Bridging the Gap:
Social Capital and Subnational Regional Development

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The past fifty years of international development have not reduced regional inequality. Regions apparently do not know their convergence economics: while some have developed, others have stagnated. Because sub-national economies have concurrently become the "sine qua non of [the] evolving global system," this is a critical problem for which regional growth theory has been unable to find a universal solution (Rees 2001: 96)[1]. This is because regional growth theory draws mostly on studies of economically lagging regions in developed countries; as a result its causal recommendations and capital requirements are inapplicable or unfeasible in the developing countries which need them. In order to expand itself into universal applicability, regional development theory must include an omnipresent causal variable. One variable whose ubiquity gives it this potential is the human social network. Social scientists have termed this variable *social capital*, and have already begun to explore how it interacts in a community with human capital, political efficiency and economic success. Robert Putnam established in 1993 that a community's cooperative social networks can facilitate its social, economic and political interactions, albeit only in specific cultural, political and economic circumstances. Other studies, although equally limited, have followed. Because social capital is an expression of a universal human characteristic, it ought to have a more generally applicable relationship with these interactions than has yet been examined. Social capital has the apparent potential to play a general positive role in regional development, yet social capital theorists have not examined it at this general regional level and economic growth theorists have been reluctant to explicitly examine it as a factor in regional development at all.

Bridging the Theoretical Gap

The theory of social capital has expanded enormously in the past fifty years, in conjunction with that of regional development theory. Today the two schools of thought exist side by side; yet despite fluid borders and a great deal of illegal trading, neither side has officially recognized the other.

Social capital is at its most basic the "obligations and expectations, information channels, and social norms" of trust and reciprocity which influence an area's inhabitants (Coleman 1988: 13). One practical example would be the influence of levels of community involvement upon levels of crime or high school dropouts (Coleman 1988). I am more specifically interested in social capital as the "networks and civic associations" which, by facilitating information exchange, adjustment and utility maximization (Helliwell and Putnam 1995: 253),[2] help a region "confront poverty…, resolve disputes, and take advantage of new opportunities" (Putnam 2002: 6; Putnam 1993).[3]

This greater adaptability and efficiency is economically a result of greater individual and firm-level communication within regional industrial or informational networks, and politically a consequence of social capital's encouragement of civic engagement and thus strong democracy (Putnam 1993, 2000, 2002). That particular political argument is admittedly simplistic, but the existence of a more complex, reciprocal relationship between social capital and policy could only increase the former's prescriptive relevance (Maloney et al 2000). Regions whose administrators have access to a range of diverse informational channels through social capital will be better able to tailor social and economic policy to local needs; if governments can reciprocally encourage social capital development through the "institutions they create" and "the

resources they provide," social capital would be a powerful tool in regional development (Maloney et al 2000: 216).

Social capital can manifest itself in two distinct ways: as strong, "bonding" capital within homogenous ethnic and kinship groups, or as weaker "bridging" capital between heterogeneous members of community groups like YMCAs (Putnam 2000). Both are beneficial within their communities, but because it reinforces ties within advantaged or homogeneous groups while excluding "others," bonding social capital may harm outsiders (Field 2003: 78). It is therefore difficult to use in a prescriptive study of regional success: recommending an increase in regionally-specific bonding social capital is akin to prescribing regionally "polarized…societies" within a single nation (Maloney et al 2000: 218).[4] Bridging social capital is easier to create and to prescribe precisely because the bonds it cultivates are weaker, more inclusive, and not based on a shared ethnic or cultural identity.

Current theories of social capital focus more on its political and social influence than its role as an economic catalyst and do not always distinguish between "bridging" and "bonding" capital, while alternative explanations for growth offered by development theory do not explicitly measure these political and social "community… variables" (Stough 2001: 17).[5] Both have strived for universality, and remained only narrowly applicable. Moreover, as development theories which attribute causal influence solely to traditional economic indicators have consistently failed to correctly predict regional growth, regional development theorists have been pushed increasingly towards an acknowledgement of the role of non-economic factors in development. Social capital and

regional development theory are already tacit partners. Both would benefit from an official union.[6]

The earliest alternative development models follow neoclassical economics and predict that the equalization of exogenous factors (Johansson, Karlsson and Stough 2001: 3) like capital and infrastructural investment, commercialization, and export-oriented production will universally result in convergent regional or national growth (Hall 1988). Global inequality has not responded to these prescriptions, and although neoclassical economists have tried to rescue the idea of convergence with a "conditional" model that asserts, *omnibus* ceteris paribus, regions are converging very slowly, this model only functions properly in an assumed social, political and economic vacuum (Barro 1997; with Sala-i-Martin 1992).[7] This, while an interesting display of theoretical acrobatics, is not particularly useful.

From this failure of classical economics to find a working general explanation of embedded regional inequality have sprung a number of alternative approaches within the regional growth school; these have increasingly acknowledged the influence of non-economic factors upon regional development. However, they do not explicitly include these factors in their analysis. These alternative theories suggest that the causes of regional inequality are cyclical, self-reinforcing and without a convergent equilibrium (Myrdal 1958). In this context only economic intervention can prevent increasing regional disparity (Polenske 1988).[8] Uneven development may be caused by unevenly distributed regional growth poles that keep regional investment and income at an unequal equilibrium (Perroux 1969),[9] by arbitrary historical accidents in firm location which have long-term cumulative returns to scale (Krugman 1991),[10] or by a more general series of

either positive or negative self-reinforcing events which divide regional states into circular cycles of development or stagnation (Myrdal 1958: 23). All three of these possibilities include nebulous "social" qualities in their causal chains, yet none attempt to more clearly define or understand these qualities.

New (endogenous) growth theory is the most current and relevant strand of regional development theory.[11] It acknowledges that "self-reinforcing tendencies" like knowledge creation and diffusion affect regional growth (Brown and Burrows 1977: 33; Arrow 1962).[12] This approach extends the neoclassical model to include cyclical theory's emphasis upon the importance of "government policies, human capital, …the diffusion of technology" and the presence of social capital (Barro 1997: 7). Constant or increasing returns over time to firm linkages, endogenous technology innovation, R&D, education, flexible specialization (Hirst and Zeitlin 1997) and "knowledge creation" (Stough 2001: 17) in "learning region[s]" (Florida 1995)[13] allow for regionally different equilibrium rates of growth (Romer 1986, 1987; Robalo 1991; Storper 1997). "Human…attainments" catalyze growth,[14] so government policy matters in the supply of regional public services and infrastructure (Brown and Burrows 1977: 36; Zhang 2001; Harrington and Ferguson 2001).[15] Although new growth theorists regularly attribute regional learning to a region's "milieu," its innate social innovativeness and adaptability, few explicitly examine how the social qualities that create this kind of milieu develop.[16]

A model fusing social capital and regional development in a globally applicable way would provide new insight into the reasons behind the different rates of information diffusion and economic adjustment that figure into regional growth.[17] Because we cannot foster regional economic development without understanding it, and cannot

understand it without understanding social capital's influence upon it through networks of knowledge and cooperation,[18] it is imperative to lessen the "empirical deficit" in studies that link the two (Rees 2001: 100, 107 Harrington and Ferguson 2001; Amin and Thrift 1994).[19] Social capital may play a large role in facilitating efficient economic performance within a regional political framework by encouraging efficient regional policy, knowledge diffusion, economic adjustment, lobbying, and benefit distribution (Putnam 1993; Locke 1995, Storper 1997). Because bridging social capital can be fostered by regional governments, the degree to which its relationship with regional welfare is positive, causal and generalizeable holds enormous implications for global regional development.

Bridging the Methodological Gap

Besides neglecting social capital as a developmental factor, regional growth studies tend to focus on developed regions and countries and from these to infer globally applicable results. They are limited, as a rule, to either national-level economic studies or to regional case studies in developed countries. Studies of social capital are similarly narrow. If they are not national-level, survey-driven and vague, they focus on specific regional areas, ones whose political and economic successes are linked either to historically strong patterns of social engagement and strong associational norms (in developed countries) or to the homogeneity of their communities (in less-developed countries).[20] Neither field can prove the general applicability of its causal findings (Storper 1997: 7; Locke 1995).[21] Broader quantitative studies of social capital have taken place at the country level of analysis, but as most regional economic effects resulting from social capital's uneven regional distribution presumably cancel themselves when

aggregated nationally, these have indicated no conclusive relationship with GDP growth (Appendix A).[22]

Although social capital is best examined at the subnational level, pinning down the causal direction between social capital and wealth is hard even regionally (Offe and Fuchs 2002).[23] Found within an inefficient or corrupt government, dense regional social capital can simply be a way of treading water, helping to maintain living standards that the political situation undermines. Here, causal effects will be hard to detect (Fukuyama 2001: 8).[24] Yet in a corrupt, uncertain environment, individuals will likely revert to more trustworthy kinship networks, to informal and localized "bonding" capital.[25] If broad, organized civic engagement is present in a region despite political corruption it must confer *some* benefit on its members.

I wish to determine whether social capital influences subnational regional growth and development in a variety of sociopolitical and cultural contexts by combining growth theory's more quantitative methods and its focus on development with Putnam's hypothesis on and measurable definition of social capital, and applying this model to regions in a representative sample of countries worldwide.

Defining the Gap; Measuring the Bridge

In this examination of social capital's role in regional development across politically, economically and culturally diverse countries,[26] I define 'social capital' as the cooperative interpersonal networking between individuals through voluntary civic associations (Hall 2002; Stough 2001; Putnam 1993, 2000) that "facilitates coordinated actions." (Putnam and Helliwell 1995: 169). I define it narrowly for both methodological and theoretical reasons. For clarity's sake, I exclude "norms" of social trust, obligations and

kinship, which are difficult to identify and to quantify (Coleman 1988, Offe and Fuchs 2002). This kind of subjective social capital is often measured by assumption or with vague survey data that leads to equally subjective conclusions that are impossible to translate into policy.[27] Using this broad definition also risks confounding "bonding" and "bridging" social capital, which I wish to avoid. Although both types *can* be conducive to development, bonding social capital is by nature difficult to cultivate and likely to have undesirable negative externalities.

I quantitatively measure the strength of regional social capital by the density and distribution of voluntary associations (Hall 2002; Stough 2001; Putnam 1993, 1995, 2000). But it is hard to distinguish bonding and bridging social capital within these associations and in developing countries social capital may be mostly present in just such an informal, kinship-oriented form. I hope to exclude bonding social capital by looking at only associations that have registered as a "national" group. I assume that regional groups with high bonding social capital (like the Spanish Basques) identify less strongly with their country than their group, and that thus their associations are unlikely to register themselves as primarily national.[28] Regionally this will result in the under-representation of regions with strong bonding capital, which is acceptable as I wish to examine *implementable* social capital. Nationally, this exclusion will not present a problem even though developing countries are likely to have more bonding than bridging capital because the proportions of total social capital within different regions should still be reflected accurately in the proportions of both bonding and bridging capital. If regional associational densities are only compared within countries, disparities between countries should not matter. Myrdal and Putnam point out more than once that although

associational membership may sometimes be limited to wealthier members of a region,[29] positive externalities to the region as a whole can still result from income-specific (more than ethnocentric) social networks.

This study is at the regional level of analysis. "Regions" are as difficult to label as "social capital," but from both theoretical conviction and statistical convenience I define them to be subnational provinces delineated by a national government as a political and economic entity (Vanhove and Klaassen 1980: 111). [30] This is meaningful despite numerical and spatial variation within countries: since regions "possess … autonomy and specificity" their differences affect "horizontal equity" (Milanovic 2005: 4). Defining regions politically enables me to acknowledge the reciprocal influence between social capital and regional policy. Urban-rural inequality *within* regions is addressed by social capital's positive externalities and by including a measure for associational spread.

I use these variables to determine whether there is a causal relationship flowing from regional associational density to socioeconomic development across twenty three countries.[31] Because these countries represent a range of political regimes, cultures, and stages of development and include much of the world's population, I hope to draw some general quantitative conclusions. I omit small developing nations because consistent regional data is exceptionally difficult to find. I include social and living standards as well as growth indicators to determine whether social capital affects different aspects of regional growth in different sociopolitical contexts or at different levels of analysis.

Unless otherwise specified, the unit of analysis is region-year, blocked by country. The independent variables are regional associational density and spread over time, and the variance in the proportionate number and spread of associations in regions within a

country over time should correlate with variations in these regions' comparative economic and social welfare. I have operationalized these variables by counting the number of associations whose contact addresses, listed by country in Vols 31-42 of the *Encyclopedia of Associations: International Organizations,* are in a particular region.[32] To find associational density (SUMper(x)cap), I divide the net yearly sum of regional associations by a measure of yearly population. In six of the twenty-three, time-series population data is unavailable, so I interpolate yearly values.[33] The number (NUM) of different regional municipalities with at least one association represents associational spread. Because NUM is not a proportion, it may also partially reflect patterns in regional area, in municipal proportions across regions or in population. But it seems unlikely that NUM could reflect these structural patterns consistently enough to completely negate its use as a measure of social capital, especially when it is examined in relation to proportional, not aggregate, dependent variables. Either as a net measure or as a proportion it will also simply reflect the spread of urbanization across a region; this is somewhat inevitable, and related to SUMpercap's inevitable reflection of the *level* of urbanization in a region. One way of mitigating this problem would be by first including, then excluding highly urbanized regions from the analysis.

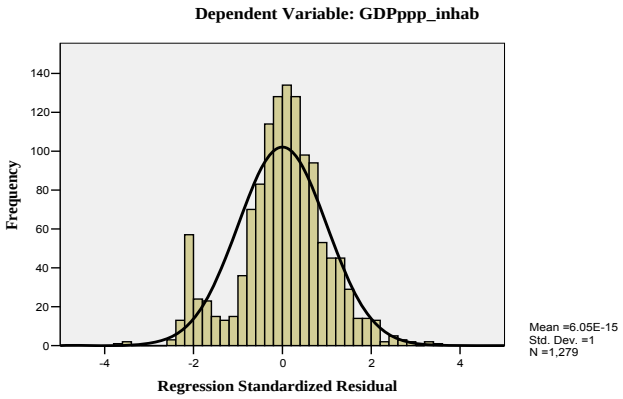
I obtain from Eurostat standard regional socioeconomic indicators as dependent variables for the fifteen Western and Eastern European countries in this study: purchasing power parities and GDP (euros) both per inhabitant and as a percentage of the EU average, regional area (km-2), human resources in science and technology and levels of R&D investment.

Standardized regional-level economic data for non-EU countries is difficult to find, so I make do with a patchwork of development indicators, some of which are only proxies for more direct indicators: for Brazil, GDP indicators and population levels from IPGE;[34] for China a variety of social, economic and demographic indicators from the 2003 and 2005 China Human Development Reports and from the National Bureau of Statistics of China.[35] For Russia I combine 1995 regional employment and GDP indicators from the Russian Regional Database in concert with the Davidson Data and Research Center [36] with a compatible1999 GDP figures from the Russian "Patterns of Corruption" (WDI ID 481) dataset. For India I use measures of 1999 purchasing power and poverty gap obtained from two World Bank working papers on Indian regional inequality as well as standard of living indicators from the 2004 Economic Survey,[37] for Korea, measures of GDP, education and living standards from the Korean National Statistical Organization, [38] for Japan, economic indicators and population (1000 persons)[39] from the yearly Statistical Yearbooks and tables provided by the Ministry of Internal Affairs, and for Mexico, health and human resources and state expenditures from INEGI, the National Institute of Statistical and Geographic Information .[40] I standardize any gross measures of GDP using the interpolated population figures.

The Problem of Causality

A preliminary series of basic linear bivariate regressions of SUMpercap against measures of per capita regional GDP (in Euros) and regional purchasing power parity per inhabitant for *all* the regions in the European sample is significant at $p < .001$. That the variance in regional associational density across these fifteen countries, which range from the most to the least prosperous countries in the extended European Union, is nevertheless

consistently related to regional variance in levels of wealth and living standards strongly demonstrates that social capital is important in regional development. The residual plots and statistics, below, show a relatively normal distribution:



Although these preliminary results, in concert with the theories that underpin them, imply a causal arrow from associational density to regional development, simple linear regressions do not adequately address bidirectional causality, i.e. the reciprocal influence of growth and living standards on social capital. I will control for this causal confusion by using two-stage least-squares regression (LSR) analysis for the rest of the study, except in cases where the limited availability of data makes this impossible. The essential theory behind two-stage least-squares regression is that including an instrumental variable which is correlated with the explanatory variable but not causally affected by the dependent variable enables the SPSS program to measure the error terms in the dependent and explanatory variable against the error terms in the relationship between the explanatory and the instrumental variable, and to create a new variable which takes into account the potential reciprocal causality of the former dependent variable. It then measures this new proxy explanatory variable against the dependent

variable to determine the true causal influence of the explanatory on the dependent variable. I employ total regional area (km-squared) as my instrumental variable, primarily because it is the only accessible variable both arguably correlated with associational density and clearly not *caused* by socioeconomic indicators. Because the time limits imposed upon this project rendered it impossible to collect data for potential variables which could be included in a multivariate analysis I limit my analysis to bivariate two-stage LSR series.

Meeting the strict two-stage LSR criteria in Europe requires a correlation in each European country between regional area and at least one independent variable, either SUMperCap or NUM, plus *no* correlation with regional area for each dependent social or economic variable whose interaction with associational density I examine. The intra-country relationships between the explanatory variables and socioeconomic indicators which fit these detailed analytical criteria are as close to certain causality as is possible in this study; they also fit the paper's general assumptions that social capital is positively causally related to regional growth and living standards. However, both criteria qualification and causal correlations were peculiarly particular, both to countries and within countries, to specific growth indicators. Results are also often thrown off by the presence in the regressions of capital city regions, which generally bias degrees of both significance and explanatory power. This eccentricity is partly a result of the difficulty—likely a function of differing political administrations, area or population requirements for federal income transfers, or geographical peculiarities—in finding two-stage LSR models where area correlates with SUMperCap or NUM without correlating with the dependent social or economic variable. Indeed a regional instrumental variable which does not have

some direct or indirect correlation to the dependent variables is almost impossible to unearth: almost all available regional information is somewhat related to the regions' political and economic situations.

In order to examine the effect of associational density upon regional indicators for European countries as a group and for *all* the dependent-variable categories (Gross GDP, per capita GDP, unemployment and technology), I must loosen these strict two-stage LSR requirements. This is justified because limited tests of the strict two-stage LSR verify that associational density does have a significant causal effect on several economic and standard-of-living variables within the EU (specifically, income and purchasing power parity as percents of the EU average), and because regional area is *not a causal function* of regional socioeconomic variation. Therefore I assume: first, that this effect is somewhat present in all significant two-stage LSR bivariate relationships, and second, that correlations between instrumental and dependent variables are at least partially caused by the instrumental variable's relationship with the explanatory measures of associational density and not with the dependent variables themselves.

Bridging the Gap: Europe

In this vein I run a series of bivariate two-stage LSRs for all regions in the fifteen-country dataset to determine if there is a general causal dynamic between associational density and regional development at the European level. This is relevant, in addition to country-specific tests, because of the current emphasis on EU cohesion, European integration, and regional convergence at the EU level. The amount of socioeconomic variance correlated with associational density and associational distribution drops sharply in every regression from its amount in the earlier linear regressions, which indicates that

the two-stage LSRs are indeed controlling for some bidirectional causality. Both SUMperCap and NUM remain highly significant explanatory variables for all the indicators tested, although their relative explanatory power fluctuates depending on the *kind* of dependent indicators they are predicting.

Table 2 shows the bivariate regressions with the strongest significant and explanatory relationship between measures of associational levels and various socioeconomic indicators:

Table 2: Bivariate two-stage LSR series within European Regions

*p≤.05, **p≤.01	Unstandardized Coefficient
SUMpercap vs. Purchasing Power Parity as % EU average[*]	651.72**
SUMpercap vs GDP Euro-Inhabitant as % EU average	805.48**
SUMpercap vs Humantech resources (% act pop)	130.46**
NUM vs Humantech resources (% act pop)	.55**
SUMpercap vs Unemp (%)	-122.28**
NUM vs Unemp (%)	no estimate at this level

These *kinds* of dependent indicators include: Per capita GDP levels (wealth), purchasing power (living standards), technological strength (knowledge economy growth) and unemployment (how widely this growth is distributed, in a way). If NUM and SUMpercap are comparably significant in predicting some of these kinds of indicators they are both included. At the European level, SUMpercap has a positive causal relationship with indicators of both regional wealth and high-tech growth, while NUM is specifically significant in predicting information economy resource levels. This latter finding is especially interesting: the wider the distribution of associations throughout a region, the higher the available human technological resources in that region. This

[*] The results did not differ between PPP and Euro-Inhabitant as percentages of the EU average and as percentages within the country; thus, the latter are omitted in this and may be in successive tables if there are equivalent results.

indicates that associational spread affects the regional communication and information networks so important in New Growth theory.

In these regressions only about three percent of regional socioeconomic variance is correlated with variance in social capital distribution and density; this is likely because different administrations, political regimes, and cultures change social capital's regional effects. Variance in social capital may have different consequences to different socioeconomic variables in different countries. Because these differences would cancel each other out at the European level, I examine the socioeconomic significance of social capital within each European country in order to more thoroughly understand its effects.

The results of the country-level relaxed two-stage LSRs, shown in *Appendix B,* Table 3, *are* more complex. Associational density and spread affect some social and economic indicators in all fifteen countries, although the nature of their influence varies widely over the continuum of political regimes and administrative types in the dataset.

As Table 3 demonstrates, the influence of SUMpercap and NUM depends somewhat upon the national sociopolitical structure, administrative organization and level of development within which they are located. However, the significance of social capital as a causal variable can be seen for all the countries in the dataset. SUMpercap is a significant predictor of per capita income in all but Bulgaria, Germany and Italy. This may be because these countries are internally split in levels of prosperity and wealth: Italy into South and North; Germany into East and West. In both cases, significant income transfers from one side to the other would not be a function of SUMpercap and so might interfere with the relationship between SUMpercap and per capita GDP. NUM equals sum in significance.

The only disturbing anomaly in the relationships between the spread and density of social capital and per capita GDP is in Spain. There, while SUMpercap has a positive causal relationship with GDP per capita, NUM is *negatively* correlated with GDP per capita levels and *positively* correlated with unemployment levels! These anomalies are perhaps attributable to the country's peculiar political system and cultural history. The Basque Country, Catalonia, Galicia and Andalusia are historically autonomous regions with historically greater independence from the central government; the first three also have, to varying degrees, an adversarial relationship with it (Morata 1993). The associations for which I collected data, while city-specific,[41] must classify themselves as "national" in order to be included in the *Encyclopedia of International Organizations*. But members of organizations within these historically autonomous regions are more likely to classify themselves primarily by region, not country; thus associations in these regions are likely severely under-represented in my data. Because these four regions are also among the most prosperous in Spain this internal under-representation of NUM will result in an apparent negative relationship between prosperity and associational spread in Spanish regions. Indeed, when these four regions are omitted, the bivariate regression of NUM and unemployment rates in Spain has *no* significance whatsoever, while that of NUM and R&D investment keeps its level of significance. R&D's continuing positive relationship with NUM may be due to EU cohesion funds or internal governmental income transfers which are going to lagging Spanish regions. In any case, these relationships are caused by the under-representation of NUM in these four areas. It is difficult to say why SUMpercap is less affected by this problem than NUM, but it is likely that densely-populated cities have a more diverse range of inhabitants who are less

likely to associate themselves primarily with one region. Thus density is less affected than distribution by intra-regional bonding capital, because associations in small traditional towns (which are numerous in Spain) will more likely fail to register as national organizations than those in big cities.

There is one other anomaly in causal direction to be found in Table 3; that is in the relationship of NUM to unemployment rates in Italy. The difficult relationship between associational levels and socioeconomic variables in Italy confirms Richard Locke's cautionary words on the use of associational density as a measure of Italian social capital: "what matters is not simply the overall number of local secondary associations…but rather the way relations among these groups are structured" and whether they are hierarchical or horizontal (Locke 1995: 144-145). If a region's many associations are vertically, not horizontally structured; they are less conducive to networks of knowledge and communication (Locke, Putnam).[42]

Measures of associational density and associational spread also have distinctly different predictive strengths. In all but two cases, increases in associational density are a much stronger predictor of increases in GDP per capita than is NUM. But variations in NUM are influential in more decentralized countries, especially those with internal divides, like Italy, Germany and Spain. Bulgaria and Ireland are also decentralized and also influenced in R&D expenditure and unemployment (in Spain, the significance is $p<.001$ when the four independent regions are removed), while SUMpercap is significantly correlated with the first only in Spain, and with the second only in Slovakia. In decentralized systems where regions have greater autonomy, growth poles and political centers are not as likely to be concentrated in one region, and in regions with

several medium cities instead of one large one there are more opportunities for "networking" between associational centers. Because NUM represents the spread of associations throughout a region, while SUMpercap represents the density of associations within it, NUM may better represent *kinds* of associations that foster networks of communication and information, or simply the potential for the kind of interconnection that is more likely to foster networks of research and development, and to sustain human connections which ease job transitions.

The potentially vast difference in associational density between a region that includes a large capital city and a region with many small or dispersed municipalities begs the question of whether there are continuously increasing returns to increasing associational densities, or whether these increases taper off logarithmically as associational density grows. *Density* might also be more influential in capital city regions, where it and growth are most found; NUM in the others. In order to determine whether social capital interacts differently with socioeconomic development outside these capital city regions, and to avoid any biases caused by their presence, I repeat the bivariate series of two-stage LSRs for SUMpercap and NUM found in Table 3 while excluding capital regions.

The regression results shown in *Table 4* (Appendix C) indicate that in some countries, SUM is a red herring in the search for a relationship between social capital and regional development. Its presence in capital cities exaggerates its country-wide importance relative to NUM. Once capital regions are removed from the regression, the significance and predictive power of SUM in regional GDP per capita disappears in all but Belgium, the Netherlands and Slovakia, while NUM's significance tends to increase

or stay the same in all of its regressions. Denmark, Slovakia, Poland and Romania have no significance for either unemployment or GDP per capita and lack R&D values; the UK lacks both unemployment and R&D measures. Specific regression results in Belgium, France, Spain and Italy are anomalous. In Belgium, while NUM becomes significant in predicting GDP per capita and continues to be inversely correlated with unemployment, SUMpercap develops a positive correlation with unemployment. In Italy and Spain NUM continues to be positively correlated with unemployment *and* per capita R&D expenditure.

These results demonstrate again the ways in which different *kinds* of social capital interact within these countries in conjunction with their specific administrative, cultural or historical structures. In Italy it is not the sum but the *type* of organization in a region which plays the greatest causal role; we see a similar effect in Belgium without Brussels and Spain without Madrid. In fact, in Spain the under-representation of social capital could only be exacerbated by the removal of Madrid, so it is no wonder that the false positive correlation between unemployment levels and NUM increases. Spanish per capita R&D's positive correlation with NUM remains a function of EU or national monies given to lagging or, at the least, less independently prosperous Spanish regions.

The reason for SUMpercap's inverse correlation with R&D expenditure in France is inexplicable and contradicts NUM's coexisting positive correlation. It is possible that this oddity is a reflection of a pattern within NUM which itself reflects structural differences between French regions—which in turn are important indicators in French domestic income transfers, or those from the EU to France, which focuses on lagging and agricultural regions.

The results for NUM and SUMpercap, excluding capital regions, indicate that the extent of regional associational *spread* creates channels of knowledge and information which may lead to growth in a variety of political and administrative frameworks; SUMpercap is primarily useful in predicting regional wealth but it must not be forgotten that this predictive power is often greatly strengthened by the presence of a capital region.

In these studies social capital is almost ubiquitously important, but politically, culturally, and economically varied in effect. To explore the effects of social capital in even more diverse situations, I turn to seven countries outside of Eastern and Western Europe: Brazil, China, Russia, India, Mexico, Japan and Korea. Of these seven countries, all but China and Korea are officially federal states within which there may exist social capital interactions similar to those in decentralized or federal states in Europe.

Bridging the Gap: BIC and Mexico

India, China, Brazil and Mexico are developing countries that range politically from democratic to authoritarian and, subnationally, from extraordinarily wealthy to extraordinarily poor areas. Applying the strict two-stage LSR criteria in studies of these countries is very difficult, given the limited number of time-series cases, the paucity and variety of dependent-variable data and the sparse amounts of associational data for some of them. I examine the relationships between NUM, SUM and socioeconomic indicators in these four countries using two-stage LSRs when possible but also make use of simple linear regressions—while acknowledging the possibility of partial causal confusion.

India

The dependent socioeconomic variables available for India are percent ownership of various goods and infant mortality. These directly reflect standard-of-living rather

than regional economic growth, but since basic standards of living are generally related to levels of growth, relationships between these variables and social capital will still allow for some economic inference.

Table 5a: Bivariate Linear Regressions

*p≤ .05, ** p ≤.01	*SUMpercap*	*NUM*
Sewing Machine	6 (p=.06)	--
Infant Mortality Rate	**-4339.1****	-.776**
TV	**.355****	--
Car	**.876****	--
Radio	**.39***	--

Table 5b: An Effort at Two-Stage LSRs

*p≤ .05, ** p ≤.01	*SUMpercap*	*NUM*
Sewing Machine	--	--
Infant Mortality Rate	--	--
TV	13.225 (p=.09)	--
Car	**1.35***	--
Radio	p=.11	--

Table 5c: Bivariate Linear Regressions –Delhi and Maharashtra

*p≤ .05, ** p ≤.01	*SUMpercap*	*NUM*
Sewing Machine	--	--
Infant Mortality Rate	**-.5203.5****	-.717*
TV	--	--
Car	--	--
Radio	**.338***	--

SUMpercap and NUM show a consistently significant inverse relationship with infant mortality rates in bivariate linear regressions which both include and exclude Maharashtra and Delhi. SUMpercap is a good predictor of levels of ownership in an experimental series of two-stage LSRs as well as in these linear regressions; however, when the two major city regions are removed, it retains its significance only in predicting radio ownership, and only in a linear regression. Percent radio ownership is a more basic wealth indicator than is ownership of many of the other items included in the dataset, and this may explain its unique significance. Percent ownership, as a dependent variable, is

also closely tied to economic prosperity, which is often better measured by SUMpercapita. In India, however, SUMpercap is significant primarily in the two wealthiest regions of Maharashtra and Delhi. This implies either that it is conflated and highly reciprocally correlated with the degree of wealth in a region, or that there is simply not enough widely distributed wealth for social capital to make a difference in percent ownership of expensive items in other regions.[43] Without Maharashtra and Delhi, radio ownership as an indirect indicator of regional distribution of wealth is still positively correlated with associational density. Thus associational density does reflect upon the basic distribution of wealth within a state at a very low level. NUM also continues to play an influential role as a basic standard-of-living indicator in its consistent correlation with mortality rates.

China

Although China, like India, is a heterogenous, multi-ethnic nation on an economic accelerator, the two are vastly dissimilar in their political systems. Yet social capital plays a positive role in both.

Table 6a: NUM and SUM in linear and LSRs

*p≤ .05, ** p ≤.01	*SUMperhundthoucap*	*NUM*	*SUMperhtcap(LSR)*	*NUM(LSR)*
Avg tot disp urban income (capita)	**351.1****	--	--	--
Per cap rural wages	**1673.5****	--	10577.2 p=.08	**2081.7***
Education	.083 p=.06	--	--	--

Table 6b: NUM and SUM – Beijing in Linear and LSR

*p≤ .05, ** p ≤.01	*SUMperhundthoucap*	*NUM*	*SUMperhtcap(LSR)*	*NUM(LSR)*
Avg tot disp urban income (capita)	11053.8**	--	**27735***	--
Per cap rural wages	**59081****	--	**193529.2***	1804.4*
Education	2.251*	--	14.49 p=.09	--

The wider range of influence and predictive power of SUMpercap in Chinese than in Indian regional development may be simply a function of the different dependent

variables I use in each case. It could also reflect a more centralized tendency in the Chinese national and regional systems: Chinese regional economies revolve around large urban growth poles which also serve as administrative and political hubs. If social capital is concentrated in these hubs, associational density will have a greater influence than associational spread. One of the most important significant results in these regressions it that associational density affects per capita *rural* wages as well as urban income both in simple linear and two-stage LSRs. This proves that associational density does indeed create "spreading" positive externalities. NUM's relatively low influence in China could be because its values range only from 0 to 3, which may be caused by associational non-reporting in smaller municipalities or by China's particularly centralized administrative and geopolitical makeup. Although in China social capital's influence is mainly in its urban density and not its regional spread, NUM's significance in two-stage LSR relationships both with and without Beijing in predicting rural per capita wages does, imply that even in China associational spread helps through its networks to foster a wider distribution of wealth and social benefits.

Brazil

The interactions of social capital and regional growth in Brazil, a developing federal republic, have a number of similarities to those in Europe.

Table 7a: All Regions Included

*p≤ .05, ** p ≤.01	*SUMpercap*	*NUM*
GDPpercap	154163.1**	**616.03****
region participation in GDP (%)	434.2**	**2.66****
region participation value added (%)	434.8**	**2.64****

Table 7b: Regions – São Paulo and Rio de Janeiro

*p≤ .05, ** p ≤.01	*SUMpercap*	*NUM*
GDPpercap	--	**2852.6****
region participation in GDP (%)	--	**1.33****
region participation value added (%)	--	**1.3****

Tables 7a and b show that in Brazil, NUM is a more consistent indicator of basic socioeconomic development than associational density, both with and without the large-city regions of São Paulo and Rio de Janeiro. This is not obviously correlated to regional area, as São Paulo and Rio de Janeiro do not significantly differ in area from the majority of other regions in the state. While NUM does reflect Brazil's population distribution, so its correlation to regional participation proportions is conflated with population proportions, it is hard to see how NUM could be entirely conflated with GDP *per capita*. Thus, in Brazil NUM may also be an indicator of greater amounts of networking—or at least the potential for it—between different municipalities in a region.

In contrast to NUM, SUMpercap's effect is deflated by the removal of Sao Paulo and Rio de Janeiro. This is partly because levels of associational density *are* largely present in these two main regions.

Mexico

In Mexico, where the available dependent-variable indicators are specifically measurements of governmental efficiency in the public health sector, the relationship between social capital and these particular indicators of regional levels of development is complex.

Table 8: Regional Health and Standard of Living Indicators in Mexico

*p≤ .05, ** p ≤.01	*SUM_10000prsns*	*NUM*	*SUM_10000prsns - Mex*	*NUM - Mex*
Docs per 1000	--	--	1138.19 p=.07	--
Dentists per 1000	--	--	--	--
Nurses per 1000 inhab	-795.749 p=.087	--	--	--
Doc office per 1000	-124.5 p=.1	--	550.9**	--
Operating rooms per 1000	-12.32*	--	--	.19 p=.09
Infant Mortality born in Fed Orgs	82.7**	1.36**	124.2*	1.5**

SUMpercap and NUM are consistently correlated to these indicators in a pattern exactly opposite to that in every country we have seen so far: they are inversely

correlated to indicators of health care quality and directly correlated with infant mortality (in public hospitals). This apparent incongruity is in fact consistent with the function of social capital and is a reflection of the extreme specificity of the dependent variables. These variables are in effect measures of public-sector efficiency. Thus, when public-sector efficiency and quality decrease, community social capital must form to fill in the gap; hence the inverse correlation between low-quality public natal care, low numbers of medical staff, and associational density. However, when the capital region is removed from the equation, SUMpercap and NUM keep their positive correlation with infant mortality and become positively correlated to the numbers of doctors and doctors' offices per 1000 inhabitants. This may be because the urban-poor demographic in Mexico city depresses its health facilities/inhabitant statistics.

Bridging the Gap: Russia

Russia is difficult to analyze. To obtain time-series data for Russia I substituted 1995 for 1996 economic data from one development database, standardized its measures, and used them with similar 1999 data from a different study.[44] To obtain a measure of per capita SUM I interpolated population for 1995 and 1999 using 2002 population data and a rate of change from 1995-1996.

Only SUMper10000cap shows any significance at all on GDP per capita and regional GDP percent of the Russian total, the two indicators I include to measure regional development. SUMper10000cap has a negative linear relationship with regional GDP as a percent of the Russian total that is significant at $p \leq .05$. NUM showed no significance when measured against either percent Russian total GDP or GDP per capita.

I removed the capital region to control for distorting influences; this only resulted in no significant relationship at all between SUMper10000cap and GDP percent Russian total.

The backwards or nonexistent relationship between social capital and regional growth in Russia cannot be explained, as in Mexico, as a function of the *dependent* variables used. However, the political context within which social capital functions is important in both countries: the Russian results conform to Richard Rose's description of the failure of "formal social capital" (Rose 2000: 147), i.e. associations, to have a significant effect on socioeconomic variables in Russia. According to Rose, in Russia associational density is located within a corrupt national political context. This context negates its influence in regional development by destroying generalized trust: Russian individuals respond to corruption by relying exclusively on kinship networks of "bonding" capital. Thus the national context within which social capital operates affects the way in which successful social capital manifests itself.

Bridging the Gap: Japan and Korea

Japan and Korea are the last two countries in this study. They are especially important because, although developed nations, they are not "Western," and social capital's applicability is sometimes explicitly limited to developed and *culturally Western* countries. Because these two countries are developmentally equivalent to "Western" nations, these tests will determine if the interactions of social capital with regional development vary because of cultural difference.

Korea

I primarily use loose two-stage LSRs for Korea. Contrary to my expectations, in both insignificant and significant relationships, SUMper10000cap correlates inversely with

standard-of-living and income variables. As is shown in Table 9, regional schools and departments per capita are both *negatively* correlated to SUMper10000cap. When Seoul is removed from the equation, none of these relationships are even remotely significant. This implies that the positive correlation between SUMper10000cap and immi/emigration, at least, simply reflects the greater mobility of Seoul's more international population.

Table 9: Two-stage LSRs (with Seoul)

*p≤.05, **p≤.01	SUMper10000cap	NUM
GRP expend per 10000 cap	--	--
GRP per 10000 cap	--	--
Schools per 10000 cap	-1.08*(.03)	--
School dpts per 10000 cap	-38.948 p=.06	--
Graduates per 10000 cap	--	--
Tot Imm per 10000 cap	19384.4**(.04)	--
Tot out migrants per 10000 cap	19507** (.004)	--

The Korean results are remarkably similar to those in Russia. Both nations have a history of authoritarianism; both have been "democratic" governments for the period that this study examines. Yet Korea is today a developed nation, and its levels of corruption are by no means comparable to Russia's. The key to this similarity cannot be found in a similar past.

Japan

In Japan both NUM and associational density are insignificant, in all two-stage LSRs, for all dependent variables that measure per capita GDP or percent yearly growth. While SUMpercapita does have a significant *linear* relationship with per capita GDP, its comparable significance in the two-stage LSR is p=.98. This is inconsistent with the normal patterns between linear and two-stage LSRs, where LSRs generally reflect linear relationships, only more strongly or more weakly. Their function is to control for

bidirectionality and thus achieve a more accurate measure of a direct causal relationship. This divergence in the bivariate linear regression results and the two-stage LSR results may thus be an indicator that the two-stage LSR is doing its job: perhaps associational density in Japan is entirely *a result of* economic development, instead of its cause.

Concluding Remarks

The scope of this paper was originally much broader. Unfortunately, the difficulty of both finding and entering appropriate socioeconomic and associational data coupled with that of comparably coding these variables by region forced this study to attempt to be globally representative, not globally comprehensive. Problems and questions about the global role of social capital, especially in truly disadvantaged countries, remain. Also, a better instrumental variable would obviate a great deal of difficulty in interpreting the relationship to regional socioeconomic variables of social capital, and resolve some remaining causal ambiguity; standardized non-European socioeconomic data is also badly needed.

Nevertheless, in twenty of twenty-three countries, some form of bridging social capital shows the expected ties to regional development. The nature of this interaction varies and is complexly embedded in the cultural and political contexts of different countries. Yet, considering that nations and "regions are historically constructed entities" with "unique development trajectories, rather than…any 'ideal' growth model," (Amin and Thrift 1991:49) their relationship with social capital is remarkably consistent.

I make a few general conjectures: within the European countries, Brazil, China, and India, either regional associational density or regional associational spread have consistently similar relationships to similar regional socioeconomic variables. Political

organization affects these relationships; social capital acts differently in centralized and decentralized systems, and although only one autocratic regime is included in this group, "democratic" government does not seem as influential as administrative structure. Suppositions about the relationship of social capital to social indicators in Mexico are limited because of the limitations imposed by the dependent variables, but since these variables all measure levels of public-sector efficiency, it is unsurprising that when public-sector efficiency decreases, social capital fills in the gap.

We are left with three outliers: Japan, Korea and Russia. In the end, their commonality is the tendency of functional social capital to manifest itself within them, albeit for different reasons, as the "bonding" rather than the "bridging" variety. Japan and Korea are both ethnically homogenous. This homogeneity, which fosters *high general trust*, also allowed these countries to successfully catalyze their rapid economic growth with bonding social capital in the form of tightly-knit kinship-based networks exactly because there were no ethnic "outsiders" to be hurt. In more heterogeneous Russia, by contrast, bonding capital is dominant because of a *general absence of trust* in both the political system and community ties. In the end, bonding social capital and "trust," both of which I attempted to exclude from my analysis, are significant exceptions to the empirical rule, and to bridging social capital's generally applicable causal influence. Yet although the effects that bridging capital has through associational density upon regional development are not universal, the range of situations and countries in which they appear, their implementability and, above all, the current concern with the global decline of associationalism all render these effects important theoretical and prescriptive results in the search for a solution to regional inequality.

Appendix A

Theory	*Regional Disparity is Caused by*	*Cyclical? Why?*	*Will Converge independently, with proper policy, or at all?*	*Social Capital ?*	*Measure of Social Capital?*	*Effects of Social Capital on regional development*	*Studies: predominantly regional or national? What kind of data? Used how? Findings?*
Neoclassical Convergence/ Trade (Ricardo, Solow Model 1956, Heckschler -Olin). See Barro 1991 for a concise summary.	Initial disparities in labor and capital endowments	**No**. Diminishing returns to capital investment will cause growth to slow in higher-income countries; capital and labor will move to lower levels to bring international (or regional) system into equilibrium	**Independently**, IF there is a free flow of labor and capital because poor countries grow faster than rich ones.	No	None	None	**Developed-country national focus.** Studies measured growth in mostly developed countries quantitatively and made prescriptions for developing countries. (These did not work; theory could not be thus extrapolated.)
Conditional Convergence (Barro 1992; With Sala-i-Martin,1995; 1997)	Initial disparities in resource levels (human capital, labor, income, education etc)	**No**; technically, holding constant all the factors which cause the initial disparity, there is a slight regional convergence; in absence of these factors, slower regions would experience faster growth	**Independently**, if everything else assumed to be constant and there are no external shocks.	No	None	None	**Worldwide national focus**. Studies quantitatively measured countries' growth indicators worldwide, over various year indexes while holding different variables constant. 1960-1990; for US states from 1880 to 1990
Polarization and Growth/Development Poles (Perroux 1988; Polenske 1988; Higgins and Savoie 1988; Brown and Burrows 1977).	Economic activity is not evenly distributed through space (Higgins and Savoie 33). 'Growth poles' are in concentrated areas that have faster equilibrium growth rates which only change in very long run, sometimes.	**Yes**; growth concentrated in innovation of propulsive industries, which innovation further propels growth, which in turn causes more innovation and attracts more industry to a region.	**Unlikely to converge at all**. Growth poles cannot be *created* in 'retarded' regions only encouraged where they already are. Focus on infrastructure building and investment (Higgins, Polenske)	No	None	None	**Developed-country regional case studies** Descriptions of failed national implementations of 'flawed' versions of growth pole theory to equalize regional disparity. Regions discussed in Canada, US, and developed European countries

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Cumulative Causation (Mydal 1958)	Self-reinforcing economic and social factors; snowball effect.	**Yes**, because one social, institutional, economic event snowballs into an ongoing cycle of such events	**With proper and sensitive government policy,** planning and support	Acknowledged but not examined systematically	Vague and qualitative; atmosphere, qualities of an area; general perceptions of its inhabitants	Vague	**National, regional and local examples.** Qualitative descriptions of African Americans in America trapped in cycle of poverty. Uses European regions in a general, descriptive manner as an example.
Regional Economic Geography (Krugman 1991)	Regional core-periphery geography; path dependence and historical accident.	**Yes**, initial historical location is self-reinforcing in scale/ returns/expectations as areas specialize.	**Unlikely to converge at all**, although growth centers may shift.	Implicit in the effects of a lack of information channels and misperceptions	Vague and qualitative; atmosphere, qualities of an area; general perceptions of its inhabitants	Vague	**Developed-country regional case studies**: quantitative analysis of U.S. states and regions between Civil War and WWI; states in the EU
New Endogenous Growth (new trade) theory – (Kenneth Arrow 1962; Romer 1986, 1987; Rebelo 1991)	Differences in current levels of knowledge which influence rates of new knowledge accumulation, R&D, endogenous technological innovation, and knowledge diffusion. This "spillover effect" leads to different equilibrium rates of growth.	**Yes**; because due to constant or increasing returns to human capital, human capital does not shift from more to less endowed regions and thus more human capital begets more growth, begets more human capital. NOT diminishing returns, so no convergence necessarily.	**With proper government or business policy** of investment in human capital in lacking regions. Regions will not independently.	Implicit	Vague and qualitative; atmosphere conducive to causal variables	Presumed condition for existence of causal variables	**Worldwide national focus**: Long-run overview of industries in developing countries and analysis of different kinds of national disparities in developed countries. Cites studies including Argentina, Chile, Ireland, Puerto Rico and Venezuela. (Romer)

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Theory	*Regional Disparity is Caused by*	*Cyclical? Why?*	*Will Converge independently, with proper policy, or at all?*	*Social Capital?*	*Measure of Social Capital?*	*Effects of Social Capital on regional development*	*Studies: predominantly regional or national?*
Milieu, Flexible Specialization and Reflexivity (Hirst and Zeitlin 1997, Florida 1995, Storper 1997, Amin 1995	Different "milieus" or levels of flexibility in knowledge spreading and adjustment to economic change	**Yes**, because regions are the "repositories" for knowledge and learning flexibility, conditions favorable to growth.	**With proper government or firm policy** to sustain or develop a climate/milieu of innovative competition and knowledge diffusion	Implicit; explicit focus more on firms, however.	Vague and qualitative; atmosphere conducive to causal variables	Presumed condition for existence of causal variables	**Developed-country regional case studies**: Quantitative development trends examined in US cities and regions; regions in Italy and France (Storper), Europe and other developed countries. (Hirst and Zeitlin, Amin)
Broad Social Capital (Coleman 1988; Inoguchi 2002)	Different social structures and networks, neighborhood or local social norms, local social obligations, trust and expectations; the degree of these depend upon closed versus open social networks	**Yes**; social networks that are "closed" where members' actions have reciprocal and repeating consequences are self-reinforcing and have high social capital	**This question is not much addressed**. However, latent social capital may be tapped in different ways; moreover, once people have organized in one area this organization is in itself self-reinforcing and a valid source of closure and social capital.	Yes	Qualitative: generally levels of trust (survey data); associational membership also a potential variable	Sociological; this bleeds into the economic and sometimes the political.	**Selective regional case studies** using surveys, quantitative social measurements and local well-known events. Ethnic ties in economic exchanges; religious, kinship networks in Korean student activism; Catholic schools and dropout rates (Coleman); Japanese regional cooperative norms (Inoguchi).
Social Capital in horizontal associational levels (Putnam 1993, 1995; Locke 1995)	Different levels of democratic involvement, communication, trust, and lobbying expertise.	**Yes,** because "virtuous" or "vicious" cycles of horizontal vs. vertical, engagement or disengagement, trust or distrust	**Unlikely to converge at all**; social capital is historically embedded and thus difficult to change.	Yes	Quantitative and qualitative: uses numbers of and membership in horizontal civic associations as proxies for levels of trust and communication	Improve region through its citizens'civic involvement, lobbying skills, and greases its economy through trust networks	**Selective regional case studies** using surveys and some associational data. Regions in Italy, Regions in the U.S., regions in Russia, etc. (Check Putnam Book). In Britain (Hall) France (Worms) Spain (Diaz), Australia (Cox)), Japan (Inoguchi). Knack and Keefer

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Bridging and Bonding Social Capital Putnam (2000, 2002) (Offe and Fuchs 2002, Fukuyama, Foley and Edwards 1997 cited in Maloney, Smith and Stoker 2000)	The presence not only of different levels but of different kinds of social capital: *bonding* SC is stronger, limited to kinship/ethnic networks, and exclusive. *Bridging* is weaker, broader, and economically good.	**Yes**; here cycles are not simply the presence or absence of social capital but the presence of bridging or bonding.	**With proper government and local local policy** to encourage the growth of "bridging" social capital, growth may occur; with bonding social capital, this is unlikely.	Yes	Quantitative and qualitative: uses humbers of and membership in horizontal civic associations as proxies for levels of trust and communication	Bridging social capital is in horizontal loose assoc, and good for political participation and a healthy civic society. Bonding is limited to members of bonded group.	**Selective national and regional case studies** for example, East vs West Germany (Offe and Fuchs); South Africa and Northern Ireland are also popular examples of "bonding" social capital.
Adjusted SocialCapital and Political Life (Maloney, Smith and Stoker 2000)	Different government emphases on social capital; however, this is only on amounts of social capital and their effects on politics, not growth	**Somewhat**, but because of constant fluctuating influence between government and associations (i.e. social capital) can be changed	**With proper government policy**, associational life can be increased. (No concern with economic effects.)	Yes	Qualitative, uses surveys to determine levels of trust and participation; uses qualitative associational data as well.	Vague but positive.	**Developed-country country regional case studies**. These use surveys and interviews. Birmingham, UK. Authors cite Skocpol 1997 (US), Walker 1991 (US) and Hall 1999 (UK), Lowndes 1998 – local UK.
Social Capital and Subnational Regional Development (Simpson 2006)	The extent of "bridging" social capital, measured by associational density, in a region.	**Yes**, in the absence of government intervention or local initiative	**With proper government policy** to encourage the growth of "bridging" social capital, regions may converge socially and economically (Maloney et al)	Yes	Numbers of associations per region per year	Catalyzes economic growth by improving access to information and connections through networks of communication; encourages innovation and government access to knowledge as well as government policy. regions situation.	**Worldwide regional focus; worldwide regional case examinations**: study at regional level including developing countries as well as developed countries, although still using variables at sub-national regional level.

Table 3: Blocked-country two-stage LSRs: The higher explanatory power (at equal or greater p-values) is bolded.

*p≤ .05, ** p ≤.01, ~p≤.1	*Belgium*	*Bulgaria*	*Denmark*	*France*	*Germany*	*Ireland*	*Italy*
SUMpercap v GDPinhab(% avg)	**313.23****	--	**442.06****	574.9~	--	347**	--
NUM v GDPinhab(% avg)	--	--	--	**1.11***	--	**1.19****	--
SUMpercap v R&Dpcap(nat cur)	no data	no data	no data	--	--	no data	--
NUM v R&Dpcap(nat cur)	no data	no data	no data	--	--	--	**.01****
SUMpercap vs Unemp (%)	--	--	--	--	--	-8.3*	--
NUM v Unemp (%)	--	**-1.90****	--	--	**-.133****	**-.04***	**.487***

Table 3 Cont'd.

*p≤ .05, ** p ≤.01, ~p≤.1	*Netherlands*	*Norway*	*Poland*	*Romania*	*Slovakia*	*Spain*	*Sweden* [*]	*UK*
SUMpercap v GDPinhab(% avg)	**588.37***	no data	**986.84****	**574.57****	**880.55****	**13921.67***	**904.09****	**901.68***
NUM v GDPinhab(% avg)	--	--	5.19**	--	--	-11~	1.76**	--
SUMpercap v R&Dpcap(nat cur)	--	7708.66*	no data	no data	no data	**32.6****	25.5*	no data
NUM v R&Dpcap(nat cur)	--	--	no data	no data	no data	--	**.06****	no data
SUMpercap vs Unemp (%)	--	--	--	--	**-404.4****	--	no data	no data
NUM v Unemp (%)	--	**-.041***	--	--	--	**2.28***	no data	no data

[*] For Sweden the R&D expenditures are specifically within the business sector.

Table 4. Without Capital Regions: The higher explanatory value (at greater or equal p-value) is bolded

*p≤ .05, ** p ≤.01	*Belgium*	*Bulgaria*	*Denmark*	*France*	*Germany*	*Ireland*	*Italy*
SUMpercap v GDPinhab(% avg)	3503.9*	--	--	--	--	--	--
NUM v GDPinhab(% avg)	**3.14****	--	--	**.93****	--	--	--
SUMpercap v R&Dpercap (nat cur)	no data	no data	no data	-66.5**	--	no data	--
NUM v R&Dpercap (nat cur)	no data	no data	no data	**.03****	**.04***	no data	**.009****
SUMpercap vs Unemp (%)	389.08*	--	--	--	--	--	--
NUM v Unemp (%)	**-.40****	**-1.69****	--	--	**-.11****	--	**.48***

Table 4 Cont'd

*p≤ .05, ** p ≤.01	*Netherlands*	*Norway*	*Poland*	*Romania*	*Slovakia*	*Spain*	*Sweden*	*UK*
SUMpercap v GDPinhab(% avg)	**678.55** (11)**	no data	--	--	--	--	--	--
NUM v GDPinhab(% avg)	--	no data	--	--	--	-8.68*	--	--
SUMpercap v R&Dpercap(nat cur)	--	--	no data	no data	no data	--	--	no data
NUM v R&Dpercap(nat cur)	77.4*	43.4**	no data	no data	no data	--	**.069****	no data
SUMpercap vs Unemp (%)	--	--	--	--	--	--	no data	no data
NUM v Unemp (%)	--	**-.04***	--	--	--	**2.23****	no data	no data

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Notes

[1] "There are several strong arguments for paying particular attention to the regional structure of a national economy…a) regional disparities create social and political problems that must be addressed…b)regions are an integral part of the structure of the national economy…c)accelerating growth of the national economy as a whole requires an attack on the problems of retarded regions" (Higgins and Savoie 1988: 2).

[2] "the effect of network-building on job search is well established… a lack of social contacts helps perpetuate long-term unemployment and maintain 'ghetto poverty' (Korpi 2001: 168). Of course, social capital …is not a substitute for credit, infrastructure, education and skills, but it can increase their yield by reinforcing statutory with voluntary effort, and sanctioning malfeasance."(Field 2003: 130). Also described by Stough, Arrow, Florida and Storper

[3] "The idea at the core of the theory of social capital is extremely simple: Social networks matter…networks have private or 'internal returns.'…[which] rival human capital as a factor in individual productivity, [and] external' or 'public' effects. One such effect is the common finding that crime rates in a neighborhood are lowered by social connectedness"(Putnam 2002: 7). "A society characterized by generalized reciprocity is more efficient that a distrustful society…local civic clubs mobilize local energies to build a playground or a hospital at the same time that they provide members with friendships and business connections that pay off personally"(Putnam 2002: 7)

[4] "US survey data tends to suggest that overall associational membership levels among American Blacks are higher than among Whites…while this may give African Americans a large number of connections, these rarely reach out to members of other ethnic groups, and this can therefore limit the value of the social capital that people can access and operationalize."(Field 2003: 75-76). See also Offe and Fuchs 2002; Gordon and Cheshire 1990

[5] "Endogenous growth theory … emphasizes the importance of local factors…the fields of community development…. theory provides a way to see a broad array of community and institutional and non-traditional economic variables, e.g., leadership, learning, and social capital, as major inputs for economic development."(Stough 2001: 17). "But cultural, political and geographical peculiarities, as well as economic ones, make every regional problem to some extent sui generis"(Brown and Burrows 1977: 51). "Differences in natural resources…, international relations, historical traditions…,national and group cohesion, religions and ideologies, and economic, social and political initiative and leadership…can…all be fitted into this general view of circular causation in a cumulative sequence, while they cannot be integrated into our inherited theories dominated by the equilibrium approach"(Myrdal 1958: 42)

[6] "A key lesson for practitioners and policy makers is the importance of using existing forms of bridging social capital in poor communities as a basis for scaling up the efforts of local community-based organizations(World Bank 2001: 130, See also Woolcock 2001)"(Field 2003: 133); "Efforts at poverty reduction will be improved by the mobilization of 'cultural strengths and assets' and by 'explicit attention to culture in their design"(Eade 2002: x); from 'Culture and Poverty: Learning and Research at the World Bank', www.worldbank.org/poverty/culture/overview/index.htm/

[7] Barro and Sala-i-Martin assume that preferences, technology, levels of male education, fertility rates, political freedom, inflation, starting life expectancy levels and all other endogenous and exogenous influences or shocks being equal, with perfect capital, labor and technology mobility, "the initially poorer economy…tends to grow faster in per capita terms" (119, 225, 240). If these factors are not all held constant and assumed equal, there is in fact "a small tendency for the initially rich countries to grow faster than the poor ones after 1960"(241). It occurs to one, of course, whether a model which only functions properly in a social, political and economic vacuum of "ceteris paribus" is really pertinent to anyone except other theorists.

[8] For Perroux, efforts "to strengthen these focal points in slow-growth regions" will "start a process of self-sustained economic growth."(Higgins and Savoie 1988: 48-90).

[9] in Higgins and Savoie 1988: 9-16

[10] "spread effects [of tech, practice, prosperity, etc], being themselves a function of the level of economic development actually attained, will be stronger in the richer and weaker in the poorer countries…tend to make the inequalities in the poorer countries bigger and increasing"(Myrdal 1958: 39). See Maier 2001 for a model.

[11] It is the offspring of classical Heckscher-Olin trade theory, which explains inequalities in terms of factor-price rigidity (Higgins and Savoie 1988; Vanhove and Klaassen 1980).
[12] I.e. it is no longer "pure neoclassical economic thinking, according to which static factor cost-minimization can explain comparative advantages of regions. "(Johansson, Karlsson and Stough 2001: 4)
[13] See also Arrow 2000; Maillat and Kebir 2001: "The importance of the science and technology systems, universities, research organizations, in house R&D departments … the learning implications of the economic structure"(256)
[14] "information embodied in workers, combined with inter-organizational mobility of workers" (Harrington and Ferguson 2001: 51)
[15] "Investments in production capital, infrastructure, education…and R&D affect the growth rate of the economy" (Johansson, Karlsson and Stough 2001: 3).
[16] "Vertical disintegration, high transactions costs, and agglomeration could be found in both high-wage, technologically dynamic industries and in low-wage, technologically stagnant ones. Adding in institutions helps, in the case of traditional industries. … But in technologically dynamic industries, agglomerations are often found … without the kinds of explicit institutional coordination found in many European industrial districts. A different explanation is needed"(Storper 1997: 14)
[17] For example, how quickly new organizational techniques within regions can evolve in unplanned "response to external shocks"(Storper 1997: 83)
[18] "Much of the research on technological change over the past twenty years has focused on the experience of successful and creative regions, our studies in the future should focus more on the experience of less successful regions… if we expect to perform in the policy arena "(Rees 2001: 107)
[19] Like "the evolution of new organizational techniques as an unplanned response to external shocks, largely via intraregional imitation among firms"(Storper 1997: 83)
[20] "Economists look[] mainly at those that were winners in the end, because those [are] the countries that had the good quality data….The winners write economic history."(Easterly 2001: 64-65). This is true for Putnam, Coleman and pretty much most social capital investigations, excepting Knack and Keefer, who did not do theirs on the regional level.
[21]See also Inoguchi 2002; Uphoff 2000.
[22] "Knack and Keefer (1997) used World Values Survey data to show that national levels of interpersonal trust are positively associated with national economic growth [but] found no correlation between growth rate and national membership in associations." (Field 2003: 56).
[23] "On the aggregate level…a dense associational network in a given unit[] can be thought of as either a precondition for or a result of good economic performance…on the individual level, a person's intense associational involvement…can be thought of as either a precondition for or as result of stable participation in economic life"(Offe and Fuchs 2002: 236).
[24] "The macro environment can also damage or undo the effects of local-level social capital. Where there are good governance, well functioning courts, and freedom of expression, local associations thrive and complement the functions of macroinstitutions. But where these are absent or function poorly, local institutions may try to substitute for them, resulting in more stress and fewer economic benefits."(Serageldin and Grootaert 2000; 49)
[25]"Among the factors that determine whether a positive or negative scenario prevails is the macroscale framework and the extent to which it is … enabling"(Serageldin and Grootaert 2000; 51). In Russia, individuals largely rely on informal social networks of family and friends because of a widespread perception of rampant governmental corruption (Rose 2000; 153-157). Thus perhaps associational density continues to be a good way to detect economically beneficial social capital.
[26] "Much of the current debate about the many definitions of social capital stems from the fact that the different literatures … work through these questions with specific hypotheses and theories determining the choices…work back to a functional definition by asking which social phenomena are likely to influence [a particular] outcome… different researchers will naturally come to very different views on the appropriate level of analysis, which social relationships count, and by how much, in defining social capital"(Narayan and Pritchett 2000: 280).
[27]For example that "levels of interpersonal trust" are positively correlated with economic growth (Knack and Keefer).
[28] This is, in fact, born out by the associational data that I use; Basque associations are significantly underrepresented.

[29] "The question of cui bono must become one central focus of social capital research, as access to social capital and the beneficial outcomes of its operation is clearly very unevenly distributed within the social structure"(Offe and Fuchs 2002: 243).
[30] Ranging in size, as they do, from "small population centre[s]" to "vast massive subregion[s] within a continent." "(Vanhove and Klaassen 1980: 112)
One finds in the variation "Uniform or homogenous regions…physical characteristics, geography and natural resource endowment, production structure, consumption pattern, occupational distribution of the labour force, ubiquity of a dominant natural resource, topography, climate, social attitude, per capita income level, business cycle concept…a major problem in attempting to delimit…most regions will contain both rural and urban areas"(Vanhove and Klaassen 1980: 112)
[31] Belgium, Brazil, Bulgaria, China, Denmark, France, Germany, India, Ireland, Italy, Japan, Korea, Mexico, the Netherlands, Norway, Poland, Romania, Russia, Slovakia, Spain, Sweden and the United Kingdom.
[32] I determined to what region each address within a country belonged by using *The Columbia Gazetteer of the World*, the Nona.net Location Finder, www.indexmundi.com**,** and if utterly baffled, Wikipedia.
[33] Using a formula in Excel set up by Andrew Little, I interpolate population data for every country but Brazil and China. For Russia I only have one year of population data (2002, from "Patterns") and a measure of regional percent change in population between 1995 and 1996; I use this measure to extrapolate population, given constant percent change, for the years 1995 and 1999.
[34] GDP and gross value added both in current prices (in million R$) and per capita.
[35]http://www.stats.gov.cn/htm : Accumulated investment (100m yuan), growth rates over the same period in the previous year (%), accumulated proportion of GDP per region and proportion over the previous year (%), the number and size of households, urban and rural total and disposable income per capita, life expectancy, percent educated, GDP index, human direct investment and 1995 population.
[36] Economic Competitiveness (Consumer goods: % with VCR 34 Current household economy not bad: % 45 Current national economy not bad: % 19 GDP 1995 bln rbls 127,531 GDP/capita rbls, million 10 Industrial productivity mln rbls/employee 66 Wage levels 1000 rbls/month, 1995 472 Wages paid in full in previous month, %), Labour Market Change(Indicator National mean Employed: % Labor force Employer: ex-state % 26 Employer: private, % 23 Employer: state % 50 Employment sector: agriculture, % 15 Employment sector: industrial, % 43 Employment sector: services, % 49 Have second job previous month: % 19 Job is secure, % 50 Prepared to move to find a job: % 17), Social cohesion and stability(Expect life to improve next year: % 21 Hospital beds per 10,000 126 Life expectancy in years (female) 72 Life expectancy in years (male) 58 Life is bearable, % 52 Population change, % -.6 Read newspapers regularly: % 67 Students in higher education per 10,000 179), GDP in bln roubles and regional percentage of the Russian total; GDP per capita and regional percentage of the Russian total; unemployment per region and unemployment in relation to the Russian average.
[37] Provided by the Ministry of Health and Family Welfare. Consists of time-series birth, death and infant mortality rates for major states
[38]http://kosis.nso.go.kr. Gross regional product and expenditure at current and 2000 prices inter-province and total in- and out-migration, number of business establishments, workers, schools, school departments, school entrants and graduates.
[39] Gross Provincial Procut and prefectural income and expenditure in current prices (mil. yen), income per capita (1000 yen) and GPD growth rates in current and constant prices (%) prices.
[40] http://www.inegi.gob.mx. Infant mortality, access to health care, numbers of health care workers and health care materials.
[41] The Edinburgh Ladies Golfing Association, for instance. Or the Fairy Investigation Society.
[42] Italy and Spain are also both Catholic countries and these anomalies could be related to Catholic organizations which are not as conducive to regional development (as Putnam has hypothesized).
[43] In effect, apparently in India "It would b e disingenuous to think that markets, and the institutions of neo liberalism, will meet the interests of regions which do not offer immediate economic rewards…the politics and policies of neoliberalism are designed to support the interests of the most powerful economic and social groups"(Amin and Thrift 47)…and so are the urban associations! I wonder whether this actually has to do with the caste system in India. This would REALLY inhibit lower-income groups from having any kind of say through associational density.
[44] On, ironically as we shall see, government corruption in Russia.