How's Your Government? International Evidence Linking Good Government and Well-Being

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This article employs World Values Survey measures of life satisfaction as though they were direct measures of utility, and uses them to evaluate alternative features and forms of government in large international samples. Life satisfaction is found to be more closely linked to several World Bank measures of the quality of government than to real per capita incomes, in simple correlations and more fully specified models explaining international differences in life satisfaction. Differences in the relative importance of different aspects of good government are tested for, and a hierarchy of preferences that depends on the level of development is found. The ability of governments to provide a trustworthy environment, and to deliver services honestly and efficiently, appears to be of paramount importance for countries with worse governance and lower incomes. The balance changes once acceptable levels of efficiency, trust and incomes are achieved, when more value is attached to building and maintaining the institutions of electoral democracy.

Defining and evaluating 'good government' requires some heroic assumptions. Which features of the operation of a government are valuable and to whom? If a government's goodness is to be defined by the nature and consequences of its policies, which policies and which results should be used as litmus tests? While most analysts would agree that the quality of a government depends on the extent to which it improves the welfare of its citizens (with due regard for the interests of and relations with others), the lack of readily available measures of welfare has led to a wide range of techniques being used for evaluation. Political scientists have tended to give pride of place to governmental systems that embody democratic principles and practices supported by the rule of law. Economists have tended to evaluate systems of government, and institutions in general, in terms of their perceived ability to foster economic growth (sometimes with regard also for the distribution of the resulting goods and services).

In this article we adopt a much broader perspective. We employ survey measures of life satisfaction as though they were direct measures of utility, and use them to evaluate alternative features and forms of government. Since measures of life satisfaction are now available for many countries, they offer a potential new tool for comparative political economy. If these data are to provide valuable new insights, they must be seen to tell at least a slightly different story from other evaluation methods, and to do so in a convincing way. This is an ambitious research agenda, in which the results we report here are neither the first nor the last words. In this article we first show that several different measures of governmental quality are highly correlated with cross-national differences in life

satisfaction. Although many of the same measures of governmental quality have been shown to affect prospects for economic growth, our evidence suggests that the income channel is a relatively minor part of the story, since the partial effects of government quality on life satisfaction are largely unaffected by the inclusion of average per capita incomes. This demonstration will occupy the next section of the article. Then there are two sections of more detailed results, the first testing the robustness and likely channels of the links between governmental quality and life satisfaction, and the second using our data and methods to cast a slightly different light on some recently studied issues in comparative political economy. For example, it has been found that proportional and majoritarian democratic systems appear to have different implications for the size of government spending. But is this higher spending a good thing, as would be suggested by the argument that it reflects the design and implementation of broadly-based welfare systems, or a bad thing, as surmised by those[1] who have reported that high ratios of government spending are associated with lower economic growth? Our direct measures of life satisfaction provide a possible method for evaluating the net welfare effects of alternative political institutions. We conclude with a summary of our results and proposals for further research.

Before launching into a presentation of results using subjective assessments of life satisfaction as a measure of utility, it is perhaps necessary to answer, at least in a provisional way, some of the sceptical questions that might be raised about our proposed research agenda. Many social scientists have viewed subjective data with suspicion, regarding such evidence as much inferior to more explicitly behavioural data. Secondly, many users of life satisfaction or happiness data have encountered difficulties posed by excluded variables and reverse causation. For example, cross-sectional studies based on individual data have shown an apparently large effect linking marriage to higher life satisfaction. Thinking in excluded variable terms, sceptics have argued that since inherent genetic personality differences have been shown to be strong determinants of life satisfaction, these excluded traits are likely to affect both happiness and marriage status because those with optimistic and extroverted personalities are likely to be both happier and married. Seen as an issue in reverse causation, any random factor that made someone happier would also make them more attractive to others. Such correlation with unmeasured personality differences is likely to be more important at the individual than at the national aggregate level, since personality types are likely to average out in large samples. But it has also been argued that even at the national level there may be differences in personality or mood that would affect responses to life satisfaction questions in ways not connected with 'real' differences in the quality of life.[2]

Perhaps the strongest defence against contamination by personality differences is to take such traits directly into account. Entering measured personality differences at the individual level[3] and at the national level,[4] does indeed show them to have substantial

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[1] See R. J. Barro, 'Economic Growth in a Cross-Section of Countries', *Quarterly Journal of Economics*, 106 (1991), 406–43.

[2] See D. Kahneman and J. Riis, 'Living and Thinking About It: Two Perspectives on Life', in F. A. Huppert, B. Keverne and N. Baylis, eds, *The Science of Well-Being* (London: Oxford University Press, 2005), pp. 285–304.

[3] The individual-level results are reported in J. F. Helliwell and H. Huang 'How's the Job? Well-Being and Social Capital in the Workplace', *NBER Working Paper*, No. 11759 (Cambridge: National Bureau of Economic Research, 2005), Table 3.

[4] The national level results including personality effects are reported in J. F. Helliwell, 'Well-Being, Social Capital and Public Policy: What's New?' *Economic Journal*, 116 (2006), C34–C45, p. C40. The national level personality data are based on measures described in H. J. Eysenck and S. B. G. Eysenck, *Manual of the Eysenck*

importance in explaining life satisfaction, especially at the individual level. But in neither case does explicit allowance for these differences change the main results that were previously apparent.

The strongest support for the 'reality' of the subjective assessments of life satisfaction is that they tell a remarkably consistent story to that provided by suicide data.[5] The ability of the same variables to explain both life satisfaction and suicide in a consistent manner is especially remarkable because suicides tend to be drawn from those at the extreme lower tail of the distribution of life satisfaction,[6] and there is no guarantee that the determinants should be so similar. The fact that these two such different types of data tell the same story provides strong support for subjective assessments of life satisfaction. To counter the objection against the use of subjective data (an objection that is in any event seldom supported by research findings), the suicide data are based on ultimate and irrevocable decisions. The suicide data are also free of suspicions of reverse causation. Thus the fact that the suicide and life satisfaction data are well explained by the same model suggests that the life satisfaction results cannot be dismissed out of hand, whether by rejection of subjective data, by suggestions that the questions might be interpreted so differently in different countries as to make comparisons useless, or by the possible existence of reverse causation. Thus we are convinced that the life satisfaction data have strong claims to be used as direct measures of utility. Since they have been widely collected in the past, and are very easy and cheap to collect in the context of almost any survey, we think that they provide a promising tool for comparative assessments of the quality of governance.

GOVERNMENT, INCOME AND WELL-BEING

Our next task is to show that using measures of subjective well-being (SWB) to analyse the nature and consequences of government makes a difference. To begin with, we show that the linkages between the quality of government and subjective well-being are stronger and have different functional forms than those between average per capita real incomes and subjective well-being. Figure 1 shows the scatter plots of life satisfaction against average per capita incomes and a measure of the quality of government. Per capita real incomes are measured at purchasing power parities and are shown as ratios to US per capita GDP (gross domestic product) in 1995. The governmental quality measure used is from the closest available year in the Governance Matters IV database,[7] and is an equally weighted average of the six component indexes, each of which is scaled to have, across

(F'note continued)

Personality Questionnaire (London: Hodder & Stoughton, 1975) and collected into an internationally comparable dataset in P. Steels and D. S. Ones, 'Personality and Happiness: A National Level Analysis', *Journal of Personality and Social Psychology*, 83 (2002), 767–81.

[5] National averages for suicide rates and measures of life satisfaction are used as alternative dependent variables for the same underlying equation in J. F. Helliwell, 'Well-Being and Social Capital: Does Suicide Pose a Puzzle?' *Social Indicators Research* (2007). The latest results of the comparative modelling of suicide and well-being, expanded to include life expectancy measures from the World Health Organization, are shown in Table 3.

[6] A large prospective Finnish study showed suicide rates to be many times higher for those reporting low levels of life satisfaction. See H. Koivumaa-Honkanen, R. Honkanen, H. Viinamäki, K. Heikkilä, J. Kaprio and M. Koskenvuo, 'Life Satisfaction and Suicide: A 20-year Follow-up Study', *American Journal of Psychiatry*, 158 (2001), 433–9.

[7] D. Kaufmann, A. Kraay and M. Mastruzzi, 'Governance Matters IV: Governance Indicators for 1996–2004' (Washington, D.C.: World Bank, 2005).
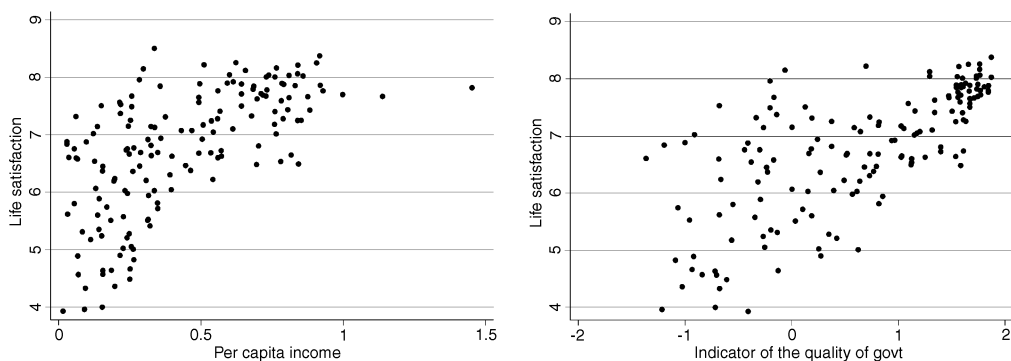
Fig. 1. *Scatter plots of subjective well-being, income and governance quality using data from all four survey waves*
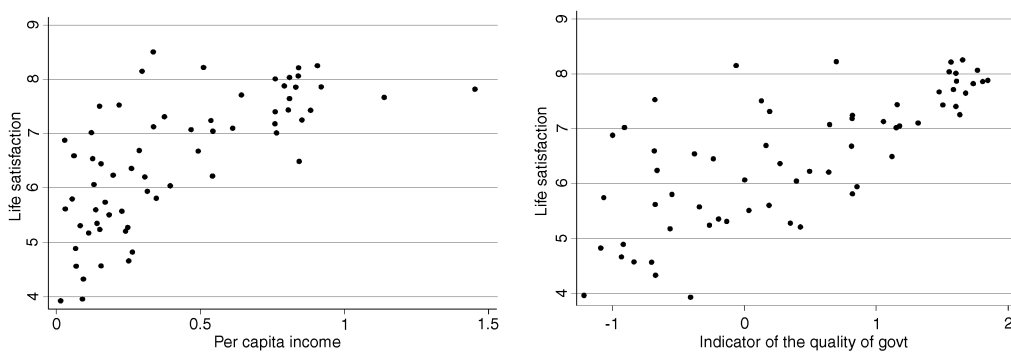

Fig. 2. *As in Fig. 1, using only the observations from the 1999–2000 survey waves*

Definitions and sources of data:

1. The measure of subjective well-being is the national average of the response to life satisfaction question in the four waves (1981–84, 1990–93, 1995–97 and 1999–2000) of the World Values Surveys and European Values Surveys.

2. The indicator of governance quality is the unweighted average of the six component indexes of Kaufmann, Kraay and Mastruzzi, 'Governance Matters IV: Governance Indicators for 1996–2004'.

3. Income is PPP converted real GDP per capita and is shown as ratios of US per capita GDP in 1995. The data is from Penn World Table 6.1.

the global sample, a mean of zero and a standard deviation of 1.0. The measure of life satisfaction is from four waves of the World Values Survey (WVS).[8] The first panel of the figure includes a tattered panel of 160 observations from seventy-five different countries (or sub-national regions), which is the largest we could construct without missing key variables.[9] Figure 2 is for a sub-sample comprising the sixty-five observations from

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[8] The four waves were in 1981–84, 1990–93 and 1995–97, from R. Inglehart *et al.*, *World Values Surveys and European Values Surveys,1981–84, 1990–1993 and 1995–1997.* (Computer file) ICPSR Version (Ann Arbor, Michigan: Inter-university Consortium for Political and Social Research) and in 1999–2002, from R. Inglehart *et al.*, *World Values Surveys and World Values Surveys Integrated Data File, 1999–2002, Release I.* (Computer file) ICPSR Version (Ann Arbor, Michigan: Inter-university Consortium for Political and Social Research).

[9] For the 160 observations in Figure 1, the income variable has a mean of 0.44 (S.D. = 0.28), governmental quality a mean of 0.68 (S.D. = 0.93, range − 1.27 to + 1.95), and life satisfaction, measured as each wave's average national response (with n averaging 1,000 in each country wave) on a ten-point scale, has a global mean of 6.72 (S.D. = 1.1).

the most recent wave of the WVS, and it replicates the same relationships as those in Figure 1.

What do the data show? Figures 1 and 2 suggest, as confirmed by the regressions shown in Table 1, that the relation between life satisfaction and the aggregate governmental quality measure is tighter and more linear. For per capita incomes, a quadratic term is significantly negative, implying diminishing life satisfaction returns to higher average real incomes. It also suggests that the relation between life satisfaction and income probably can be approximated by taking log of income. We confirm this conjecture with regressions. Once log of income is used, the square term of income no longer attracts significance. In more complete models that include the quality of governments, the log of income performs as well as, or slightly better than income and square of income. As a result, we use log of income for all our estimation in this article unless noted elsewhere. As can be inferred from Figures 1 and 2, and as shown by the split-sample regressions in Table 1, the non-linear nature of the relation between average incomes and life satisfaction shows up only among countries with average annual incomes more than half as large as 1995 per capita GDP in the United States.

Subsequent regressions in Table 2 suggest that the quality of government dominates income whenever both variables are used to explain life satisfaction. Income is always positive and significant in the absence of governance quality, but once government is in the model, income becomes insignificant most of the time. This is true in the whole sample and also in the two sub-samples divided by level of income.

As is well established by many studies, per capita incomes and measures of governmental quality are highly correlated (0.84 for the panel of 160 observations, and 0.87 for the latest cross-section of sixty-five observations), so that it is not always easy to disentangle their separate relations with other variables. In earlier work using the first three waves of WVS data, income was completely dominated by governmental quality whenever both were introduced in the same equation.[10] Adding the full fourth wave, which includes a larger number of poorer countries, permits income to have some positive partial effect on life satisfaction, but it has little statistical significance, and is always dominated by governmental quality. To develop more precise estimates of the relative importance of income and governmental quality, we shall need to make use of the full disaggregated dataset, which we shall do in the next section. We shall also test the size and robustness of the government quality variables by means of more fully specified models, alternative measures of governmental quality and the impact of outlying observations.

WHAT MATTERS, HOW MUCH, TO WHOM AND WHEN?

In our first studies of the linkages between quality of government and life satisfaction, based on the first three waves of WVS data, we found that putting equal weight on all of the six Kaufmann *et al.* dimensions was optimal.[11] The fourth wave has sixty-five countries covering a larger spectrum of the developing world. With this broader range of incomes and stages of development, there is increasing evidence that different aspects of the quality of government matter at different stages of development. More specifically, there is a split

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[10] See J. F. Helliwell 'How's Life? Combining Individual and National Variables to Explain Subjective Well-Being', *Economic Modelling*, 20 (2003), 331–60.
[11] Helliwell, 'How's Life?'.

TABLE 1   *Life Satisfaction, Income and the Quality of Government*

	All waves, all available		Wave 1–3 all available	All available	All available	Wave 4 only				
						Income <0.5	Income >0.5	All available	Income <0.5	Income >0.5
Gov. Quality: Aggregate[1]	0.85** [0.11]	0.82** [0.20]	1.02** [0.21]	0.63** [0.24]				0.93** [0.10]	0.76** [0.24]	0.81* [0.32]
Log of income[2]	0.79** [0.15]	0.03 [0.24]	−0.38 [0.26]	0.33 [0.24]	0.85** [0.11]	0.60** [0.21]	0.74 [0.47]			
Constant	6.14** [0.15]	6.19** [0.40]	5.65** [0.43]	6.63** [0.42]	7.59** [0.13]	7.03** [0.40]	7.72** [0.12]	6.07** [0.14]	6.00** [0.15]	6.33** [0.53]
Observations	160	160	95	65	65	41	24	65	41	24
R^2	0.51	0.51	0.49	0.56	0.49	0.18	0.11	0.54	0.2	0.35

Notes: The table shows survey linear regressions on the dependent variable, Life Satisfaction, scaled 1–10, which in the biggest sample has a mean of 6.72 and a standard deviation of 1.10. Standard errors are shown in brackets. The measure of life satisfaction is from Inglehart *et al.*, World Values Surveys and European Values Surveys,1981–84, 1990–1993 and 1995–1997, and from R. Inglehart *et al.*, World Values Surveys and World Values Surveys Integrated Data File, 1999–2002. Responses to the question are on a 1–10 point scale.
*Significant at 5%.
**Significant at 1%.
[1] 'Aggregate governance quality' is the unweighted average of the six component indexes of Kaufmann, Kraay and Mastruzzi, 'Governance Matters IV: Governance Indicators for 1996–2004', each of which is scaled to have, across the global sample, a mean of 0 and a standard deviation of 1.0. In our sample, its mean is 0.69 (S.D. = 0.93, range − 1.27 to + 1.95).
[2] Income is PPP converted real GDP per capita and is shown as ratios of US per capita GDP in 1995. The data is from Penn World Table 6.1. In our sample it has a mean of 0.44 (S.D. = 0.28).

between one sub-aggregate including two dimensions focused on the operation of the democratic process (voice and political stability) and another of four components relating more to the delivery of government services and providing the institutional framework within which individuals, enterprises and communities connect (governmental effectiveness, regulatory quality, rule of law, and control of corruption). We refer to a simple average of the first two dimensions as democratic quality, and the average of the latter, which provide a broad measure of the efficacy of the delivery of government services, as delivery quality.

As shown in Table 2, if we use the full four-wave sample of 160 observations for seventy-five countries to test the relative importance of the democratic and delivery dimensions of governance, we find that the delivery dimensions have a strong positive weight, with the democratic dimensions having a slight negative weight. However, this overall result masks a large discrepancy between what matters at different levels of income and development.

If we divide the full sample of 160 observations into those with per capita incomes less than half ($n = 95$) and more than half ($n = 65$) as large as in the United States in 1995, the results are strikingly but plausibly different. For the poorer countries, all of the emphasis is on the delivery dimensions, with the democratic dimensions having a negative partial effect on well-being. For the richer countries, this relative emphasis is reversed. Subsequent equations in Table 2 show that this pattern is replicated in the context of a more fully specified model embodying the key variables found to be important in earlier modelling of international differences in life satisfaction.[12] The same pattern appears also when equations are fitted using the full sample of 163,000 individual observations, and the component samples drawn from the poorer ($n = 101,000$) and richer ($n = 62,000$) countries.[13]

All of the samples and equations support the finding that honest and efficient government are of special salience for poorer countries, while voice, accountability and political stability are of greater relative importance for the richer countries. This provides a preference-based rationale for the long-standing finding that countries with higher levels of per capita incomes are far more likely to be become and remain democracies,[14] with the bi-directional causality being strong from the level of income to choice of the

[12] Helliwell, 'Well-Being, Social Capital and Public Policy'; and J. F. Helliwell, 'Well-Being and Social Capital: Does Suicide Pose a Puzzle?' *Social Indicators Research*, 81 (2007), 455–96. We here include only those variables available for the full sample of 160 observations. One indicates the level of social trust and the other the average strength of belief in God. Three other variables, being the national divorce rate, the national unemployment rate, and the average number of memberships are not available for the full sample of 160 observations. The fullest version of the model, with a correspondingly smaller sample, is shown in Table 3. Adding the level of social trust in the basic model, as we do, leads to a reduction in the coefficient on governmental quality. This may lead us to a downward-biased estimate of the life satisfaction effects of governmental quality, for the reasons suggested by B. Rothstein and D. Stolle, 'How Political Institutions Create and Social Destroy Capital: An Institutional Theory of Generalized Trust' (paper prepared for the Annual Meeting of the American Political Science Association, Boston, 2002). They argue convincingly that high quality government institutions have a positive influence on the level of social trust. By including social trust as a separate independent variable, our estimates of the effects of good government are independent of those flowing through higher levels of social trust. This helps to ensure that our estimates of the well-being effects of good government do not err on the high side.

[13] As shown in Table A1 of an appendix, which is available on the author's website at < www/econ.ubc/ca/ Helliwell/pages/papers/BJPolSAppendix > , or by request to the authors.

[14] See S. M. Lipset, 'Some Social Requisites of Democracy: Economic Development and Political Legitimacy', *American Political Science Review*, 53 (1959), 69–105.

TABLE 2   Testing the Relative Importance of the Democratic and Delivery Dimensions of Good Governance

	Governance and well-being[5]			Controlling for income difference[5]			Including variables in Helliwell (2006)[5]		
	All available	Income <0.5	Income >0.5	All available	Income <0.5	Income >0.5	All available	Income <0.5	Income >0.5
Gov. Quality: Delivery[1]	1.15** [0.19]	1.30** [0.22]	0.28 [0.25]	1.11** [0.21]	1.30** [0.22]	0.23 [0.27]	0.74** [0.19]	0.93** [0.21]	0.16 [0.16]
Gov. Quality: Democratic[2]	−0.44 [0.25]	−0.67* [0.25]	1.06** [0.32]	−0.51 [0.28]	−0.78* [0.31]	1.07** [0.31]	−0.12 [0.25]	−0.35 [0.28]	1.09** [0.29]
Log of income				0.15 [0.22]	0.18 [0.28]	0.17 [0.23]	0.31 [0.21]	0.35 [0.27]	0.01 [0.25]
General Trust[3]							1.69** [0.47]	1.76* [0.82]	0.93 [0.49]
Importance of God[4]							1.36** [0.40]	1.33** [0.45]	1.30** [0.41]
Constant	6.15** [0.13]	6.13** [0.13]	5.67** [0.30]	6.38** [0.39]	6.43** [0.51]	5.78** [0.41]	5.49** [0.34]	5.56** [0.46]	5.10** [0.43]
Observations	160	95	65	160	95	65	160	95	65
R^2	0.56	0.35	0.45	0.56	0.36	0.46	0.64	0.46	0.61

Notes: The table shows survey linear regression of the dependent variable, Life Satisfaction, with the standard errors in brackets.
*Significant at 5%.
**Significant at 1%.
[1] 'Delivery' is the average of four of the six governance indices in Kaufmann, Kraay and Mastruzzi, 'Governance Matters IV'. These four are government effectiveness, regulatory quality, rule of law and control of corruption.
[2] 'Democratic' is the average of the remaining two governance indices: Voice and Accountability, and Political Stability.
[3] 'General trust' is the national average response to 'Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?' in World Value Survey, rescaled into 0–1 ascending.
[4] 'Importance of God' is the national average response to 'How important is God in your life?' in WVS, rescaled into 0–1 ascending.
[5] 'Income' is PPP converted real GDP per capita and is shown as ratios of US per capita GDP in 1995. The data is from Penn World Table 6.1. In our sample it has a mean of 0.44 (S.D. = 0.28).

democratic form and close to zero from the democratic form to subsequent economic growth.[15] By showing that different aspects of governance have relatively more salience to life satisfaction at different stages of development, our results also suggest that preferences among institutions, and by inference the pressures for their implementation, are importantly endogenous. Even if at some more fundamental level all individuals have the same basic preference structures, the relative costs and benefits of different sorts of institutional structure vary with circumstances. To illustrate, consider a specific example suggested by our finding that the relative importance attached to the electoral features of governance rise with income, and with the trustworthiness and efficacy of government. It is quite understandable that the ability of voters to have voice, and to get accountability from their elected representatives, should matter more when and where it is reasonable to expect that services voted for will in fact be efficiently provided, and where there is a good chance that a vote will not simply replace one corrupt administration by another.

How much does the quality of government matter? The simplest way of answering this is to note that either the aggregate or the delivery measure has a stronger positive effect than any other national-level explanatory variable for life satisfaction, judging by the standardized beta coefficients in Table 3. The dominance of governance quality is true whether it is assessed in terms of simple correlations or in the context of a more fully specified model. This is true whether or not per capita incomes are included in the equations, so the result cannot be due to governmental quality being important only because it contributes to well-being by producing higher per capita incomes. There is nonetheless an instrumental role for good government as a support for economic growth. It shows up as a decline, generally by 10 to 20 per cent, in the coefficient on governmental quality when per capita income is added to life satisfaction equations. This is a natural consequence of the high simple correlation between national per capita incomes and governmental quality, and provides indirect confirmation of the many studies finding a link between governmental quality and the level of income. It does not provide much new information to help settle the debate about how to disentangle the two-way causality between the level of income and the quality of government. However, if we base our estimates of the well-being effects of governmental quality on coefficients drawn from equations that include the level of per capita incomes, this provides a conservative estimate of the well-being effects of government by ignoring the indirect effects flowing through the level of income.

Our individual-level results show that increasing the overall quality of government by 1.0 (slightly more than one standard deviation (SD) in our global sample) would have almost as large an effect on life satisfaction, for a typical respondent in a poorer country, as moving halfway up the relative income distribution, as measured by deciles. The halfway move can be either from the bottom to the middle or from the middle to the top, as the subjective well-being (SWB) coefficients by income decile follow a roughly linear path for these respondents. For respondents in countries with per capita incomes more than half as large as those in the United States in 1995, high quality government matters even more, and income matters less, than in the poorer countries. Furthermore, the SWB effects of relative income show diminishing returns in the top half of the income distribution in the richer countries. Thus for the average resident of the richer countries an increase equal to one standard deviation in the government quality index has double the SWB effect of

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[15] See J. F. Helliwell, 'Empirical Linkages Between Democracy and Economic Growth', *British Journal of Political Science*, 24 (1994), 225–48.

TABLE 3   *Comparable Equations Estimated for Life Satisfaction and Suicide Rate, Expanded to Include WHO Life Expectancy Measures*

	Basic model				With Life Expectancy and Morbidity			
	Life Satisfaction	β	Suicide Rate	β	Life Satisfaction	β	Suicide Rate	β
Membership[1]	0.38**	0.11	−4.65*	−0.15	0.33*	0.10	−4.81**	−0.15
	[0.14]		[1.89]		[0.14]		[1.54]	
General Trust[2]	1.96**	0.26	−13.95*	−0.20	1.70**	0.22	−11.24	−0.16
	[0.53]		[6.34]		[0.52]		[6.39]	
Importance of God[3]	1.79**	0.39	−20.48**	−0.48	1.95**	0.43	−25.26**	−0.59
	[0.31]		[3.42]		[0.30]		[3.54]	
Divorce rate[4]	−0.18**	−0.20	4.26**	0.51	−0.12*	−0.14	3.51**	0.42
	[0.05]		[0.80]		[0.06]		[0.71]	
Unemployment rate	−0.03**	−0.14	0.03	0.01	−0.03**	−0.13	0.07	0.03
	[0.01]		[0.17]		[0.01]		[0.15]	
Gov. Quality: Delivery	0.69**	0.60	−4.62*	−0.43	0.58**	0.50	0.89	0.08
	[0.19]		[2.27]		[0.14]		[1.25]	
Gov. Quality: Democratic	0.13	0.08	4.45	0.30				
	[0.24]		[3.02]					
Morbidity[5]					−0.07*	−0.1	1.86**	0.28
					[0.03]		[0.62]	
Life Expectancy[6]					0.05	0.17	−0.38	−0.15
					[0.03]		[0.33]	
Constant	5.33**		21.67**		2.57		33.51	
	[0.29]		[3.89]		[2.42]		[26.92]	
Observations	135		135		135		135	
R^2	0.78		0.63		0.79		0.67	

Notes: To the right of the linear regression coefficients for the dependent variables, Life Satisfaction and Suicide Rate, are the beta coefficients from the same estimation. The Suicide Rate is defined as the number of suicides per 100,000 population (authors' calculation from WHO mortality database, see <http://www.who.int/>). Standard errors in brackets.
*Significant at 5%.
**Significant at 1%.
[1] An index that approximates average number of memberships in voluntary organizations (authors' calculation from WVS).
[2] National average of response to the general trust question in WVS, rescaled into 0–1 ascending.
[3] National average response to 'How important is God in your life?' in WVS, rescaled into 0–1 ascending.
[4] Number of divorces per 1,000 population, from United Nations Demographic Yearbooks.
[5] Difference between life expectancy and healthy life expectancy, both from World Health Report, <http://www3.who.int/whosis/core/core_select.cfm>, year 2000 value.

moving from the bottom to the middle decile, and four times as large an effect as to move from the middle to the top decile of the income distribution. Of course, large increases in governmental quality are harder to find among the richer countries, as the major elements of good government are already in place, and there is less variation among countries (for the twenty-four richer countries in the fourth wave, the mean of the aggregate measure of governmental quality is 1.49 and the standard deviation is 0.39). These calculations show the large size of the estimated life satisfaction effects of good government. The ratios naturally do not reflect anything akin to the compensating differentials relating incomes and job characteristics,[16] since there is no obvious trade-off between good government and higher incomes. Most components of good government have positive partial impacts on economic growth, while the level of income has a partial positive effect on well-being, albeit often insignificantly so.

There is another more fundamental reason why we cannot use the income coefficients to compare the value of good government relative to changes in average per capita incomes. This is because the income effects are all in relative terms, so that equal proportionate increases in all incomes would change no relative incomes.[17] Adding the aggregate level of GDP per capita, once the quality of government is separately accounted for, does not attract a significant coefficient in either the sub-sample of high-income nations, or in the low-income sub-samples. It is significant in the whole sample, however, suggesting that there would still be positive well-being gains from raising all incomes in the poorer countries. Within any given economy there appear to be substantial negative well-being externalities from increases in income. Ever since the pioneering studies of Easterlin, it has been frequently found that the subjective well-being effects of income have been primarily based on relative rather than absolute income levels.[18] More recently, studies using large samples of Canadian data show that while personal or family income has a highly significant positive effect, there is an equally significant negative effect, of almost equal size, from average family income in the respondent's census tract.[19] In contrast to the negative contextual effects of income, most other sources of individual well-being, and especially trust, community and neighbourhood engagement, and dense networks of family and friends, have neutral or positive externalities.[20] As for the consequences of good government, the individual-level and contextual effects are largely combined, since most measures are available only at the national level. However, the individual-level variables do include trust in the police, something that is highly correlated with several components of government quality, especially those relating to corruption ($r = 0.67$ with Kaufmann, Kraay and Mastruzzi's control of corruption index; $r = -0.81$ with the 1995–2000 corruption perception index taken from the dataset of Persson and Tabellini), the rule of law and the effectiveness of government services and regulation. The strong positive contextual effects of the individual results are unaffected by the inclusion or not of the

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[16] Helliwell and Huang, 'How's the Job?'

[17] For tables showing these effects, please see the author's website as shown in fn. 13.

[18] R. A. Easterlin, 'Does Economic Growth Improve the Human Lot? Some Empirical Evidence', in P. A. David and M. W. Reder, eds, *Nations and Households in Economic Growth* (New York: Academic Press, 1974), pp. 89–125. An important recent example, with good references to earlier work, is E. Luttmer, 'Neighbors as Negatives: Relative Earnings and Well-Being', *Quarterly Journal of Economics*, 120 (2005), 963–1002.

[19] Helliwell and Huang, 'How's the Job?', Table 1.

[20] See J. F. Helliwell and R. D. Putnam, 'The Social Context of Well-Being', in Huppert, Keverne and Bayliss, eds, *The Science of Well-Being*, pp. 435–59.

TABLE 4   *Robustness Tests Adding Alternative Measures of Governmental Quality to Fully Specified Model*

Gov. Quality: Aggregate	0.66**[0.13]	0.70**[0.13]	0.70**[0.17]	0.69**[0.17]	0.70**[0.17]	0.72**[0.17]	0.69**[0.21]	0.58**[0.21]	0.68**[0.18]	0.60**[0.14]
Log of income	0.29[0.22]	0.32[0.21]	0.35[0.22]	0.34[0.22]	0.35[0.22]	0.14[0.19]	0.24[0.21]	0.39[0.24]	0.32[0.23]	0.42[0.23]
General Trust	1.76**[0.53]	2.17**[0.67]	1.99**[0.50]	1.95**[0.48]	2.05**[0.55]	1.76**[0.52]	1.88**[0.68]	1.77**[0.62]	1.73**[0.56]	1.79**[0.54]
Importance of God	1.42**[0.37]	1.67**[0.45]	1.56**[0.41]	1.55**[0.41]	1.59**[0.40]	1.48**[0.39]	1.45**[0.45]	1.52**[0.40]	1.36**[0.42]	1.20**[0.39]
Age of democracy[1]		−0.40[0.37]								
Gastil: average of civil liberties and political rights[2]			0.06[0.09]							
Political rights[3]				0.05[0.07]						
Civil liberties[3]					0.07[0.11]					
Trade openness[4]						−0.33[0.20]				
Corruption perception index[5]							0[0.10]			
Econ. Freedom Index[6]										−0.12[0.27]

Fraser Institute's Economic Freedom[7]									− 0.06 [0.07]	
Malaria Ecology[8]										0.06** [0.02]
Constant	5.41** [0.33]	5.31** [0.31]	5.17** [0.46]	5.23** [0.41]	5.11** [0.50]	5.50** [0.39]	5.28** [0.68]	5.77** [0.78]	5.86** [0.59]	5.61** [0.33]
Observations	160	136	148	148	148	127	134	98	144	156
R^2	0.64	0.68	0.66	0.66	0.66	0.62	0.68	0.63	0.60	0.66

Notes: The table shows survey linear regressions of the dependent variable, Life Satisfaction, scaled 1–10, against the other variable, as available. See Notes to Tables 1 and 2 for further explication.

[1] Age of uninterrupted democracy, varying between 0 and 1, with the United States being the oldest democracy (value of 1), from Persson and Tabellini, 'The Economic Effect of Constitutions'.

[2] Average of indexes for civil liberties and political rights, from Freedom House.

[3] Political rights and civil liberties, from Freedom House, < http://www.freedomhouse.org/. > , are measured on 1–7 scales with 1 representing the highest degree of freedom and 7 the lowest.

[4] Trade openness indicator from Jeffrey D. Sachs and Andrew Warner, 'Economic Reform and the Process of Global Integration', *Brookings Papers on Economic Activity*, 1 (1995), 1–118. The data is updated to more recent years by Easterly, Levine and Roodman, 'New Data, New Doubts: Revisiting "Aid, Policies, and Growth"', Center for Global Development Working Paper, 2003.

[5] Corruption perception index, 1995–2000, from Transparency International, < www.transparency.de > .

[6] General score of economic freedom index, low scores are more desirable, Heritage/Wall Street, < http://www.heritage.org/ > .

[7] Fraser Institute's Economic Freedom, chain link index, < http://www.fraserinstitute.ca/ > .

[8] Malaria Ecology is an ecologically-based spatial index of the stability of malaria transmission based on the interaction of climate with the dominant properties of anopheline vectors of malaria that determine vectorial capacity, from dataset of Jeffrey Sachs < http://www.earthinstitute.columbia.edu/about/director/malaria/#datasets > .

individual-level evaluations of trust in the police, which themselves have very large effects even after allowing for general social trust and trust in neighbours.

In Table 4 we test the robustness of our basic model by adding a number of alternative measures of the quality of government to see if they either change the basic results or suggest better measures. We test in particular the age of a country's democracy, the Gastil measure of democracy, its political liberties and civil rights components, a measure of corruption, and two alternative measures of economic freedom. None of these variables either attracts a significant coefficient or changes the size and significance of the coefficients in the basic model. Since the Governance IV variables we use can broadly be seen as measures of institutional quality, it is also appropriate to consider the possible inclusion of key variables representing competing models of the determination of economic development. To represent the claims of trade openness, we use an updated version of the Sachs and Warner measure,[21] and to represent geography, we use the key variable proposed by Sachs, which is an index of a country's exposure to malaria, weighted by the virulence of different malarial types.[22] Neither variable attracts a significant coefficient, except for malaria exposure, which does not have the expected sign.

Since our equation already includes per capita income as a right-hand side variable, our results are not directly relevant to the debate about the relative importance of institutions, geography and openness as determinants of comparative levels of real incomes.[23] However, the fact that governmental quality measures have significant positive effects on life satisfaction above and beyond any effects flowing through the level of economic development, while openness and lower malarial risk do not, provides independent alternative evidence of the value of good institutions.

Another common form of robustness test involves ensuring that the results are not due to the individual or joint effects of extreme observations. We have found that removing any or all of the largest outlying observations leaves the results unchanged, and in Appendix Table A2 on the author's website cited in footnote 13 we show the equation with specific dummy variables for each of the countries for which the life satisfaction errors exceed 1.0 (slightly more than one standard deviation on the ten-point scale). It is also possible that the results might depend excessively on a specific group of countries. The most likely candidates for this are the nations of the former Soviet Union (FSU), since their levels of life satisfaction and governmental quality are both very low. We present an equation including dummy variables for each of the FSU countries in our sample. As expected, this lowers significantly the coefficient on governmental quality. However, the reduction is fairly modest in size, about a quarter of the full-sample size of the coefficient, and the variable remains the largest and most significant factor explaining international differences in life satisfaction even when those countries are removed. With our tattered sample of observations, this is as far as we can go towards allowing for country-fixed effects. Because of the small number of observations per country (ranging from one to four,

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[21] J. D. Sachs and A. Warner, 'Economic Reform and the Process of Economic Integration', *Brookings Papers on Economic Activity* (1995), 1–118.

[22] J. D. Sachs, 'Institutions Don't Rule: Direct Effects of Geography on Per Capita Income', *NBER Working Paper*, No. 9490 (Cambridge, Mass.: National Bureau of Economic Research, 2003).

[23] See D. Rodrik, A. Subramanian, and F. Trebbi, 'Institutions Rule: The Primacy of Institutions over Geography and Economic Integration', *NBER Working Paper*, No. 9305 (Cambridge, Mass.: National Bureau of Economic Research 2003); D. Acemoglu, S. Johnson and J. Robinson, 'Institutions as the Fundamental Cause of Long-Term Growth', *NBER Working Paper*, No. 10481 (Cambridge, Mass.: National Bureau of Economic Research, 2005), and Sachs, 'Institutions Don't Rule'.

and averaging only 2.1), and the relatively small movements in the key variables between surveys, our sample is essentially cross-sectional in nature. Since our data sample does not permit us to include country-fixed effects for all countries simultaneously, we instead use robustness tests based on the inclusion of specific outlying observations or country groupings as our key defence against the risk that our results are driven by specific country differences.

Finally, there is the possibility that there may be cross-cultural differences in the shape of the distribution of numerical responses, independent of some more fundamental differences in actual life satisfaction.[24] To guard against this possibility, we estimated our basic model on five different dependent variables, each being the average of a different quintile of the life satisfaction distribution in each country. A further test was provided by using the share of respondents above or below particular cut-off points in the numerical distribution of responses. All of the results supported the basic model, and in particular the importance of governmental quality.[25]

USING LIFE SATISFACTION DATA IN COMPARATIVE POLITICAL ECONOMY

If we have succeeded in making our case that the quality of government should be a large part of any attempt to explain international differences in life satisfaction, and that the life satisfaction data themselves are plausible proxies for utility, then it might be useful to use our data and models to provide a fresh light on some issues in comparative political economy. We shall mention a few, in order to illustrate what might be some promising lines for further investigation.

Good Government and Health Outcomes

We start with an issue relating to the channels whereby good government affects life satisfaction, aside from those flowing through levels of income per capita. We have already shown that the income channel is the smaller part of the story, especially for the richer countries, so it is useful to consider other channels. Improved health outcomes is an obvious channel whereby good government might improve subjective well-being, because most public health measures and many aspects of the delivery of health care are key government services, and it has long been established that self-perceived health status is perhaps the strongest determinant of life satisfaction. If good health care is an important channel whereby good government improves life satisfaction, then we should expect to find lower direct effects of good government on life satisfaction in models that include health status as a separate independent variable. If this turns out to be so, then the size of the reduction

[24] As emphasized by C. King, C. J. R. Murray, J. A. Salomon and A. Tandon, 'Enhancing the Validity and Cross-Cultural Comparability of Measurement in Survey Research', *American Political Science Review*, 97 (2003), 567–83.

[25] Torsten Persson suggested that we might also want to check that the declining marginal utility of income might make average income per capita a biased measure of the utility of income, and thereby might accidentally lower the correlation between income and life satisfaction, possible even being responsible for our finding of higher simple correlations for governmental quality than for income (with respect to life satisfaction, in both cases). We tested for this by going back to the full sample of individual observations and splitting them into ten groups by income decile. We then compared the income and government correlations separately for each income class, and found those for government to be higher than for income for each and every income decile, by roughly equal amounts. Thus we conclude that curvilinearity of the income effect (which we also find later for governmental quality) is not the source of the relatively tighter link between life satisfaction and governmental quality.

TABLE 5   *Health as a Channel of Influence*

	All available				If income < 0.5		If income > 0.5		If le < 75	If le > 75
	Without health variables	With le[1]	With hle[2]	With le & morbid[3]	Without health variables	With health variables	Without health variables	With health variables	With health variables	With health variables
Gov. Quality: Delivery	0.79** [0.25]	0.67** [0.23]	0.61** [0.22]	0.61** [0.22]	1.03** [0.26]	0.80** [0.27]	0.15 [0.16]	0.18 [0.15]	1.26** [0.25]	0.09 [0.14]
Gov. Quality: Democratic	−0.21 [0.36]	−0.34 [0.33]	−0.23 [0.29]	−0.22 [0.35]	−0.56 [0.39]	−0.75* [0.35]	1.15** [0.30]	1.10** [0.30]	−0.90** [0.31]	0.83** [0.30]
Log of income	0.28 [0.25]	0.11 [0.24]	0.08 [0.24]	0.08 [0.24]	0.44 [0.35]	0.28 [0.28]	0.04 [0.24]	0.1 [0.21]	0.27 [0.23]	0.32 [0.16]
General Trust	2.13** [0.62]	2.01** [0.57]	1.92** [0.54]	1.92** [0.54]	2.82* [1.16]	2.12* [1.00]	0.88 [0.50]	0.91* [0.43]	3.08* [1.36]	1.45** [0.39]
Importance of God	2.08** [0.41]	2.07** [0.36]	2.18** [0.34]	2.19** [0.34]	2.45** [0.40]	2.22** [0.38]	1.32** [0.42]	1.41** [0.32]	2.62** [0.52]	1.24** [0.34]
Life Expectancy		0.09* [0.04]		0.07 [0.04]		0.12** [0.04]		−0.05 [0.05]	0.12** [0.04]	−0.07 [0.04]
Healthy-life expectancy			0.07** [0.03]							
Morbidity				−0.07 [0.04]		−0.01 [0.05]		−0.13 [0.06]	−0.05 [0.05]	−0.04 [0.04]
Constant	5.14** [0.40]	−1.24 [2.95]	0.32 [1.78]	0.37 [3.33]	5.10** [0.73]	−3.65 [3.42]	5.06** [0.44]	9.81* [3.70]	−3.24 [2.62]	11.46** [3.47]
Observations	135	135	135	135	71	71	64	64	56	79
R^2	0.73	0.76	0.76	0.76	0.68	0.73	0.6	0.64	0.77	0.65

Notes: The table shows survey linear regressions on the dependent variable, Life Satisfaction, scaled 1–10, using variables as defined in the notes to earlier tables. Standard errors are shown in brackets.
*Significant at 5%.
**Significant at 1%.
[1] le = life expectancy. This item, and hle, come from Core Health Indicators of year 2000 from the World Health Report.
[2] hle = healthy-life expectancy.
[3] morbid = life expectancy minus healthy-life expectancy.

in the coefficient on good government provides a measure of how much of the well-being effect of good government flows through the health care channel. Some researchers have been sceptical of the link between self-assessed health and SWB, since both may be contaminated by issues relating to question framing, personality differences and mood.[26] We are able to avoid such risks by making use of two objective measures of health status, life expectancy and health-adjusted life expectancy, where the latter variable is equal to the former reduced by a measure of morbidity converted to life-equivalent years, based on World Health Organization data for the frequency, duration and severity of a number of illnesses, afflictions and disabilities. In our equations in Table 5, we first re-estimate our life satisfaction equation for the 135 observations for which the World Health Organization data are available. We include both component measures, delivery quality and democratic quality, since the latter becomes important when we divide the sample by income level. We add first the simple measure of life expectancy and then health-adjusted life expectancy. Either measure of life expectancy adds significantly to the explanation of life satisfaction, with health-adjusted life expectancy having more statistical significance. This is followed by an equation that contains the two components of health-adjusted life expectancy separately, one being simple life expectancy and the other a measure of morbidity (life expectancy minus health-adjusted life expectancy). For the full sample of 135, the coefficient on morbidity is slightly, but insignificantly, higher than on life expectancy, so the adjusted fit of the equation is slightly inferior to that when health-adjusted life expectancy is treated as a single variable.

Next we consider the likelihood that the importance of the two components of health, and of the role of good government, differs by income level, as was true for the larger sample of countries. We thus re-estimate the equation without health separately by income class, and then add the two components of health. The samples are now getting rather small, at least in terms of number of countries represented,[27] and the correlations between the two health measures are rather high,[28] as are those between the delivery and democratic aspects of governmental quality.[29] These equations show that the link between government quality and health that is so clear in the global sample is largely determined by differences between the rich and poor countries in both health and governmental quality, and by differences among the poor countries. More specifically, for the poor countries service delivery quality is very important for life satisfaction with or without the health variables. Life expectancy has the major impact on life satisfaction, and when it is added to the equation the coefficient on delivery drops by 20 per cent. This suggests that for poorer countries a significant part of the life satisfaction contribution of effective government flows through its influence on life expectancy.

By contrast, for the rich countries, neither government coefficient is significantly altered by the addition of the health variables. As for the coefficients on the health variables, higher morbidity does lead to lower life satisfaction, while differences in life expectancy do not.

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[26] See Kahneman and Riis, 'Living and Thinking About It'.

[27] There are seventy-two observations from thirty-seven poorer countries and sixty-four observations from twenty-seven richer countries in the 135-observation sample for which health data are available. Given that errors are clustered by country (this clustering is duly accounted for in the calculation of robust standard errors), the number of countries is more important than the number of observations.

[28] $R^2 = -0.56$ for the 135 observations, but less than half as great for the sub-samples at $R = -0.16$ for the richer countries and $R^2 = -0.27$ for the poorer countries.

[29] These are $+0.96$ for the 135 observations, $+0.81$ for the rich country sub-sample and $+0.93$ for the poor country sample.

This pattern of differences is theoretically plausible: for the rich countries, the major gains in life expectancy are already achieved to roughly comparable degrees, for the poorer countries there is a significantly lower average life expectancy, and much greater variation among countries.[30] This suggests that public health measures responsible for big increases in life expectancy have largely been put in place among the richer countries, while among the poorer countries there remains much more to be done and much greater variability in the capacity of governments to do what is required. This is revealed by levels of delivery quality that are on average much lower and more variable in the poor country sample than among the richer countries.[31]

In summary, good health appears to be a fundamental determinant of life satisfaction, with relative importance shifting from life expectancy to morbidity as per capita income increases. A significant fraction of the estimated effects of the delivery quality of government on life satisfaction may be due to the ability of well-governed countries to design and maintain social and environmental conditions conducive to longer and healthier lives. This result should be treated as suggestive rather than definitive, as it has not been tested systematically against possible competing hypotheses. If the results hold, they offer another reason for thinking that preferences over alternative government structures are endogenous to the stage of development, since voters will naturally pay most attention to the ability of different types of government to deal with the problems that most imperil their current and future levels of life satisfaction.[32]

Good Government Matters Even More for the Poor

Recent World Bank survey work in Peru shows that the poor suffer more than the rich from corruption in government, in terms of both price and accessibility.[33] If this result is also applicable in other countries, then we should expect to find that the well-being gains from higher quality government should be greater for the poor than for the rich, not just between countries but within countries. We tested this by splitting the delivery variable into two, with one applicable to individuals in the top half of the income distribution and another to those in the bottom half. We find that the effect of delivery quality is more than one-third greater for those in the bottom half of the income distribution.[34] In addition to this differential effect of governmental quality on the rich and the poor within each nation, our

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[30] Life expectancy averages 78.4 years, with a standard deviation of 1.37, for the rich-country sample, while it is 70.5, with a standard deviation of 6.1, for the observations from poorer countries.

[31] For the poor-country observations, the mean of the delivery quality variable is 0.09, with a standard deviation of 0.77, compared to a mean of 1.65 and a standard deviation of 0.41 for the rich-country observations.

[32] There is a parallel here with the distinction between 'strongly-institutionalized polities' and 'weakly institutionalized polities' emphasized by D. Acemoglu, 'Constitutions, Politics and Economics: A Review Essay on Persson and Tabellini's "The Economic Effect of Constitutions"' *NBER Working Paper*, No. 11235 (Cambridge, Mass.: National Bureau of Economic Research, 2005). Our results suggest that the value attached to specific types of institution vary systematically, and plausibly, between these two types of society.

[33] See D. Kaufmann, J. Montiorol-Garriga and F. Recanatini, 'How Does Bribery Affect Public Service Delivery? Micro Evidence from Service Users and Public Officials in Peru' (Washington, D.C.: World Bank, 2005).

[34] This result uses the sample of 163,000 individual observations. The coefficients are 0.256 ($t = 3.9$) for those individuals in the top half of the income distribution, and 0.348 for those in the bottom half. The difference is statistically significant ($p = 0.035$). The coefficients may be compared with a governmental effectiveness or delivery quality coefficient of 0.317 ($t = 5.8$) if the interaction term is not used.

results show that the effects of governmental quality are also higher in poorer than in richer countries (for details see Appendix Table A1 on the author's website, as given in footnote 13).

Majoritarian versus Proportional Systems

We turn now to consider some ideas about the consequences of alternative constitutional forms of government. Taking a recent important example, we shall see if our data can shed any further light on the theory and evidence suggesting that presidential and majoritarian constitutional forms generally have smaller governments than do parliamentary and proportional systems, and that majoritarian systems are likely to lead to lower levels of welfare state spending.[35] It is tempting to ask then if one or the other type of constitutional form is associated with higher life satisfaction, with or without accounting separately for the channels through which these welfare effects might be expected to flow.

The equations shown in Appendix Table A3 (see author's website cited in footnote 13) first repeat our basic equation for the 136 observations for which the Persson and Tabellini data for presidential and majoritarian systems are available. The results suggest that constitutions with some form of proportional voting (majoritarian $= 0$) and presidential systems are associated with higher life satisfaction, holding constant the levels of governmental effectiveness. Where the sample is split by income level, the apparent preference for the proportional voting system applies in both cases, while the preference for a presidential system applies only among the poorer countries. These results all hold constant the level of governmental effectiveness. When we remove this variable, in the next set of equations, to estimate something more akin to a reduced-form, the preference for proportional voting remains, while that for a presidential system does not. This reflects the fact that levels of corruption are higher ($t = 6.0$) and governmental effectiveness lower ($t = 5.7$) in presidential systems.

What are the causal channels whereby majoritarian systems may be associated with lower average levels of life satisfaction? Persson and Tabellini have argued that proportional voting encourages the establishment of more broadly based social coalitions, and hence larger and presumably better targeted social spending.[36] Persson and Tabellini have found that majoritarian governments do have lower social spending. Is this lower social spending the channel for the negative life satisfaction effects that appear in our sample? We provide a simple test of this in our next four equations, where social spending as a share of GDP is added to the equation. Since the sample is smaller, we repeat the basic equation, and the equation including the two constitutional variables, and then add social spending (the sum of health, education and social services as a share of GDP). The equations show

[35] See T. Persson and G. Tabellini, *The Economic Effect of Constitutions* (Cambridge, Mass.: MIT Press, 2003); T. Persson and G. Tabellini, 'Constitutional Rules and Fiscal Policy Outcomes', *American Economic Review*, 94 (2004), 25–45; T. Persson, 'The Consequences of Constitutions', *Journal of the European Economic Association*, 2 (2004), 139–61.

[36] 'Models of alternative electoral rules predict proportional elections to produce policies better serving the interests of broad majorities than do majoritarian elections, either directly through incentives of politicians, or indirectly via party formation and the incidence of coalition government', from T. Persson, 'Forms of Democracy, Policy and Economic Development', *NBER Working Paper*, No. 11171 (Cambridge, Mass.: National Bureau of Economic Research, 2005), pp. 23–4.

TABLE 6   Add to the Basic Equation Measures of Inequality and Fractionalization

	As long as available			If Gini and avelf are available		Split sample by governance quality[4] and income[5] with inequality and fractionalization variables			
	With Gini	With frac. variables	With S.D. of life satisfaction	Without inequality & frac. variables	With inequ.& frac. variables	If gov <0.73	If gov >0.73	If income <0.5	If income >0.5
Gov. Quality: Aggregate	0.77** [0.16]	0.67** [0.12]	0.55** [0.14]	0.71** [0.15]	0.74** [0.18]	1.23** [0.25]	0.80** [0.24]	0.75** [0.19]	0.81** [0.28]
Log of income	0.13 [0.21]	0.15 [0.21]	0.23 [0.21]	0.2 [0.23]	0.02 [0.21]	-0.22 [0.24]	0.23 [0.19]	-0.1 [0.26]	0.02 [0.26]
General Trust	1.93** [0.53]	1.88** [0.55]	1.20* [0.54]	1.83** [0.63]	1.66** [0.52]	2.47** [0.78]	1.39** [0.47]	2.28** [0.70]	1.07* [0.46]
Importance of God	0.84* [0.39]	1.56** [0.39]	1.46** [0.37]	1.49** [0.48]	0.88* [0.38]	0.69 [0.44]	1.10* [0.41]	0.82* [0.40]	1.03* [0.46]
Gini Coefficients[1]	0.03* [0.01]				0.03* [0.01]	0.05** [0.01]	0 [0.01]	0.04** [0.01]	-0.02 [0.01]

Index of ethnolinguistic fractionalization[2]		− 0.90** [0.32]			− 0.98* [0.37]	− 1.71** [0.37]	− 0.08 [0.48]	− 1.35** [0.38]	0.08 [0.54]
S.D. of life satisfaction[3]			− 0.82* [0.31]		− 0.29 [0.40]				
Constant	4.20** [0.48]	5.38** [0.29]	7.35** [0.78]	5.23** [0.32]	5.07** [0.99]	3.53** [0.49]	5.49** [0.44]	3.85** [0.55]	5.96** [0.58]
Observations	137	136	160	119	119	53	66	65	54
R^2	0.68	0.7	0.68	0.68	0.74	0.67	0.71	0.64	0.63

Notes: The table shows survey linear regressions of the dependent variable, Life Satisfaction, scaled 1–10, adding measures of inequality (Gini coefficients) and ethnolinguistic fractionalization. Standard errors in brackets.
*Significant at 5%.
**Significant at 1%.

[1] Gini Coefficients Gini Coefficients, from Deininger and Squire dataset, *Human Development Report 2004*, and various other sources.
[2] Index of ethnolinguistic fractionalization, approximating the level of lack of ethnic and linguistic cohesion within a country, ranging from 0 (homogeneous) to 1 (strongly fractionalized) and averaging 5 different indexes (avelf). The data is taken from Persson and Tabellini, *The Economic Effect of Constitutions*, who collected the data from multiple sources. See <http://www.igier.uni-bocconi.it/whos.php?vedi=1169&tbn=albero&id_folder=177> for data manual.
[3] Standard deviation of the responses to life satisfaction question within each country-wave.
[4] The delivery dimension of governance quality, see footnote of Table 2 for more details.
[5] PPP converted real GDP per capita and is shown as ratios of US per capita GDP in 1995. The data is from Penn World Table 6.1. In our sample it has a mean of 0.44 (S.D. = 0.28).

no effect of the social spending share on life satisfaction, or on the coefficient attached to the majoritarian variable.

Finally, we consider whether the apparently higher levels of life satisfaction in proportional representation systems might be due not solely to an exogenous choice of a proportional voting system, but instead to some other excluded variable that gives other reasons for expecting higher contemporary levels of life satisfaction. This would not exclude the possibility that the result might simply mean what it says, as would be advocated by proponents of proportional voting systems: that proportional systems translate votes more directly into political representation, and hence give voters a greater sense of engagement and efficacy. Since engagement and efficacy have been linked to life satisfaction in studies at the individual level, this interpretation is plausible. It has been at least indirectly supported by the results of Frey and Stutzer showing higher levels of life satisfaction in those Swiss cantons that provide or require greater degrees of voter engagement.[37]

Candidates for excluded variables that might be correlated with the existence of proportional representation, and which might also represent other influences on life satisfaction, naturally include variables that have been suggested or used as instruments for the adoption of a majoritarian system instead of a proportional, or partly proportional, alternative.[38] We do this in two ways. First, we do our own first-stage regression using the Persson and Tabellini set of instruments,[39] and use this instead of the measured majoritarian variable. This alternative variable is insignificant in our life satisfaction equation. Then we simply add the full set of instruments to our equation, finding that the coefficient on the majoritarian variable actually increases, a result that is due to the separate positive life-satisfaction effect of one of the variables (the fraction of the population speaking a major European language) that has a negative effect in the first-stage regression for the majoritarian variable. This implies that at least from the viewpoint of life satisfaction, a large part of the relevant cross-country variance of the majoritarian voting variable is not captured by the instruments used by Persson and Tabellini. This suggests that together the set of variables provide a weak instrument for second-stage estimation, and the separate positive significance of the share of the population speaking a major European language suggests that it has effects beyond those flowing through the choice of a voting system.[40]

Thus it would seem that the positive life satisfaction effect of the proportional voting constitutional form is not simply part of the baggage unintentionally attributed to the choice of voting systems. That leaves open, of course, whether the life satisfaction effect is due to the particular form of voting, for the reasons that its advocates have suggested, or to the effects of some other as yet excluded variable.

Government and Inequality

That is about all we have space to do by way of example use of the life satisfaction data to evaluate alternative theories about the ways in which alternative forms of government influence well-being. There is, however, one set of issues on which we should at least provide a preliminary view of the data. In Table 6 we add to our basic equation several

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[37] See B. Frey and A. Stutzer, 'Happiness, Economy, and Institutions', *Economic Journal*, 110 (2000), 98–138.
[38] As suggested by Acemoglu, 'Constitutions, Politics and Economics'.
[39] From Persson and Tabellini, *The Economic Effect of Constitutions*.
[40] As argued by Acemoglu, 'Constitutions, Politics and Economics'.

different measures of inequality, including a Gini coefficient (still a very incomplete series), a measure of ethno-linguistic fractionalization, and a measure of the standard deviation of life satisfaction within each country. On their own, all three take significant coefficients, the Gini with a positive sign and the other two with a negative sign. The next equation re-estimates the basic equation for the smaller sample in which all three inequality measures are available, followed by an equation including all three measures simultaneously. The Gini retains a significant positive coefficient and the ethno-linguistic fractionalization a negative coefficient. The sample is then split in two alternative ways, first by the quality of government, and then by income level. The negative effects of the fractionalization variable disappear in the richer and better-governed countries. The positive effect of the Gini is found only among the poorer or worse-governed countries. Among the better-governed countries, the Gini has no effect, while among the richer countries it has a negative effect, although not significant at the 5 per cent level. Further experiments show that the positive coefficient on inequality is eliminated if the Latin American countries are removed from the sample. The simple correlation between life satisfaction and inequality is positive among the Latin American countries, and between the Latin American group and non-Latin countries, while being negative among the non-Latin countries.[41]

SO WHAT? AND WHAT NEXT?

In this article we have advocated, and experimented with, the use of life satisfaction data to study long-standing questions in political economy. We first proposed that life satisfaction data provide a measure of utility broad enough to embrace most or all of the intermediate objectives that have previously been used by social scientists to evaluate the quality of government. We showed that life satisfaction data give different verdicts about the importance of different aspects of government. In particular, our results suggest that the Governance IV measures of the quality of government strongly dominate per capita incomes as determinants of life satisfaction. There is ample evidence that better government does improve the prospects for higher per capita incomes, and this is revealed in our equations by reductions, generally in the 10 per cent to 25 per cent range (and sometimes significant, depending on the sample and specification) in the government quality effect when per capita incomes are included.

Nonetheless, the effects of good government remain as the single most important variable explaining international differences in life satisfaction in the full global sample, while international differences in per capita incomes are frequently insignificant. The main life satisfaction effects of incomes, once basic needs are met, appear to flow from relative rather than absolute incomes, with the reference groups being national or sub-national in scope. This explains why relative incomes within national economies continue to show strongly significant effects. The basic needs element explains why the role of relative incomes is larger and more sustained within and among the poorer countries (although small relative to other factors, as shown in Appendix Table A1 on the website cited in footnote 13).

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[41] The simple correlation between life satisfaction and Gini is $+0.02$ for the whole sample (138 observations), $+0.37$ for the eighteen Latin American observations, and -0.19 for the remaining 120 observations. Allowing for sample size and error-clustering by country, none of these simple correlations is significant at the 5 per cent level.

Once the general importance of government was established, we turned to consider possible differences among countries in which aspects of good government are most supportive of life satisfaction. We found, for the global sample as well as for sub-samples defined by splitting countries by per capita income level, that the six dimensions of governance quality measures fall easily into two groups, the first group of four dealing with the efficiency and trustworthiness of the design and delivery of government, and a second group of two dealing primarily with the electoral process (voice and accountability, and political stability). For the global sample, and especially for the sub-group of poorer countries, the first variable is of primary importance, while the second is of little or no importance.

For the richer countries considered as a sub-sample, however, the situation is rather different, with the political dimensions coming to play a much greater role. For these countries, which already tend to have higher and fairly uniform levels of governmental efficiency, there is greater focus on the mechanisms whereby governments are elected and made accountable. We have tested a further disaggregation of the six component measures, with interesting results (see author's website as noted in footnote 13 for details of Appendix Table A4). First, we find that two of the measures of the quality of service provision (effectiveness and freedom from corruption) have well-being effects that are large and significant, and of roughly the same size and significance for rich and poor countries alike. By contrast, the partial effects of the rule of law and quality of regulation are negative (although not significantly so) for the rich countries.

For the poorer countries, the quality of regulation has a strongly positive effect and the rule of law a strongly negative effect. We also split the democratic variable into its two components, to test the hypothesis that the variable's lack of positive influence in poor countries might be due to the possibility that political stability might be a mixed blessing, with stable autocracies reflecting the dark side of stability. The results show that political stability and voice have coefficients that are similar to each other in each group of countries, but do differ between the groups. The only significant effect is the positive effect of voice in the sample of richer countries. Of course, as we have already seen, there are high simple correlations among the six measures of governmental quality, so that it is not surprising that they often do not show significantly differing effects, especially within sub-samples of restricted size.

Nonetheless, there appears to be a hierarchy of preferences for different aspects of government, with the ability of governments to provide a trustworthy environment and to deliver services honestly and efficiently being of paramount importance for countries with worse governance and lower incomes. The balance changes once acceptable levels of efficiency, trust and incomes are established, with more attention paid to building and maintaining voter engagement. These are our preliminary but suggestive findings on the evolution of preferences across dimensions of good government.[42]

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[42] C. Bjørnskov, A. Dreher and J. A. V. Fischer, 'The Bigger the Better? Evidence of the Effect of Government Size on Life Satisfaction around the World', *Public Choice*, 127 (2006), 267–92. The authors have discovered another important interaction in the relation between good government and well-being. They find (and we have confirmed in our samples) an interaction between the quality of government (government efficiency) and the size of government consumption spending, re-enforcing a generally observable negative effect where the quality of government is low, while reducing and eventually reversing it where the quality of government is high. This is as theory would suggest, with government consumption (which includes military spending) being more likely to be either inefficient or diverted to personal consumption where the quality of government is low.

After a series to robustness tests, we turned to consider health as a determinant of life satisfaction, and as a channel whereby good government aids life satisfaction. Once again there appeared to be some change of relative importance as development proceeds, with life expectancy more important among those countries where it is low and variable, and good health more important among the richer countries, where life expectancy is generally high and fairly uniform.

We then illustrated in a preliminary way how life satisfaction data could be used to shed a different light on various issues in comparative political economy. First, we made some attempt to test in utility terms the Persson and Tabellini findings about the consequences of presidential and majoritarian constitutional forms. One robust result appeared to be that countries with some element of proportional voting do have higher levels of life satisfaction. This did not appear to flow through the specific channel of higher social spending identified by Persson and Tabellini. Finally, we presented some preliminary data showing the effects of adding different measures of inequality and diversity.

What next? We have presented our case, but is it likely to be accepted? Some social scientists have been sceptical of the use of subjective measures of life satisfaction as proxy measures for utility,[43] despite their support from psychological and neurological research[44] and from confirming results based on more hard-edged data on comparative suicide rates. If significant scepticism remains, then more work will have to be done making the case and looking for different types of tests showing the possibilities and limitations of subjective data.

If our case is accepted, at least in a provisional way, then life satisfaction data should be collected much more broadly and routinely. Since the relevant questions can be added at little or no cost to surveys being used for other purposes, there is ample scope for rapid increases in the relevant pool of data. Perhaps the biggest limitation on the use of life satisfaction data in comparative political economy is that there is very little in the way of panel or even repeated-sample data in many countries. Within countries, large samples of location-specific data are needed if life satisfaction data are to be used to assess the nature and consequences of sub-national differences in governance.

Even within the confines of the available data, there are many hypotheses that can be usefully assessed or re-assessed, using life satisfaction data.[45] In our view, these data provide the broadest and least assumption-driven way to evaluate the quality of government.

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[43] For a review of and answers to a number of such objections, see R. Di Tella and R. MacCulloch, 'Some Uses of Happiness Data in Economics', *Journal of Economic Perspectives*, 20 (2006), 25–46.

[44] For a helpful survey of this evidence, see R. Layard, *Happiness: Lessons from a New Science* (London: Penguin, 2005).

[45] For example, see B. Radcliff, 'Politics, Markets, and Life Satisfaction', *American Political Science Review*, 95 (2001), 939–52.