asset that it can be transformed into productive physical capital. Because of this we may use the terms interchangeably. The measures to be used here are net real stocks of private and public capital. State-level data on this were gathered by Christ and Green (2002) in their study of public capital and small firm performance. Building on previous research, they disaggregated Bureau of Economic Analysis (BEA) national estimates for public and private tangible capital to state level estimates. They examined constant private capital expenditure across states, factoring in a depreciation term, and tracked the changes in private capital stocks over time.<sup>12</sup> The same method was used on state and local government capital expenditures as a measure of public capital. Their study covered the period of 1967-97 for private capital and 1970-96 for public capital. Since some of this data precedes the period covered in the Putnam index, this study will only be using that data from 1980-96/97. Obviously, in pure dollar figures we would expect a large state like California to have a much higher stock of both private and public capital than a small state like Rhode Island. With the aim of equalizing data across states, stocks of public and private capital were calculated on a per capita basis.

Human capital is another driver of economic performance. Human capital is a catch-all term that relates to any sort of skills, abilities, and knowledge possessed by individuals which, when more

---

<sup>12</sup> Data for this was drawn from the Annual Survey of Manufacturers.

prevalent in a particular community, can be translated into productive activity. The most basic measure of the skills of the workforce is education, which is gauged here by the percentage of a state's population with a bachelor's degree or higher.<sup>13</sup> In addition to education, economic success requires entrepreneurial risk. Given this, perhaps the most pertinent attribute of human capital that we would expect to find in more prosperous areas is a spirit of entrepreneurialism that increases the propensity for risky economic endeavors. Unfortunately, there is no way to directly measure the "spirit of entrepreneurialism". As a result, it is necessary to develop proxy measures that capture the results of this characteristic. First, we use state data on new business starts for 1994-98 from the *Statistical Abstract of the United States*. Given difference in size, a direct state-to-state comparison would not be valid. Each state's new business starts were thus calculated as a percentage of all new business starts in the US. This was then compared against each state economy's contribution to the gross national product. It would be expected that a state that constitutes 5% of the US national economy should produce roughly 5% of all new business starts in a given year, thus producing a ratio at or near one. To the extent that the ratio is greater than unity, we can reasonably infer that that the population of that state has above average tendencies toward entrepreneurialism. To the extent that it is less than one, we can infer that entrepreneurial traits are somewhat lacking in that state. Second, we use Census data on the percentage of workers in self-employment. Again, we would expect an area with higher levels of entrepreneurialism to have a greater percentage of workers in self-employment.

In addition to physical and human capital, states differ in their preexisting competitive endowment. Initial structural conditions alter the economic challenge faced by a state, so these need to be taken into account in assessing the relative importance of various forms of capital. Such structural differences will be assessed first by the percentage of workers in labor unions. Unions are

---

<sup>13</sup> This data were gathered from various years of *The Statistical Abstract of the United States* and the Census Bureau website ([www.census.gov](http://www.census.gov)).

generally conceived as an impediment to competitive restructuring. It is inferred that states with a higher percentage of workers in unions will have less flexible labor markets, which will serve as a drag on the growth of the state's economy. Secondly, the industrial structure of a state is measured by the percentage of gross state product produced by manufacturing. Given the long-term trend of deindustrialization in the US and the rapid growth of service industries, it is again inferred that states with a higher percentage of manufacturing are likely to achieve lesser economic performance.

As a first assessment of the relationship between these "other capitals" and economic outcomes, we examine simple correlations in Table 2. Overall the majority of the correlations show very low positive or negative values. Looking across the rows per capita output is boosted by the amount of public capital ( $r = 0.539$ ), education ( $r = 0.495$ ) and to a lesser degree by the prevalence of labor unions ( $r = 0.392$ ). Output growth, on the other hand, is positively related at any meaningful level only to education and industrial structure. Entrepreneurialism is the most significant factor ( $r = 0.309$ ) in boosting productivity, while union levels appear to decrease employment ( $r = -0.370$ ). Unemployment, alternately, falls with higher aggregate levels of education.

\*\*\*\*\*

Table 2 about here

\*\*\*\*\*

Such simple correlations cannot, however, address the key question of concern: the relative significance of social capital compared to other growth factors. In order to investigate the question empirically, we start with a standard production function approach to aggregate economic output, to which may be added additional explanatory variables. In its simplest form, such an approach models

the relationship between labor and capital inputs and economic output. A general form of such a production function merely expresses output as some function of technology and inputs:

$$Y = Af(N, K) \quad (1)$$

Where  $Y$  is some measure of aggregate economic output such as gross domestic product,  $A$  is a technology parameter,  $N$  is a labor input variable, and  $K$  is a capital input variable. In the late 1980s, economists looking into the importance of public spending on output and productivity modified this simple form to distinguish between private and public capital (infrastructure), expanding the production function from two to three input factors:

$$Y = Af(N, K, G) \quad (2)$$

Where  $G$  is some measure of services flowing to the private sector from publicly provided infrastructure.<sup>14</sup> Since the focus here is on various factors that might influence economic performance, such a three-factor production function seems a reasonable starting point.

Adopting a fairly standard approach to estimation of aggregate production functions, we employ a Cobb-Douglass functional form. This is a simple multiplicative function with constant elasticities of output among the right hand (input) variables. In the basic form, these elasticities appear as exponents on each of the input variables:

$$Y = AN^{a_1} K^{a_2} G^{a_3} \quad (3)$$

One common assumption about these exponents is that they sum to 1, in which case the production function exhibits constant returns to scale. This means that if all the factors are increased by some percentage, output will increase by the same percentage. One of the empirical features of such a Cobb-Douglas form is that when the variables are expressed in logarithmic form, the equation becomes linear, making it amenable to empirical estimation by ordinary least squares regression, and

---

<sup>14</sup> Empirical research on what came to be called the "public capital hypothesis" includes, but is not limited to Costa, Ellson and Martin (1987); Aschauer (1989); Munnell (1990); Lynde and Richmond (1992); Evans and Karras (1994); and Morrison and Schwartz (1996).

the coefficient estimates are interpretable as elasticities relating inputs to output. Thus, where the lower case represents the natural log of the variables, the linear form of the production function becomes:

$$y = a_0 + a_1n + a_2k + a_3g + \varepsilon \quad (4)$$

Taking first differences of this equation yields an expression for the percentage change in aggregate growth as a function of the percentage change in inputs:

$$\Delta y = a_0 + a_1\Delta n + a_2\Delta k + a_3\Delta g + \varepsilon \quad (5)$$

Alternatively, the assumption of constant returns to scale allows expression in per capita form. Division of all of the variables by population yields per capita output as a function of the per capita capital inputs and an employment ratio. Where  $p_i$  represents the natural log of the state's population, equation (4) becomes:

$$y - p = b_0 + b_1(n - p) + b_2(k - p) + b_3(g - p) + \varepsilon \quad (6)$$

We may use these model specifications to empirically test the influence of other factors such as human and social capital, by adding them to this foundation. Conceptually, the influence of such factors is embedded in the intercept equations (5) and (6). Econometrically, we can test for the influence of these other factors by adding them in via a vector of control variables,  $\mathbf{X}_i$ . In this spirit, we estimate the following equations for the 48 contiguous states using ordinary least squares regression:

$$\Delta y_i = a_0 + a_1\Delta n_i + a_2\Delta k_i + a_3\Delta g_i + \alpha\mathbf{X}_i + \varepsilon_i \quad (7)$$

$$y_i - p_i = b_0 + b_1(n_i - p_i) + b_2(k_i - p_i) + b_3(g_i - p_i) + \beta\mathbf{X}_i + \varepsilon_i \quad (8)$$

where the subscript  $i$  denotes the state ( $i = 1 \dots 48$ ).

The dependent variable,  $y_i$ , is the natural log of gross state product for the 48 contiguous states. These data are taken from the BEA. The employment variable,  $n_i$ , is the natural log of

private sector non-farm employment, available from the U.S. Department of Labor. The private capital stock variable,  $k_i$ , is the natural log of the disaggregated net stock of private nonresidential fixed capital, adapted from the BEA's data on tangible wealth. The public capital stock variable,  $g_i$ , is the natural log of the disaggregated net stock of public fixed capital, also from the BEA's tangible wealth data.<sup>15</sup> The population data used to convert all these variables to per capita values are taken from the U.S. Census Bureau. The input vector  $X_i$  is comprised of additional variables included to capture the “other capitals” as described above. The empirical indicators of these variables are defined in the footnote to Table 2.

The analysis is cross sectional, and OLS estimation is performed on the average values of constant dollar amounts for 1986 to 1996. This period covers a full business cycle, from the boom of the late eighties, through the recession of the early nineties, to the recovery of the mid-nineties. It is also a period for which there is complete data available for all the variables of interest.

Table 3 presents ordinary least squares estimation of equations (7) and (8) for both the percentage change in gross state product and per capita GSP. The key insight offered by Table 3 is insignificance of social capital in state economic performance. Social capital is not a statistically significant factor explaining the percentage change in gross state product (equation (7)). Alternately, while it is a statistically significant factor in explaining differences in per capita GSP (equation (8)), the small size of the coefficient shows that it is economically insignificant compared to the other variables included. Levels of social capital would have to increase drastically in order to induce a noticeable change in economic performance. Even if it did, the signs of the coefficients in both equations are negative, indicating that increases in social capital would reduce rather than enhance

---

<sup>15</sup> Details concerning the construction of these state-level capital stock variables are available from the authors upon request. Generally, the methodology followed is described in Costa, Ellson and Martin (1987); and Munnell (1990).

economic performance. In sum, these results show that social capital is not a statistically or economically significant factor in American state economic growth.

This point is reinforced by noting the coefficients estimates for the other variables included in the equation. For the percentage change in gross state product, an aggregate growth rate model including both private and public capital (columns 1 and 2 of the table) present results that, for the most part, conform to prior expectations. As one would expect, the model provides excellent explanatory power, as measured by  $R^2$ . The coefficient estimates on the employment and private capital variables have positive signs and are statistically significant. The coefficient estimate for public capital, however, is negative, implying an inverse relationship between changes in public spending and changes in output growth. Expanding the model to include human capital, state competitive characteristics and social capital improves the  $R^2$ , and this increase in  $R^2$  is statistically significant as evidenced by the  $F$ -test for the incremental contribution of variables. The coefficient estimates for education, and industrial structure are each statistically significant and have positive signs, in accord with a priori expectations. In terms of relative significance, education and industrial structure are about equal in importance. The coefficient estimates for unionization, entrepreneurialism and social capital are not statistically significant.

\*\*\*\*\*

Table 3 about here

\*\*\*\*\*

Columns 3 and 4 of the table present coefficient estimates for equation (8), in which gross state product and factor input variables are expressed in per capita form. The signs on all the basic growth model variables are positive; the coefficient estimate on the private capital variable is not

significant, while the coefficient estimate on the public capital variable is significant. Curiously, these results are reversed when the other explanatory variables are added in (column 4). This inconsistent result is probably attributable to multicollinearity between per capita public and private capital. Under such conditions,  $R^2$  is relevant, but individual parameter estimates are subject to instability when sample size or functional form is altered.<sup>16</sup>

Generally, the coefficient estimates for the “other capitals” tell a similar story as equation (7). Here again education stands out as a relatively important positive influence on per capita output. In this instance unionization also appears to be relatively important, as opposed to industrial structure in equation (7). These two explanatory variables are possibly collinear. Interestingly, the sign on social capital is actually negative and statistically significant, although its influence on the dependent variable is relatively minor compared to education and unionization. To repeat the conclusion stated earlier, if one is looking for influential factors in economic performance, the results in Table 3 seem to indicate that social capital is (at best) well down the list.

Despite these aggregate results, there may still be still reason to believe that there is a link between social capital and certain indicators of economic activity. In particular, social capital exhibits an inverse correlation with the unemployment rate. One conjecture is that communities with a strong social fabric place a premium on social stability and find ways to minimize job disruptions that give rise to unemployment. To further investigate this potential link, Table 4 presents the results of OLS regression of the state unemployment rate on those other factors included in the earlier regressions. In general, the results conform to a priori expectations. Educational levels and unemployment are inversely related. Higher levels of unionization tend to be associated with higher levels of unemployment. And a high social capital index is associated with lower unemployment.

---

<sup>16</sup> Costa, Ellson, and Martin (1987) report similar results.

\*\*\*\*\*

Table 4 about here

\*\*\*\*\*

Regarding these results, one may ask why then does the social capital index not exhibit a stronger relationship with measures of economic output? From a purely statistical point of view, Okun's Law is a well-known empirical regularity in economics that demonstrates a fairly stable inverse relationship between changes in unemployment and aggregate output growth. By transitive reasoning, if unemployment and output growth are inversely related, and social capital and unemployment are inversely related, then should there not be a direct statistical relationship between measures of social capital and output growth? The most likely reason why one does not observe such a relationship is because the statistical relationship between unemployment and social capital is fairly weak. In the regression results of Table 4, educational levels, unionization, and new business starts all exhibit a far stronger influence on unemployment. In terms of relative influence, even on unemployment, social capital is a minor factor.

## **Conclusions**

The preceding analysis provides the first comprehensive empirical test of Putnam's claims regarding the benefits of social capital for economic growth in the US. While data limitations, particularly in regard to data on social capital, prohibit an exhaustive analysis, a few conclusions can be drawn. First, the evidence does not support the proposition that social capital, as measured by Putnam's index, is a key ingredient for economic growth, which was found to be either negatively

related or economically insignificant in all models. Whether looking at Putnam's cumulative index or at its individual components, there is either no statistically significant relationship or a very small positive correlation between economic performance and social capital in the American states. Using regression analysis to isolate the relative significance of different economic inputs, other forms of capital – including human capital – were shown to be of greater consequence to economic performance than social capital. This contradicts previous cross-sectional studies, which have found positive relationships between components of social capital (i.e., trust) and economic performance (Knack and Keefer, 1997; Whiteley, 2000).

That being said, higher levels of social capital were shown to be positively related to lower unemployment. This highlights two points. First, as mentioned above, with regards to economic growth social capital appears to be vastly less influential than other factors, such as education. It is an advantage, but more at the margins. A second and more intriguing point is the disparate influence of social capital on different aspects of economic performance. It does not seem to do much for growth, productivity or entrepreneurialism, but it does appear to mitigate the unemployment problem – albeit only when other factors of economic growth are securely in place. This suggests that social capital, rather than being a general prerequisite for a prosperous economy, may simply be the foundation for a certain mode of communitarian economic development..

While advanced industrial economies face similar economic challenges and opportunities, comparative studies have shown that there are numerous “models of capitalism” rather than a singular pattern of capitalist development. (Berger and Dore; Coates; Crouch and Streeck; Hall and Soskice; Hollingsworth and Boyer). Hence the Japanese “developmental state” functions alongside the more market-driven American economy and the German social market economy. In understanding these variations it is recognized that certain institutional structures and social attitudes are more conducive to particular modes of economic development. Economies thrive by pursuing

strategies congruent with their “comparative institutional advantages” (Hall and Soskice, p. 37). However, the net results of different modes of development are unlikely to be identical; different models are stronger or weaker on different performance measures. Hence a market-based model like the US or UK may produce high growth but higher levels of inequality. More coordinated economies, such as Germany or France, may be slower growing but produce a more equal distribution of income. (Indeed, this is the pattern seen in these economies in the last decade.) The point is this: there are different paths of capitalist development, but not all paths lead to the exact same destination.

From this we may discern a particular pattern of development for regions rich in social capital. The underlying ethos of the social capital model is one of community engagement and collective endeavor. Areas with a strong communitarian ethic and dense networks of social interaction should be expected, therefore, to thrive in just those measures of economic performance, such as employment, that are most conducive to improvement via greater community organization and connection. Social capital was, after all, originally conceived of in a sociological sense as an asset upon which individuals could draw in just such situations as seeking employment. More to the point the converse should be of no surprise -- that states lacking in this trait may have strengths in areas of economic performance (i.e., high growth) where more individualistic behaviors produce economically beneficial outcomes (Casey, 2002). In other words, states with high levels of social capital may have a comparative institutional advantage in job performance, but not necessarily on all measures of economic performance.

Putnam’s concept helps to illuminate the puzzle of disparities in economic performance. The above analysis shows, however, that – at least for the United States -- the empirical validity of this concept for explaining economic performance and his particular means of measuring it are questionable. This is hardly sufficient to reject the utility of social capital for questions of political

economy, but it does suggest that a more nuanced conceptualization of the connection between social traits and economic outcomes is needed.

## WORKS CITED

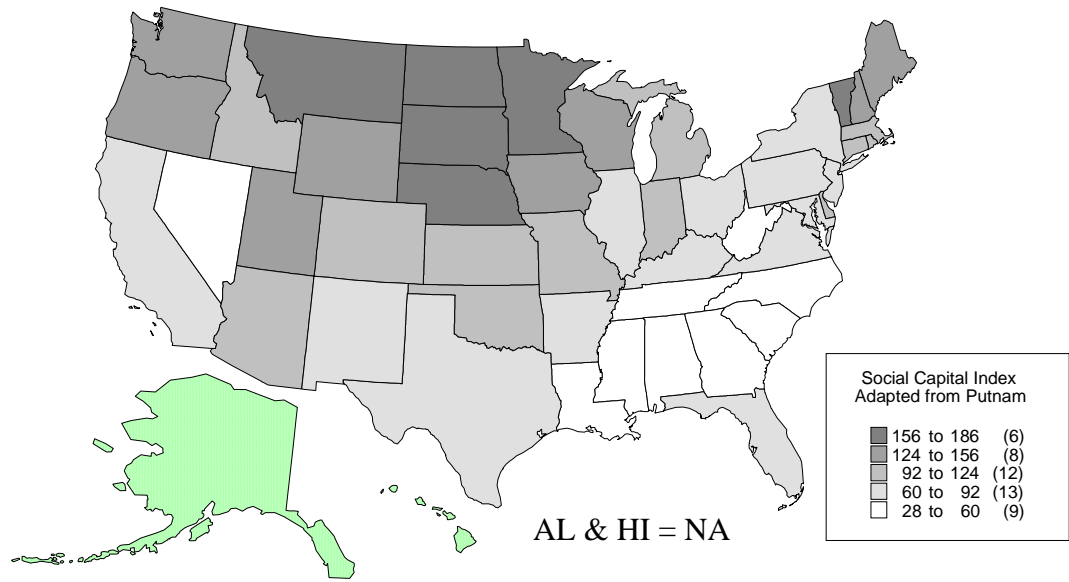
- Aschauer, David A. 1989. "Is Public Expenditure Productive?" *Journal of Monetary Economics* 23: 177-200.
- Baron, Stephen, Field, John and Schuller, Tom. Eds. 2000. *Social Capital: Critical Perspectives*. Oxford, UK: Oxford University Press.
- Berger, Suzanne and Dore, Ronald eds. 1996. *National Diversity and Global Capitalism* Ithaca, NY: Cornell University Press.
- Casey, Terrence. 2002. *The Social Context of Economic Change in Britain: Between Policy and Performance*. Manchester, UK: Manchester University Press.
- Casey, Terrence. 2003. "Social Capital and Regional Economies in Britain." *Political Studies*. Forthcoming.
- Christ, Kevin and Green, Richard. 2002. "Public Capital and Small Firm Performance." *Atlantic Economic Journal*. Forthcoming.
- Census Bureau (Various). *Statistical Abstract of the United States*. Washington: GPO.
- Census Bureau. 2000. *Annual Survey of Manufacturers: Geographic Area Statistics*. Washington: Bureau of the Census.
- Coates, David. 2001. *Models of Capitalism: Growth and Stagnation in the Modern Era*. Cambridge, UK: Polity Press.
- Coleman, James. 1990. *Foundations of Social Theory*. Cambridge, MA: Harvard University Press.
- Costa, Jose de Silva, Richard W. Ellson and Randolph C. Martin. 1987. "Public Capital, Regional Output, and Development: Some Empirical Evidence." *Journal of Regional Science* 27(3): 419-437.
- Crouch, Colin and Streeck, Wolfgang. eds. 1997. *The Political Economy of Modern Capitalism: Mapping Convergence and Diversity*. London: Sage.

- Dasgupta, Partha and Serageldin, Ismail, eds. 2000. *Social Capital: A Multifaceted Perspective*. Washington: World Bank.
- Edwards, Bob and Foley, Michael. 1998. "Civil Society and Social Capital Beyond Putnam." *American Behavioral Scientist*. 42 (1):124-139.
- Edwards, Bob and Foley, Michael. 2001. "Much Ado about Social Capital." *Contemporary Sociology*. 30 (1): 227-230.
- Fukuyama, Francis. 1995. *Trust: The Social Virtues and the Creation of Prosperity*. New York: Free Press.
- Hall, Peter A. and Soskice, David. eds. 2001. *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*. New York: Oxford University Press.
- Hollingsworth, J. Rogers and Boyer, Robert eds. 1997. *Contemporary Capitalism: The Embeddedness of Institutions*. Cambridge, UK: Cambridge University Press.
- Helliwell, John F. and Putnam, Robert D. 1995. "Economic Growth and Social Capital in Italy." *Eastern Economic Journal*. 21 (3): 295-307.
- Knack, Stephen and Keefer, Philip. 1997. "Does Social Capital Have an Economic Payoff? A Cross-Country Investigation." *Quarterly Journal of Economics*. 112(4): 1251-1288.
- Lynde, Catherine, and James Richmond. 1992. "The Role of Public Capital in Production." *The Review of Economics and Statistics*. 74: 37-44.
- Morrison, Catherine J. and Amy E. Schwartz. 1986. "State Infrastructure and Productive Performance." *The American Economic Review* 86:5 (December ):1095-1111.
- Munnell, Alicia H. 1990. "How Does Public Infrastructure Affect Regional Economic Performance?" *New England Economic Review* (September/October): 11-32.
- Narayan, Deepa and Pritchett, Lant. 1997. "Cents and Sociability: Household Income and Social Capital in Rural Tanzania." Policy Research Working Paper 1796. World Bank.
- Performance and Innovation Unit (PIU). 2002. "Social Capital: A Discussion Paper," The Cabinet

- Office: London. <http://www.number-10.gov.uk/su/social%20capital/socialcapital.pdf>
- Portes, Alejandro. 1998. "Social Capital: Its Origins and Application to Modern Sociology." *Annual Review of Sociology*. 24: 12-37.
- Putnam, Robert. 1993. *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton, NJ: Princeton University Press.
- Putnam, Robert. 1993a. "The Prosperous Community: Social Capital and Public Life." *The American Prospect*. 356 (October): 4-10.
- Putnam, Robert. 1995. "Bowling Alone: America's Declining Social Capital." *Journal of Democracy*, 6 (1): 65-78.
- Putnam, Robert. 2000. *Bowling Alone: The Collapse and Revival of America's Civic Community*. New York: Simon and Schuster.
- Putnam, Robert. 2001. "Social Capital: Measurement and Consequences." *Canadian Journal of Policy Research*. 2(1): 41-51.
- Robinson, Lindon J., Siles, Marcelo E., Bokemeier, Janet L., Beveridge, David, Fimmen, Michael, Grummon, Phyllis T. and Fimmen, Carol. 2000. "Social capital and Household Income Distribution: Evidence from Michigan and Illinois. Social Capital Initiative Research Report 605. Department of Agricultural Economics. Michigan State University.
- Rupasingha, Anil, Goetz, Stephan J., Freshwater, David. 2002. "Social and Institutional Factors as Determinants of Economic Growth: Evidence from the United States. *Papers in Regional Science*. 81:139-155.
- Schneider, Gerald, Plumper, Thomas, and Bauman, Stephan. 2000. "Bringing Putnam to the European Regions: On the Relevance of Social Capital for Economic Growth." Paper presented at the International Studies Association Conference, Los Angeles, CA.
- Whiteley, Paul F. 2000. "Economic Growth and Social Capital." *Political Studies*. 48(3): 433-66.

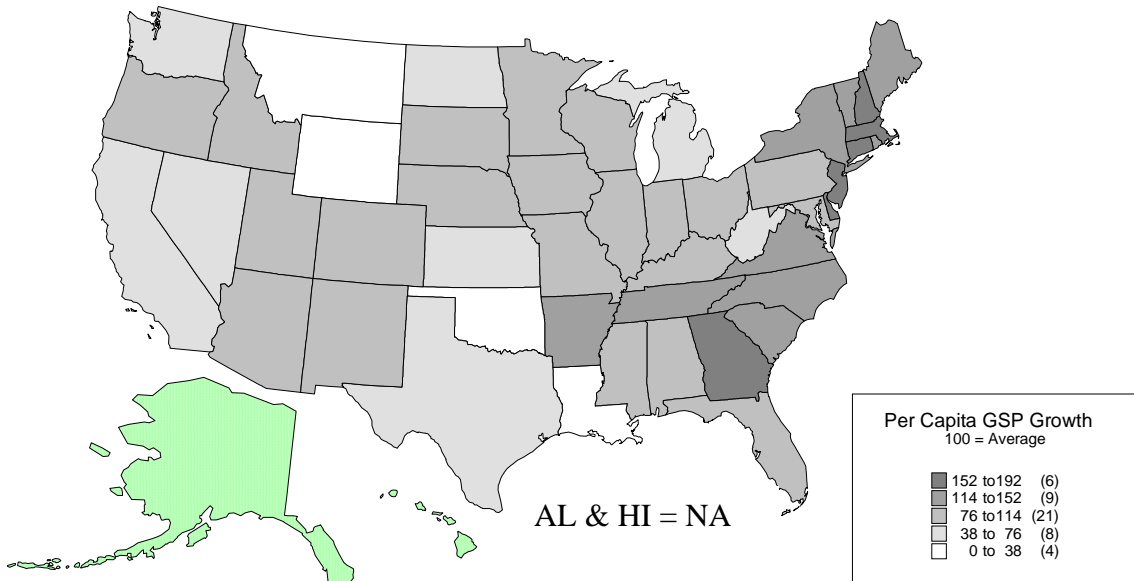
- Woolcock, Michael. 1998. "Social Capital and Economic Development: Toward a Theoretical Synthesis and Policy Framework." *Theory and Society*. 27 (2): 151-203.
- Woolcock, Michael. 2001. "The Place of Social Capital in Understanding Social and Economic Outcomes." *Canadian Journal of Policy Research*. 2 (1): 11-17.
- Woolcock, Michael and Narayan, Deepa. 2000. "Social Capital: Implications for Development Theory, Research and Policy." *World Bank Research Observer* 15 (2): 225-249.

Figure 1: Putnam's Social Capital Index by State



Source: Putnam, *Bowling Alone*.

Figure 2: Average Percentage Change in Per Capita Gross State Product, 1980-2001



Sources: Bureau of Economic Analysis.

**Table 1**  
**Correlations between Social Capital and State Economic Performance**

	Per Capita GSP	GSP Growth	Productivity	Employment	Unemployment
Community Organizational Life	0.029	-0.055	-0.268	0.244	-0.554
Engagement in Public Affairs	-0.065	-0.021	-0.145	-0.233	-0.355
Community Volunteerism	0.056	-0.079	-0.084	-0.223	-0.393
Informal Sociability	-0.265	-0.162	-0.240	-0.224	-0.401
Social Trust	0.259	0.050	-0.120	-0.034	-0.550
Putnam's Social Capital Index	0.022	0.062	-0.146	-0.128	-0.584

Explanation of Economic Variables:

Per Capita GSP	Average real per capita gross state product, 1980 – 2001 (constant 1992 dollars).
GSP Growth	Average annual percent change in real per capita gross state product, 1980 – 2001 (constant 1992 dollars).
Productivity	Percent change in real value added per production worker, 1982 – 2002 2001 (constant 1992 dollars).
Employment	Average annual percent change in state non-farm private sector employment, 1980 – 2001.
Unemployment	Average state unemployment rate, 1980 – 2001.

**Table 2**  
**Correlations Between "Other Capitals" and State Economic Performance**

	Per Capita GSP	GSP Growth	Productivity	Employment	Unemployment
--	-------------------	---------------	--------------	------------	--------------

Financial Capital:

Private Capital	0.069	-0.532	-0.007	-0.220	-0.062
Public Capital	0.539	-0.152	-0.002	0.225	-0.178

Human Capital:

Education	0.495	0.427	0.041	-0.104	-0.376
Entrepreneurial Activity	-0.326	-0.189	0.309	0.148	-0.004

State Characteristics:

Unionization	0.392	0.055	-0.241	-0.370	0.238
Industrial Structure	-0.147	0.350	-0.104	-0.259	0.146

Explanation of Other Variables:

- Private Capital      Real net stock of private nonresidential fixed capital, state level, 1980 – 1996 (millions of constant 1992 dollars). Average Constant Dollar Per Capita Gross State Product, 1980 – 2001.
- Public Capital      Real net stock of public fixed capital, state level, 1980 – 1996 (millions of constant 1992 dollars).
- Education            Average percent of state population with a bachelor's degree, 1980 – 2001.
- Entrepreneurial      Average annual percent change in state non-farm private sector employment, 1980 – 2001.
- Unionization        Average percentage of private sector employees in unions, selected years, 1983 – 2000.
- Industrial Structure    Average percentage of gross state product in manufacturing, 1980 – 2001.

**Table 3**  
**OLS Regression Results – Percentage Change in Real Gross State Product and Per Capita Gross State Product**

	<i>DV</i> : % Change in Real GSP		<i>DV</i> : ln Per Capita GSP	
	Equation 7a. Basic Growth Model	Equation 7b. With “Other Capitals”	Equation 8a. Basic Growth Model	Equation 8b. With “Other Capitals”
Intercept, $a_0, b_0$	1.112* (0.514)	-0.444 (0.896)	8.836* (0.771)	8.732* (0.929)
Labor input, $a_1, b_1$	0.767* (0.113)	0.997* (0.115)	1.137* (0.193)	1.090* (0.198)
Private capital, $a_2, b_2$	0.726* (0.107)	0.500* (0.106)	0.048 (0.051)	0.161* (0.053)
Public capital, $a_3, b_3$	-0.812* (0.312)	-0.624 (0.333)	0.178* (0.082)	0.048 (0.083)
Education		0.052* (0.018)		0.009* (0.003)
Entrepreneurialism		-0.075 (0.053)		-0.002 (0.010)
Industrial Structure		0.026* (0.013)		-0.003 (0.002)
Unionization		0.022 (0.014)		0.006* (0.002)
Putnam's Social Capital Index		-0.001 (0.002)		-0.001* (0.000)
$\bar{R}^2$	.792	.872	.616	.760
<i>F</i> test for inclusion of new variables*		4.875*		4.680*

Standard errors are in parenthesis. Asterisk denotes that the result is statistically significant at a 5% level of confidence.

\* The *F* test for inclusion of new variables tests the marginal explanatory value of added variables, using the equation

$$F_{m,d} = \frac{(R_{new}^2 - R_{old}^2) / m}{(1 - R_{new}^2) / d}$$

where *m* is the number of new variables included, and *d* is the residual degrees of freedom, (*n* - *k*).

**Table 4**  
**OLS Regression Results – Unemployment Rate and Other Factors**

Intercept	6.461* (1.173)
Education	-0.085* (0.030)
Entrepreneurialism	0.335* (0.102)
Industrial Structure	0.013 (0.020)
Unionization	0.118* (0.025)
Putnam's Social Capital Index	-0.024* (0.004)
$\bar{R}^2$	.623

Standard errors are in parenthesis. Asterisk denotes that the result is statistically significant at a 5% level of confidence.