

Social capital and human welfare: Results from the 1995-97 World Values Survey

Paul Killerby*

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Abstract

Theory and evidence suggest that social capital enhances economic performance. However, measures such as national income fail to capture important aspects of wellbeing. This paper adopts a latent-variables approach, using cross-country and individual data from the 1995-97 World Values Survey, to model the impact of social capital on subjective wellbeing. The results reveal that societal norms of civic-mindedness are a significant determinant of happiness and life satisfaction once personal characteristics are accounted for.

Key words: Social capital; Subjective wellbeing

Theory and evidence from the fields of economics, sociology, social psychology and natural history suggest that human beings are often motivated to act collectively for both private and public benefit. The extent to which this occurs reflects the level of underlying social capital that is present. A sizeable theoretical and empirical literature has sprung up around social capital in the past decade, following popularisation of the term by the sociologist James Coleman (1988) and the study of voluntary associations in Italy by Robert Putnam (1993). In recent years there has been particular interest from public policy makers who see social capital as a tool for poverty reduction and economic development (World Bank, 1998).

This paper has three aims: (1) To review the economic definition of social capital and discuss its link with material and non-material wellbeing. (2) To model social capital using theoretically consistent results from the World Values Survey. (3) To present empirical results of the link between social capital and subjective wellbeing.

Section 1 discusses the definition of the term social capital and introduces various empirical proxies that have been previously derived from the World Values Survey. Section 2 outlines the theoretical link between social capital, economic performance and human welfare, and presents evidence from a range of previous empirical studies that have utilised socio-political variables to explain material and non-material well-being.

* Paul Killerby is a PhD student in economics at the University of Otago. This paper is part of a research project entitled "social capital, mutual trust and economic performance," which is supported by a grant from the Marsden Fund (administered by the Royal Society of New Zealand). A University of Otago Research Grant also supports this paper. E-mail: paulkillerby@hotmail.com.

Section 3 presents empirical results from a three-step methodology that links latent social capital with two distinct measures of subjective wellbeing. Section 4 summarises and discusses policy implications.

1. Definition and indicators of social capital

The contemporary sociological interpretation of social capital focuses on the prevalence of informal associations that facilitate face-to-face social interaction and resulting norms of reciprocity (Putnam, 2000; Woolcock, 2001). This interpretation gained prominence with public policy makers due to the influential research of Putnam (1993). In the past several years, economists have commandeered and redefined the term to include any social or political quality that facilitates collective action (Woolcock and Narayan, 2000; Killerby, 2001). There has been a growing consensus among World Bank and OECD researchers that social capital is comprised of both a “civil” component and a “governmental” component (Collier, 1998). Civil social capital encompasses levels of generalised trust, norms of cooperation and reciprocity, networks of association and confidence in government. Governmental social capital relates to the effectiveness of formal institutions in facilitating collective action.

Theory and empirical evidence suggest that formal and informal institutions can be complements in some countries and substitutes in others. Countries with a cohesive civil society more easily establish large, effective and stable institutions, which reinforce the cohesiveness of civil society (Fukuyama, 1995; Knack and Keefer, 1995; Grootaert, 1998; La Porta, Lopez-de-Silanes, Shleifer and Vishny, 1999; Aron, 2000). The absence of effective formal institutions can lead to greater reliance on informal networks, as in the “hourglass” societies of the former Soviet states (Rose, 2000).¹ Theory and evidence also suggest that social capital may affect a range of socio-economic outcomes, including improved economic performance, reduced social costs (eg, due to lower crime rates), provision of public goods, and improved management of common property resources.

Knack and Keefer (1997) examine the impact of social capital on economic performance by constructing a range of indices from the results of the 1981-84 and 1990-93 waves of the World Values Survey (WVS).² They define social capital as comprising social trust, cooperative norms and networks of informal association (p 1252). A social trust variable is compiled from the results of a question that asks: “Generally speaking, would you say that most people can be trusted or that you can’t be too careful in dealing with people?” The variable is calculated as the percentage of respondents in each country who feel that “most people can be trusted”, excluding “don’t know” responses.³ The indicator ranges

¹ The term “hourglass society” is used metaphorically to describe a strong civil society amongst most citizens, and a robust social and political life amongst the elite, but little interaction and trust between civil society and the institutions of governance (Serageldin and Grootaert, 2000, pp 51-52).

² The WVS grew from of a 1981 survey of values and norms in 10 West European countries. The WVS was extended and repeated in 1990-93 for a sample of 45 countries, and again in 1995-97 for a sample of 55 countries (Inglehart *et al*, 2000). Knack and Keefer achieve a sample size of 29 countries by combining results from the first two survey waves.

³ It may be that in the context of this question “don’t know” is a valid response. In most countries in the 1995-97 WVS less than 5 percent of respondents replied “don’t know”, but for a few countries this percentage was relatively high (eg, Bulgaria 17% of total responses; India 13%).

from less than 10 percent in some South American countries to more than 50 percent in Scandinavian countries. The WVS measure of social trust is broadly consistent with case study and experimental data, but may be more highly correlated with respondents' own trustworthiness than with their level of trust in others (Glaeser, Laibson, Scheinkman and Soutter, 2000). Furthermore, Guiso, Sapienza and Zingales (2000) point out that if someone is untrustworthy then their response to this question may be misleading.

Knack and Keefer develop an indicator of civic-mindedness based on the results of questions about five trust-requisite behaviours: (1) claiming government benefits to which you are not entitled, (2) avoiding a fare on public transport, (3) cheating on taxes, (4) keeping money that you have found, and (5) failing to report accidental damage to a parked vehicle. For their 29-country sample, the civic-mindedness and social trust variables have a bivariate correlation of 0.39.

Knack and Keefer's indicator of the density of associational networks is based on responses to a question about membership in various types of voluntary organisation. In order to mitigate the theoretically ambiguous relationship between social capital and certain types of informal organisations, Knack and Keefer separate their indicator into "Olson" and "Putnam" sub-groups.⁴ Knack and Keefer's "Putnam" sub-group consists of religious organisations, education, arts, music, or cultural activities, and youth work. Their "Olson" sub-group includes trade unions, political parties and professional associations.

Knack and Keefer also utilise WVS results to measure confidence in government, based on the percentage of respondents with either "a great deal" or "quite a lot" of confidence in various governmental and societal institutions (eg, the legal system and the civil service). Although Knack and Keefer's interpretation of social capital does not specifically encompass the institutional environment, subsequent authors have posited that confidence in government may be a form of social capital. Hall (1999, p 454) offers a possible explanation in the context of time-series evidence from British data: "... a lower willingness to trust others is likely to be associated with a lower willingness to trust public officials. Thus, it may be that the general decline in social trust has led to some erosion in political trust or vice versa or that a common set of factors has depressed both of them, although the precise lines of causation remain elusive". The interpretation in this paper is that social capital is a latent variable that underlies social trust and confidence in government, as well as other features of civil society and the institutional environment.

⁴ Olson (1982) argues that interest groups tend to encourage wasteful rent-seeking behaviours. Thus, some forms of association lead to parochialism and cannot be unambiguously linked with social capital at the societal level (Banfield, 1958; Pharr, 2000).

2. Social capital, economic performance and human welfare

There are a number of mechanisms through which social capital may affect economic performance. For example, social capital could facilitate investment in physical capital by reducing political and economic uncertainty, facilitating access to informal credit and insurance, and improving the quality of economic policies through increased political participation and institutional accountability. Social capital may also increase average levels of human capital, through greater investment in the public education system, greater community participation in the management of schools, and mitigation of nepotism in the labour market. Apart from the accumulation of physical and human capital, social capital may affect economic performance by reducing transaction costs associated with the protection of property rights (Knack and Keefer, 1997). Social capital may also enhance total factor productivity by facilitating innovation and the diffusion of technology. There is additional evidence that social capital enhances the ability of firms and organisations to expand, resulting in economies of scale and greater efficiency (La Porta, Lopez-de-Silanes, Shleifer and Vishny, 1997).

A key empirical study from the perspective of this paper is that of Knack and Keefer (1997). The initial dependent variable is average annual growth in per capita income over the period 1980-92. Additional explanatory variables include primary and secondary school enrolments in 1960, per capita income in 1980, and the price level of investment goods in 1980. Controlling for these variables, Knack and Keefer find that social trust and civic-mindedness are associated with improved economic performance. They also find that social trust and civic-mindedness are stronger in countries with formal institutions that effectively protect property and contract rights, and in countries that are less polarised along lines of class or ethnicity. Knack and Keefer also analyse the relationship between social trust and levels of output per worker, physical and human capital per worker, and total factor productivity (TFP). They find that social trust is “positively and significantly correlated with output, capital, and schooling, while the correlation with TFP is positive but insignificant” (p 1270). Subsequent economic performance studies that have made use of cross-country social capital indicators from different waves of the WVS include Rodrik (1999), Zak and Knack (2001) and Ritzen, Easterly and Woolcock (2001).

In addition to its benefits for private production, social capital can also facilitate the provision of public goods and lower social costs (for example, through reduced crime rates). Civic-mindedness acts as a constraint on self-interest, leading to a greater provision of public infrastructure such as health care, education, transport and communications. Theory and case study evidence suggests that common property management is also more effective when individual incentives are aligned with those of the wider group (eg, Ostrom, 2000; Narayan and Pritchett, 2000).

Over the past few decades, there has been increasing criticism that conventional measures of economic performance, such as GDP per capita, do not provide an accurate summary of overall human welfare. Osberg and Sharpe (2000) develop a more theoretically consistent index that incorporates income inequality and insecurity. They find that their wellbeing index increased at a much slower rate than real GDP per capita for selected

OECD countries over the past 25 years. Osberg and Sharpe conclude that whatever the measured effect of social capital on GDP growth, the impact is likely to be even more significant on more theoretically consistent measures of human welfare.

There have been relatively few studies on the link between social capital and non-economic measures of human welfare. In economists' defence, quality of life indices are prone to normative decisions with regard to measurement. In addition, there is no universally utilised composite index measuring human welfare. Kaufmann, Kraay and Zoido-Lobaton (1999a) examine the link between governance and various development outcomes. The results show a strong positive causal relationship between governance, infant mortality rates and literacy. Using data on US states, Putnam (2000, p 328-29) reports a positive correlation between a public health index based on 23 measures of public health and health care and a social capital index based on 14 indicators of civic engagement and social trust. Putnam also reports a negative correlation between his social capital index and mortality rates at the US state level. Killerby (2001) finds evidence using cross-country data that social capital has a significant indirect impact on two different composite indices of human welfare via its effect on investment.

Although some economists have made use of alternative indicators of material wellbeing, few have attempted to explain measures of self-perceived human welfare (DiTella, MacCulloch and Oswald, 2001, p 335). Easterlin (1995, p 35) bemoans the fact that in a survey of more than 200 studies of subjective wellbeing, there were only two references to articles from economic journals. Subjective wellbeing is central to the study of normative economics; the pursuit of material wealth is a means rather than an end. Oswald (1997) argues that subjective wellbeing is a valid indicator of genuine progress. Sumner (1996) uses philosophical discourse to show that happiness and life satisfaction are not only the most accurate reflection of human welfare, but are also the only measures of welfare with an ethical basis.

While observation reveals that poverty causes unhappiness, the relationship between wealth and subjective wellbeing is not so evident. Time-series studies show that increased per capita income is not significantly associated with increased average levels of happiness.⁵ According to Easterlin (1995), this is because people's material aspirations rise in proportion to the average level of income. A positive relationship between per capita income and happiness has been found in cross-country studies, but these findings are complicated by cultural differences. In addition, a bivariate correlation between income and happiness may be due the presence of a common underlying factor such as a tradition of democracy (Inglehart, 1990).

Empirical studies based on international, national and sub-national samples have thrown light on a number of frequently significant explanatory variables of subjective wellbeing.

⁵ For example, Oswald (1997) presents time series evidence from the US General Social Surveys (1972-90) and the Eurobarometer Surveys (1973-90), as well as cross-sectional evidence from the British Household Panel Survey. Myers and Deiner (1995) and Easterlin (1995) review a range of empirical evidence that refutes the hypothesis of a strong link between income and subjective wellbeing. Inglehart (1990, p 242) provides evidence from the 1981-84 WVS that GNP per capita has a negligible effect on average levels of subjective wellbeing.

Positive correlations have been found between self-reported happiness and marriage, satisfaction with personal health, satisfaction with work, and religiosity. Negative correlations have been found between subjective wellbeing, unemployment and education (Wilson, 1967; Myers and Deiner, 1995; Helliwell, 2001). The latter result may be due to higher material aspirations resulting from educational attainment (Wilson, p 301).

Many previous studies have found a link between sociability and happiness (Wilson, 1967, p 304), and between low levels of social cohesion and poor mental health outcomes (Putnam, 2000, p 326). In addition, Frey and Stutzer (2000) find that democracy and local autonomy are significantly related to subjective wellbeing in a survey sample of more than 6,000 Swiss residents. Helliwell (2001) attempts to explain trends and differences in subjective wellbeing using a mix of individual survey data and national aggregates. The sample includes more than 87,000 observations from three successive waves of the WVS. A wide range of “individual” variables (eg, unemployment and marriage status) and “societal” variables (eg, governance indices) are entered into regression equations to explain self-reported happiness. The methodology allows for possible interaction between individual and societal effects. Social capital variables with a significant positive impact on subjective wellbeing include (1) the national average level of social trust, (2) the national average proportion of respondents who feel it is never justifiable to cheat on their taxes, and (3) national average membership in voluntary organisations (with the exception of churches). Although measures of individual educational attainment have a significant negative relationship with subjective wellbeing, national average educational attainment is found to have a positive spillover effect on others’ subjective wellbeing. Helliwell (2001, pp 19-20) tentatively concludes that “... the individual well-being benefits of education flow primarily through their well-documented effects on participation, perceived trust, and higher incomes”.

3. Empirical results

The methodology for this paper involves three steps. First, following DiTella, MacCulloch and Oswald (2001), two distinct measures of subjective wellbeing are regressed against a range of explanatory variables using survey data. The observations are derived from the 1995-97 WVS, comprising 78,574 people from 55 countries. All variables are defined in the Data Appendix. The first measure of subjective wellbeing relates to happiness (HAPPY), and the second to life satisfaction (LIFESAT). The two indicators are significantly positively correlated ($\rho = 0.50$). Explanatory variables include self-assessed health status (HEALTH), satisfaction with household financial situation (FINANCE), income decile (INCOME), squared income (INCOMESQ), formal educational attainment (EDUCAT), religiosity (RELIGION), and dummy variables for marital status (MARRIED, DIVORCED, SEPARATE, WIDOWED), and employment status (SELFEMPL, UNEMPL, STUDENT, RETIRED, ATHOME).⁶

⁶ Although some studies have also include respondents’ age, or age group, as an explanatory variable (eg, DiTella et al, 2001; Helliwell, 2001), there is no *a priori* reason to believe that age in itself is a cause of subjective wellbeing (Myers and Deiner, 1995, pp 11-12). Rather, the age variable is likely to be a proxy for other predictors of subjective wellbeing (eg, self-assessed health status).

The second step involves the derivation of cross-country latent variable constructs of civil social capital (CIVSOC), governmental social capital (GOVSOC) and human development (HUMANDEV) using factor analysis. The components of the civil social capital index are country averages of data from the 1995-97 WVS relating to generalised trust, networks of association, civic-mindedness and confidence in government. The components of governmental social capital index are the governance indicators from Kaufmann, Kraay, and Zoido-Lobaton (1999b). The components of the human development index are from the United Nations Development Programme (2000).

The third step is estimation of two regression equations of the form:

$$SWB_{1i} = \alpha_1 CIVSOC_i + \alpha_2 GOVSOC_i + \alpha_3 HUMANDEV_i + \varepsilon_{1i}$$

$$SWB_{2i} = \beta_1 CIVSOC_i + \beta_2 GOVSOC_i + \beta_3 HUMANDEV_i + \varepsilon_{2i}$$

where SWB1 is the country-average level of residual subjective wellbeing (ie, wellbeing that is not explained by personal characteristics) based on the indicator HAPPY, and SWB2 is the residual from LIFESAT in country i ; CIVSOC, GOVSOC and HUMANDEV are the latent variable constructs in country i ; and ε_{1i} and ε_{2i} are error terms. The rationale is that country-specific levels of subjective wellbeing that are not explained by personal characteristics may be due to features of the wider social, political and economic environment. These societal features are treated as latent (ie, unobservable) variables in order to mitigate estimation bias associated with measurement error (Goldberger, 1973, pp 3-4).

A. Subjective wellbeing explained by individual characteristics

Table 1 shows the results of two regression equations, with HAPPY and LIFESAT as the respective dependent variables. Self-assessed health status and satisfaction with household finances are found to be the most significant determinants of both happiness and life satisfaction. Other explanatory variables that have a significant positive relationship with both happiness and life satisfaction include religiosity, marriage, student status and “homemaker” status (ATHOME). Self-employment is positively related to happiness at the 2 percent level but is negatively related to life satisfaction, which reflects an important distinction between the two dependent variables. Variables that are found to significantly diminish happiness and life satisfaction include unemployment and separation from partner (eg, WIDOWED). Interestingly, SEPARATE is positively related to life satisfaction at the 3 percent level of significance. Holding all other characteristics constant, income decile and educational attainment are negatively related to happiness and life satisfaction. These results are broadly consistent with previous empirical findings (eg, Helliwell, 2001; DiTella *et al*, 2001). The positive coefficient for INCOMESQ indicates a non-linear relationship between income levels and subjective wellbeing. The significant negative effect of income is not inconsistent with regard to Easterlin’s (1995) argument in terms of increased aspirations.

Table 1: Subjective wellbeing – regression results based on survey data

Dependent variable

	HAPPY	LIFESAT
Constant	1.38 (74.68)	1.20 (21.77)
HEALTH	0.26 (77.73)	0.55 (56.29)
FINANCE	0.08 (70.06)	0.56 (172.68)
INCOME	-0.00 (-6.95)	-0.00 (-6.69)
INCOMESQ	0.00 (3.78)	0.00 (3.55)
EDUCAT	-0.00 (-0.81)	-0.05 (-9.33)
RELIGION	0.07 (24.11)	0.09 (11.45)
MARRIED	0.12 (15.37)	0.18 (7.86)
DIVORCED	-0.09 (-5.79)	0.01 (0.22)
SEPARATE	-0.08 (-3.85)	0.14 (2.22)
WIDOWED	-0.13 (-9.94)	-0.21 (-5.34)
SELFEMP	0.02 (2.46)	-0.07 (-2.38)
UNEMP	-0.06 (-5.94)	-0.25 (-8.06)
STUDENT	0.06 (4.56)	0.13 (3.48)
RETIRED	0.01 (0.59)	-0.00 (-0.19)
ATHOME	0.09 (9.41)	0.12 (4.14)
	Adj $R^2 = 0.26$ $N = 54,372$	Adj $R^2 = 0.47$ $N = 52,730$

Note: Estimates derived using SPSS 10.0 for Windows. t -statistics are shown in parentheses. Bold font indicates significant at the 1 percent level. Marital status "single" and employment status "employed" are omitted to avoid the problem of multicollinearity.

B. Derivation of CIVSOC, GOVSOC and HUMANDEV

Some theorists argue that social capital cannot reside in the individual, given that by definition it requires the presence of a group (Grootaert, 1988; Goldin and Katz, 1998). Others insist that social capital can be aggregated from the decisions of individual agents, each of whom determine the optimal level of resources to invest in associational activity (Glaeser, Laibson and Secerdote, 2000). However, the empirical effect of social capital on subjective wellbeing cannot be accurately gauged by regressing a measure of wellbeing on individual indicators of social capital (eg, membership in voluntary associations). Rather, it is the national average level of social capital that is important, and thus country-averages that should be used as the explanatory variables. This section uses factor analytic techniques to derive indices of civil social capital, governmental social capital and, and overall material wellbeing (ie, human development). Factor analysis explicitly recognises that any individual indicator will be an incomplete approximation of the underlying latent variable. All factor scores are obtained using

maximum likelihood estimation, so non-normality should not create a significant bias (Bollen, 1989, pp 417-418). Nevertheless, the presence and reasons for skewness (ie, specific outliers) are described to give a greater feel for the data.

The choice of civil social capital indicators largely follows previous work by Knack and Keefer (1997). They use data from the 1981-84 wave of WVS surveys for much of their sample, supplemented by data from the 1990-93 wave. The 1995-97 survey wave has broader country coverage, allowing an adequate sample size without mixing survey years.⁷ The 1995-97 survey wave covers 55 countries, including 16 former Soviet states. Social trust (TRUST) is measured in the same way as Knack and Keefer. Table 2 lists the factor scores for TRUST alongside each of the 40 countries in the effective sample. The highest scores for TRUST are recorded in the Scandinavian countries and the lowest scores are recorded in Brazil and Peru.

Table 2: TRUST in a sample of 40 countries

<i>Country</i>	<i>TRUST</i>	<i>Country</i>	<i>TRUST</i>
<i>OECD</i>		<i>Former Soviet</i>	
Norway	65.3	Yugoslavia*	30.2
Sweden	59.7	Bulgaria	28.6
Finland	48.8	Bosnia and Herzegovina	28.3
Japan	42.3	Croatia	25.1
Australia	40.0	Armenia	24.7
Switzerland	37.0	Latvia	24.7
United States	35.9	Belarus	24.1
Germany (unified)	33.3	Russian Federation	23.9
Spain	29.7	Georgia	23.4
Mexico	28.1	Moldova	22.2
<i>Latin America and the Caribbean</i>		Lithuania	21.9
Dominican Republic	26.4	Estonia	21.5
Uruguay	21.6	Azerbaijan	20.5
Chile	21.4	Slovenia	15.5
Argentina	17.6	Macedonia	8.2
Venezuela	13.7	<i>Asia</i>	
Colombia	10.8	Taiwan	41.8
Puerto Rico	6.0	India	37.9
Peru	5.0	Bangladesh	20.9
Brazil	2.8	Philippines	5.5
<i>Africa</i>			
Nigeria	19.2		
South Africa	15.9		

* *Yugoslavia combines data for Serbia and Montenegro.*

Civic-mindedness (CIVIC) is measured on the basis of standard questions used throughout all three WVS survey waves.⁸ Specifically, the variable CIVIC is based on whether each of five selfish behaviours “can always be justified, never be justified, or

⁷ Note that there is some risk of inconsistency when mixing data from different survey waves because variables are not static over time. For instance, average reported social trust levels in Norway increased from 61.5 percent in the 1981-84 WVS to 65.3 percent in 1995-97. In contrast, social trust in Argentina fell from 26.1 percent to 17.6 percent over the same period. Confidence in government is another variable that is not constant over time (refer Pharr and Putnam, 2000). Confidence in government (constructed in the same way as Knack and Keefer) increased by around 9 percent in Norway over the course of the three survey waves, but fell by 33 percent in Argentina.

⁸ The 1995-97 WVS questionnaire replicated only around 60 percent of the items included in the earlier questionnaires. According to Inglehart *et al* (2000), the additional space was used to probe more deeply into key topics.

something in between”: (1) claiming government benefits to which you are not entitled; (2) avoiding a fare on public transport; (3) cheating on taxes if you have the chance; (4) buying something you knew was stolen; and (5) someone accepting a bribe in the course of their duties. The average for each item per country is scored on a scale of 1-10, which is reversed so that a high score represents greater civic-mindedness. Skewness is found in the data measuring “someone accepting a bribe”, with Brazil, the Philippines and Azerbaijan all recording very low scores. The first principal component of these items has an eigenvalue of 3.37, accounting for 37.4 percent of the total variance of the data.⁹ The second principal components is dominated by “someone accepting a bribe”, which is evidence of orthogonality with respect to the other items. It may be that “someone accepting a bribe” is reflecting respondents’ beliefs with regard to a third party rather than capturing their self-reported civic-mindedness. Factor analysis results in CIVIC scores for an effective sample of 40 countries. Table 3 shows that the CIVIC variable best explains “avoiding a fare” and “cheating on taxes” and least well explains “someone accepting a bribe”.¹⁰ Factor scores range from a low of -2.14 in Croatia to a high of 2.11 in Bangladesh. Most of the former Soviet states have low scores, while OECD and Asian countries have high scores.

Table 3: Factor analysis of CIVIC components

	Factor loadings	Unique Var
Claiming government benefits to which you are not entitled	0.74	0.46
Avoiding a fare on public transport	0.89	0.20
Cheating on taxes if you had the chance	0.90	0.20
Buying something you knew was stolen	0.68	0.53
Someone accepting a bribe in the course of their duties	0.60	0.65
Minimum Fit Function Chi-Square with 5 Degrees of Freedom = 9.99		

A measure of associational activity (ASSOC) is constructed using standard responses across the various survey waves. Specifically, the index is constructed from the proportion of people in each country who are active members in each of four types of voluntary organisations: (1) church or religious organisations, (2) sports or recreation organisations, (3) arts, music or educational organisations, and (4) charitable organisations. Skewness is present in the distributions of all four components, but particularly membership in charitable and religious organisations. Nigeria and South Africa each have particularly high numbers of respondents reporting active membership in church or religious organisations. High membership levels in a small number of countries also skew the distribution for charitable organisations (particularly the United States, Puerto Rico and Australia). Bivariate correlations between each of the four items range from 0.53 (between religious organisations and recreation organisations) to 0.81 (between recreational organisations and arts, music or educational organisations). The first principal component for these four items explains 78.9 percent of total variation in the data. Table 4 shows that the factor scores for ASSOC have the heaviest loading on

⁹ Principal component analysis is undertaken prior to factor analysis in order to provide additional insights into the multivariate relationships within the data. All principal component analyses and factor analyses are undertaken using PRELIS 2 (Jöreskog and Sörbom, 1996), based on correlation matrices.

¹⁰ The column headed “unique var” shows how much of the variance in each indicator is not explained by the latent variable construct.

arts, music and educational organisations, and have lesser explanatory power in terms of average membership per country in church or religious organisations.¹¹

Table 4: Factor analysis of ASSOC components

	Factor loadings	Unique Var
Church or religious organisation	0.78	0.40
Sports or recreation organisation	0.82	0.32
Arts, music or educational organisation	0.95	0.11
Charitable organisation	0.85	0.28
Chi-Square (2 df) = 12.27		

A measure of public confidence in government (CONF) is also constructed from items in the 1995-97 WVS, based on the proportion of respondents in each country with either a great deal or quite a lot of confidence in five types of public institution. Skewness is less prevalent in this data, except for the item measuring confidence in Parliament. Ghana, Bangladesh and Azerbaijan all score highly on this item, with more than 70 percent of respondents reporting a great deal or quite a lot of confidence in Parliament.¹² The first principal component of this data explains 65.5 percent of total variance in the four items. Table 5 shows that CONF has a particularly high factor loading on confidence in the legal system, and least explains respondents' confidence in the armed forces and police.

Table 5: Factor analysis of CONF components

	Factor loadings	Unique Var
Armed forces	0.60	0.65
Legal system	0.93	0.23
Police	0.66	0.56
Parliament	0.78	0.39
Civil service	0.79	0.37
Chi-Square (5 df) = 16.91		

Table 6 shows that TRUST has a relatively strong correlation with CONF but not with ASSOC. This is consistent with the evidence of Hall (1999) using time-series data for Britain, and is also consistent with Newton and Norris (2000) using data from successive waves of the WVS.

Table 6: Bivariate correlation matrix of civil social capital indicators (N = 40)

Variable	TRUST	CIVIC	ASSOC
CIVIC	0.28		
ASSOC	0.19	0.46	
CONF	0.41	0.24	0.05

The results from factor analysis of the components of CIVSOC are shown in Table 7. CIVSOC explains most of the variance in CIVIC and a small amount in terms of ASSOC, but little in terms of CONF and TRUST. Hence, CIVSOC is a reasonable representation

¹¹ The low loading on church or religious organisations is consistent with this paper's interpretation of the link between social capital and certain types of associations. High membership in church organisations may be representative of hierarchical power relations and/or parochialism.

¹² This result for Azerbaijan, coupled with the relatively high proportion of respondents who felt that "someone accepting a bribe" was justifiable, casts doubt on the validity of responses from this country.

of the sociological interpretation of social capital (ie, cooperative norms and networks of association).

Table 7: Factor analysis of CIVSOC components

Variable	Factor loadings	Unique Var
TRUST	0.30	0.91
CIVIC	0.86	0.26
ASSOC	0.54	0.71
CONF	0.29	0.92

Chi-Square (2 df) = 5.08

GOVSOC is constructed using indicators derived by Kaufmann, Kraay, and Zoido-Lobaton (1999b). Kaufmann *et al* aggregate data from more than 300 sources into six indicators of governance, labelled government effectiveness (GOVEFF), regulatory burden (REGULAT), voice and accountability (VOICE), control of corruption (CORRUP), political stability (POLSTAB), and rule of law (RULELAW). The main disadvantage of Kaufmann *et al*'s indicators is that they have relatively large standard errors. Nevertheless, they provide sufficient precision to allow broad groups of countries to be distinguished in terms of quality of governance. Factor loadings for the Kaufmann *et al* indicators are shown in Table 8. GOVSOC explains almost all of the variance in GOVEFF, CORRUP and RULELAW.

Table 8: Factor analysis of GOVSOC components

Variable	Factor loadings	Unique Var
GOVEFF	0.96	0.08
REGULAT	0.78	0.39
VOICE	0.88	0.23
CORRUP	0.96	0.09
POLSTAB	0.91	0.18
RULELAW	0.96	0.09

Chi-Square (9 df) = 18.43

The components of HUMANDEV are life expectancy at birth (LIFE), literacy rates (LITERACY), school enrolment ratios (SCHOOL), and GDP per capita (INCOME). Table 9 shows that HUMANDEV explains a moderate amount of the variance in each of its components.

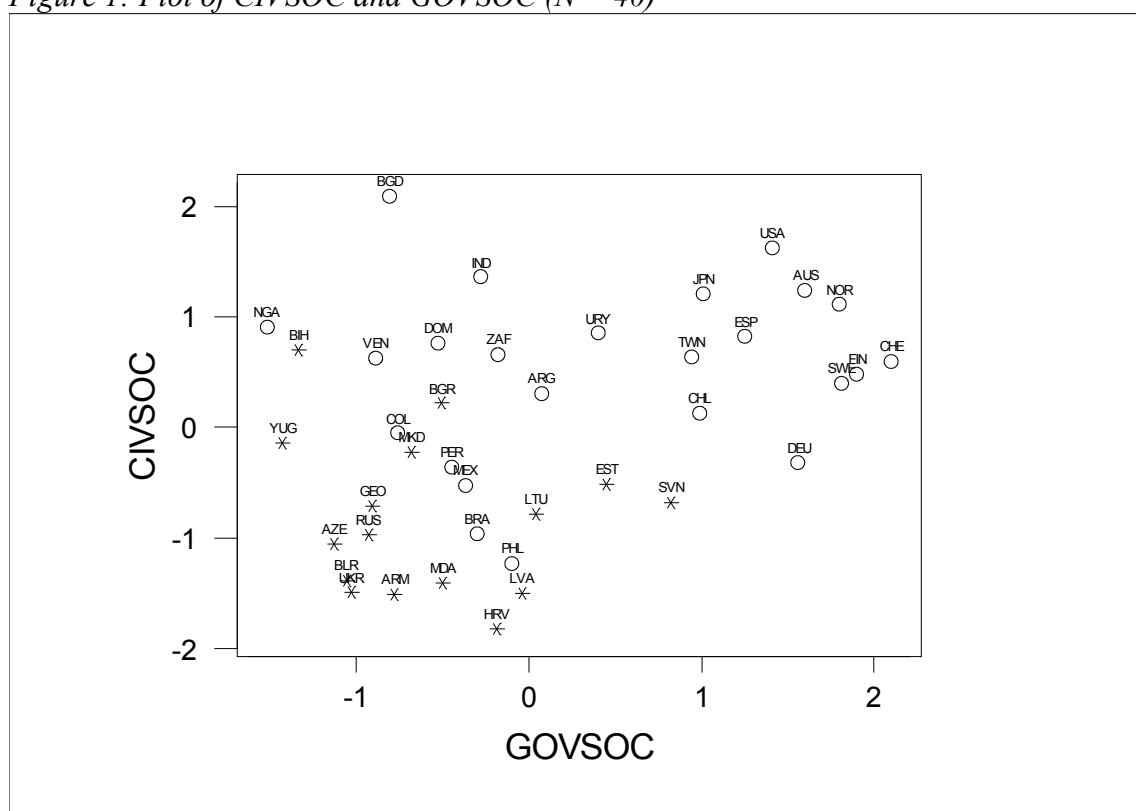
Table 9: Factor analysis of HUMANDEV components

Variable	Factor loadings	Unique Var
LIFE	0.79	0.37
LITERACY	0.74	0.45
SCHOOL	0.86	0.26
INCOME	0.77	0.41

Chi-Square (2 df) = 20.99

Figure 1 shows that the highest combined scores for CIVSOC and GOVSOC are recorded in the OECD countries. Overall, Bangladesh has the highest score for CIVSOC, due largely to its high levels of reported civic-mindedness. Switzerland records the highest score for GOVSOC. Over the sample as a whole, CIVSOC and GOVSOC have a weak positive bivariate correlation ($\rho = 0.36$). However, in a separate sub-sample of the 16 former Soviet states (marked with asterisks), CIVSOC and GOVSOC have a weak negative bivariate correlation ($\rho = -0.17$). This provides some support for the hypothesis that a strong civil society is compensating for a dysfunctional institutional environment in these countries.

Figure 1: Plot of CIVSOC and GOVSOC (N = 40)



C. Synthesis

With the inclusion of HUMANDEV and the country-average residual measures of wellbeing (SWB1 and SWB2), the total effective sample size is reduced to 33 countries. Figure 2 reveals a relatively strong positive bivariate correlation between SWB1 and SWB2 ($\rho = 0.72$). The social capital and human development latent variables have moderate correlations with SWB1 and SWB2 ($0.34 < \rho < 0.58$). The human development index also has a relatively strong correlation with GOVSOC ($\rho = 0.78$). A number of outliers are evident, which may affect the parameter estimates. Specifically, Nigeria, Bangladesh and India have very low levels of literacy, school enrolments, income and life expectancy compared to other countries in the sample, and hence have low scores for HUMANDEV. In addition, Venezuela reveals a relatively high level of “unexplained happiness”.

Figure 2: Matrix plot of dependent and explanatory variables

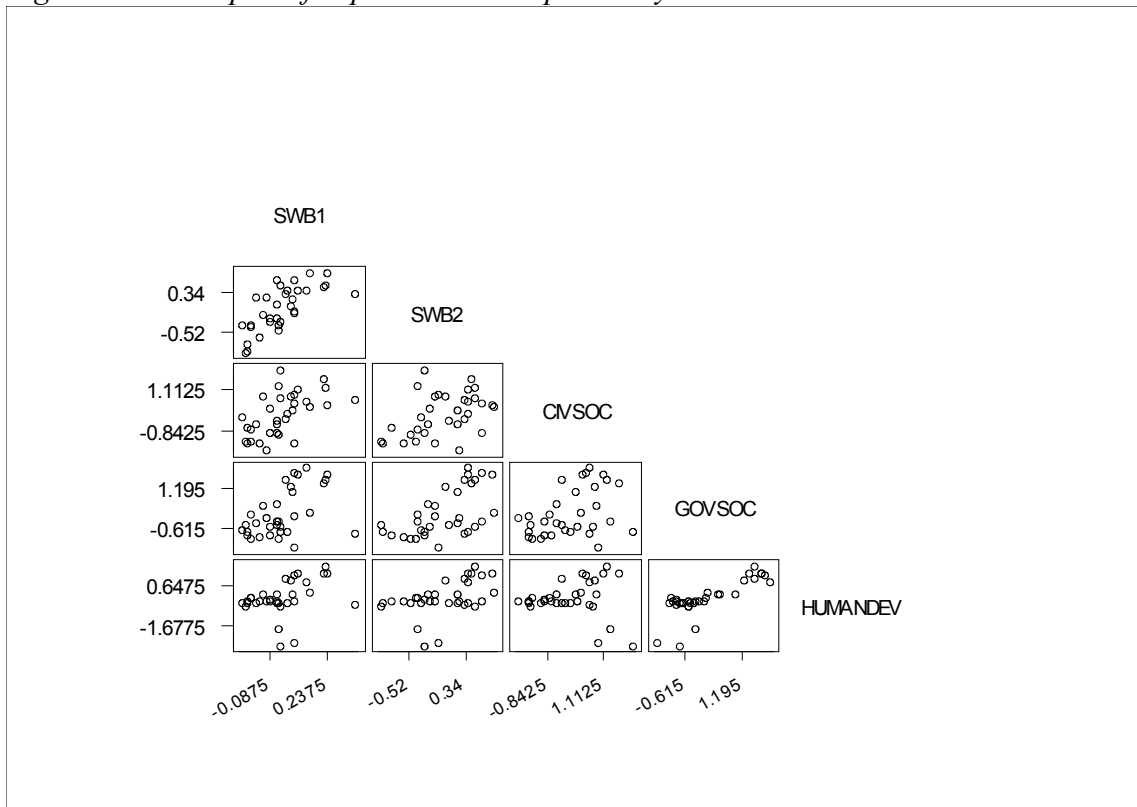


Table 10 shows the results of four regression equations relating residual subjective wellbeing to country-level explanatory variables. Columns 1 and 2 show parameter estimates when Nigeria, Bangladesh and India are included in the sample, and columns 3 and 4 show the results when they are omitted. The results reveal that civil social capital explains a significant amount of cross-country residual wellbeing, but the effects of governmental social capital and human development are not statistically significant. In the regression results of columns 1 and 2, Bangladesh has a large influence on the parameter estimates. With Bangladesh omitted from the sample, Australia has a high

degree of influence. Regardless of whether the outlier countries are omitted or not, Venezuela has a large positive residual with respect to SWB1 and Brazil has a large positive residual with respect to SWB2. Therefore, regional effects may also be relevant to subjective wellbeing. Ideally, this should be tested on a larger sample of countries. A larger sample of countries would also enable causal relations to be tested through a simultaneous equations approach.

Table 10: Subjective wellbeing – regression results based on national-level data

	(1)	(2)	(3)	(4)
	Dependent variable			
	SWB1	SWB2	SWB1	SWB2
CIVSOC	0.09*** (3.40)	0.16* (1.95)	0.09*** (3.20)	0.19** (2.14)
GOVSOC	-0.01 (-0.21)	0.10 (0.79)	0.01 (0.09)	0.21 (1.31)
HUMANDEV	0.06 (1.48)	0.13 (1.04)	0.04 (0.52)	-0.06 (-0.29)
	$N = 33$ $R^2 = 0.44$ Adj $R^2 = 0.39$	$N = 33$ $R^2 = 0.41$ Adj $R^2 = 0.35$	$N = 30$ $R^2 = 0.47$ Adj $R^2 = 0.41$	$N = 30$ $R^2 = 0.44$ Adj $R^2 = 0.38$

Note: Estimated using SPSS 10.0 for Windows. *t*-statistics are shown in parentheses.

*** indicates significant at 1% level, ** significant at 5% level, * significant at 10% level.

4. Summary and policy implications

A latent variable that reflects the country-average level of civic-mindedness is found to be highly significant in explaining residual levels of subjective wellbeing once individual characteristics are accounted for. Indices of human development and institutional effectiveness are not found to be significant explanatory variables once civil social capital is accounted for. Previous empirical evidence has demonstrated that a cohesive society is important to economic performance. This paper provides evidence that social capital is also relevant to non-material aspects of measures of human welfare.

The policy implications of this result are two-fold. First, social and economic policies should be evaluated on the basis of their impacts on social cohesion. The social, political and economic spheres do not each exist in isolation. Rather, they are part of a recursive system of relations. Civil social capital and the institutional environment are linked through participation and accountability. Theory and evidence suggest that social capital is a determinant of socio-economic outcomes, including education and national income. In turn, social cohesion may be positively affected by human development via the effect of education on civic-mindedness and participation. Ideally these relationships should be tested using a structural equations approach, although current data limitations are a major constraint.

The issue of data constraints leads us to the second key implication for public policy. Subjective wellbeing is a valid indicator of genuine societal progress. While inroads have been made to the cross-country measurement of happiness and life satisfaction, considerably more attention should be paid to inter-regional and international trends in subjective welfare, social capital, and the causes of their variation. Causes of social

capital that have been previously identified in the literature include community stability, cohesive urban design, shared values, equity of resources and opportunities, and access to information (Killerby, 2001, pp 4-5).

This paper is a preliminary report on work in progress. Future research includes an attempt to address the issues of endogeneity and causality using panel data from different waves of the WVS. Such an approach may also enable the link between social capital and economic performance to be tested using theoretically consistent indicators of social capital. In addition, there is scope for additional environmental factors to be considered in explaining human development and subjective wellbeing. Parker (2000) posits a link between climate and economic growth based on the physiological need to maintain a warm body temperature. Killerby (2001) finds evidence that distance from the equator increases social capital, perhaps as a result of the shared external threat that climate poses to communities in these countries. An upcoming paper will test the hypothesis that residual subjective wellbeing in some countries can be accounted for by the inclusion of a variable measuring distance from the equator.

DATA APPENDIX

Data definitions and sources in order of mention in the text.

Variable: HAPPY

Source: World Values Survey

Period: 1995-97

Question: Taking all things together, would you say you are:

(1) Not at all happy (2) Not very happy (3) Quite happy (4) Very happy.

Variable: LIFESAT

Source: World Values Survey

Period: 1995-97

Question: All things considered, how satisfied are you with life as a whole these days?

Scored on an ordinal scale from 1 (dissatisfied) to 10 (satisfied).

Variable: HEALTH

Source: World Values Survey

Period: 1995-97

Question: All in all, how would you describe your state of health these days? Would you say it is:

(1) Very poor (2) Poor (3) Fair (4) Good (5) Very good.

Variable: FINANCE

Source: World Values Survey

Period: 1995-97

Question: How satisfied are you with the financial situation of your household?

Scored on an ordinal scale from 1 (dissatisfied) to 10 (satisfied).

Variable: INCOME

Source: World Values Survey

Period: 1995-97

Question: Here is a scale of incomes. We would like to know in what group your household is, counting all wages, salaries, pensions and other incomes that come in. Just give the letter of the group your household falls into, before taxes and other deductions.

Coded according to deciles per country where 1 = lowest and 10 = highest.

Variable: INCOMESQ

Source: World Values Survey

Period: 1995-97

Coded as the squared value of INCOME, to account for non-linearity with subjective wellbeing.

Variable: EDUCAT

Source: World Values Survey

Period: 1995-97

Question: What is the highest educational level that you have attained?

Coded using functional equivalent in given society:

- (1) No formal education
 - (2) Incomplete primary school
 - (3) Complete primary school
 - (4) Incomplete secondary school
 - (5) Complete secondary school
 - (6) Some university-level education, without degree
 - (7) University-level education, with degree
-

Variable: RELIGION

Source: World Values Survey

Period: 1995-97

Question: How important is religion in your life?

Scored on an ordinal scale from 1 (not at all) to 4 (very).

Variable: MARRIED

Source: World Values Survey

Period: 1995-97

Question: Are you currently married/living together as married? (1 if yes, 0 if no).

Variable: DIVORCED

Source: World Values Survey

Period: 1995-97

Question: Are you currently divorced? (1 if yes, 0 if no).

Variable: SEPARATED

Source: World Values Survey

Period: 1995-97

Question: Are you currently separated? (1 if yes, 0 if no).

Variable: WIDOWED

Source: World Values Survey

Period: 1995-97

Question: Are you currently widowed? (1 if yes, 0 if no).

Variable: SELFEMPL

Source: World Values Survey

Period: 1995-97

Question: Are you currently self employed? (1 if yes, 0 if no).

Variable: UNEMPL

Source: World Values Survey

Period: 1995-97

Question: Are you currently unemployed? (1 if yes, 0 if no).

Variable: STUDENT

Source: World Values Survey

Period: 1995-97

Question: Are you currently a student? (1 if yes, 0 if no).

Variable: RETIRED

Source: World Values Survey

Period: 1995-97

Question: Are you currently retired/pensioned? (1 if yes, 0 if no).

Variable: ATHOME

Source: World Values Survey

Period: 1995-97

Question: Are you currently a housewife not otherwise employed? (1 if yes, 0 if no).

Variable: CIVSOC

Period: 1995-97

Definition: Civil social capital index derived through second order factor analysis of WVS components.

Variable: GOVSOC

Period: 1997-98

Definition: Governmental social capital index derived through factor analysis of governance indicators reported by Kaufmann, Kraay & Zoido-Lobaton, 1999a.

Variable: HUMANDEV

Period: 1998

Definition: Human development index derived through factor analysis of items reported by United Nations Development Programme, 2000.

Variable: SWB1

Period: 1995-97

Definition: Country-average unexplained residual from regression of HAPPY on personal characteristics.

Variable: SWB2

Period: 1995-97

Definition: Country-average unexplained residual from regression of LIFESAT on personal characteristics.

Variable: TRUST

Source: World Values Survey

Period: 1995-97

Definition: Proportion of people per country who believe “most people can be trusted”.

Variable: CIVIC

Source: World Values Survey

Period: 1995-97

Definition: Factor scores based on five items reflecting norms of civic cooperation.

Variable: ASSOC

Source: World Values Survey

Period: 1995-97

Definition: Factor scores based on active membership in four types of voluntary organisation.

Variable: CONF

Source: World Values Survey

Period: 1995-97

Definition: Factor scores based on confidence in five types of public institution.

Variable: GOVEFF

Source: Kaufmann, Kraay & Zoido-Lobaton, 1999b

Period: 1997-98

Definition: Government effectiveness composite index, constructed to have approximately zero mean and unit standard deviation over a large sample of countries, with higher values corresponding to better governance outcomes.

Variable: REGULAT

Source: Kaufmann, Kraay & Zoido-Lobaton, 1999b

Period: 1997-98

Definition: Regulatory framework composite index, measured as above.

Variable: VOICE

Source: Kaufmann, Kraay & Zoido-Lobaton, 1999b

Period: 1997-98

Definition: Voice and accountability composite index, measured as above.

Variable: CORRUP

Source: Kaufmann, Kraay & Zoido-Lobaton, 1999b

Period: 1997-98

Definition: Control of corruption composite index, measured as above.

Variable: POLSTAB

Source: Kaufmann, Kraay & Zoido-Lobaton, 1999b

Period: 1997-98

Definition: Political stability composite index, measured as above.

Variable: RULELAW

Source: Kaufmann, Kraay & Zoido-Lobaton, 1999b

Period: 1997-98

Definition: Rule of law composite index, measured as above.

Variable: LIFE

Source: United Nations Development Programme, 2000

Period: 1988

Definition: Life expectancy at birth (years).

Variable: LITERACY

Source: United Nations Development Programme, 2000

Period: 1988

Definition: Adult literacy rate (% aged 15 and above).

Variable: SCHOOL

Source: United Nations Development Programme, 2000

Period: 1988

Definition: Combined primary, secondary and tertiary gross enrolment ration (%).

Variable: INCOME

Source: United Nations Development Programme, 2000

Period: 1988

Definition: Price parity adjusted GDP per capita (\$US).

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