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The bigger the better? Evidence of the effect of government size on life satisfaction around the world

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Abstract

This paper empirically analyzes the question whether government involvement in the economy is conducive or detrimental to life satisfaction in a cross-section of 74 countries. This provides a test of a longstanding dispute between standard neoclassical economic theory, which predicts that government plays an unambiguously positive role for individuals' quality of life, and public choice theory, that was developed to understand why governments often choose excessive involvement and regulation, thereby harming voters' quality of life. Our results show that life satisfaction decreases with higher government spending. This negative impact of the government is stronger in countries with a leftwing median voter. It is alleviated by government effectiveness – but only in countries where the state sector is already small.

JEL Codes

Keywords: Life satisfaction, Government

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Introduction

The government's optimal share in the economy has for decades been subject to considerable debate. While in Western Europe government spending was on average well below 30 percent of output 30 years ago, it has risen rapidly to its current level of about 50 percent.[1] One popular answer to why this has happened is given by public choice theory: special interest groups benefit from particular government actions – at the cost, however, of overall efficiency and well-being. As the benefits for each individual of the small special interest group are huge, whereas the costs to each member of society are rather small, government sizes become larger and larger as politicians maximize their re-election probability. Consequently, even if a huge majority of voters favours a smaller state sector, resistance against each particular cut in public spending and government activities is stronger than support, preventing a reduction in government size.[2] Governments, then, would be perceived as being inefficiently large by the huge majority of citizens, creating feelings of frustration and missing identification with their state. People living in such environment, in turn, are likely to be less satisfied with their life in general, the more so, the less efficient they perceive their governments' activities and the less its actions are in accordance with their preferences. It is this link between the government activity and life satisfaction that we investigate in this paper.

Clearly, governments have important roles for society, and the optimal size of the state sector is most likely substantially greater than zero. According to classical

[1] See, e.g., Roubini and Sachs (1989). For more recent evidence see Persson (2002).

[2] "For the initiator [of a new system] has the enmity of all who would profit by the preservation of the old institution and merely lukewarm defenders in those who would gain by the new ones", Machiavelli, The Prince, 1513, cited in Feinberg (2005).

economic theory, the state has to provide important public goods, where markets fail to provide them (Musgrave, 1959). More modern economic theory also emphasizes the role of the state in providing institutional frameworks without which the markets would not work efficiently, or would not function at all (Blankart, 2003). The 1997 World Bank World Development Report likewise focussed on the beneficial influence of effective states (World Bank, 1997). The optimal size of the state depends on the preferences of its citizens, and varies from country to country.

Identifying this optimal size is beyond the scope of this paper. In this contribution, we try to answer the question of whether, on average, people are more satisfied with their life in countries with bigger state sectors when we control for other relevant determinants of well-being. In part, our analysis might contribute to answering the question whether people perceive their state sector as being inefficiently overblown (as would be predicted by public choice theory) or as being necessary for the provision of public goods (according to neo-classic theory) and thus objectively 'good'.

We investigate the link between life satisfaction and government involvement empirically, using data from the World Values Survey for a cross section of about 70 countries (aggregated at the country level). Our findings rather clearly support the view forwarded by public choice theory. Basically, life satisfaction decreases with government's active involvement in the economy although its negative impact is weaker in countries with rightwing median voters.

The paper continues as follows. In the next section, we present our theoretical hypotheses. Section 3 presents the data and method of estimation, while results are reported in section 4. Finally, section 5 concludes.

Theoretical considerations

In very broad terms, economic science includes two conflicting views on government activities. First, according to the 'standard' neo-classical view, standard theory focuses on the role of governments in solving market failures: It solves coordination problems in society, thereby making the functioning of the market economy possible, and remedies misallocations achieved through the market process (Musgrave, 1959; Blankart, 2003). For example, governments set and maintain the institutional framework for market transactions (norms and rules, courts, and institutions for enforcement). Governments facilitate the emergence of markets and exchange of goods through the provision of guaranteed, widely accepted means of exchange (money) and intervene in case of market failures like, e.g., the abuse of market power, positive and negative externalities, and the provision of public goods which are not provided by private suppliers due to their specific characteristics (see Blankart, 2003; Musgrave, 1959, Pigou, 1920, 1928).[3] According to this neo-classical theory, government acts as a 'benevolent dictator', aiming at maximizing societal welfare. In such a case, the size of the government sector will fully correspond with the desires of the majority of the electorate. These considerations lead us to hypothesis 1a:

> **Hypothesis 1a**: Governments act as benevolent dictators by maximizing the well-being of their citizens, implying that average life satisfaction increases with the size of the state sector (the 'classic' view).

The second view on governments arises from public choice theory, which was developed in an attempt to understand government behaviour that does not conform to

[3] Typical textbook examples are national defense and infrastructure.

the standard neoclassical theory. According to the public choice view, utility-maximizing behavior observed for actors in markets is also present in the non-market activities of (1) government officials, administrators and bureaucrats; and (2) politicians who pursue their own interests when deciding on and carrying out government activities.[4] Hence, instead of market failures public choice theory focuses on government failures and how they come about.

In particular, bureaucrats and ministers in the monopolized government sector aim to maximize their budgets (Niskanen, 1971) or, if budget size is constrained, personal staff and spending, at the expense of the means designated for their productive activities (Williamson, 1964).[5] Excessive budget growth - an indicator of unnecessary government activity - is also facilitated by administrative procedures and tight deadlines, which prevent conducting a profound cost-benefit analysis (Wildavsky, 1964). Finally, larger administrations, in turn, require more resources to control them (Mueller, 2003), so that a growing government size automatically triggers disproportionally higher expenses.

Moreover, the behavior of politicians who aim to be re-elected may also contribute to a misallocation of resources through government involvement. They engage in log-rolling to promote projects favored by their own districts but not by the total population (Tullock, 1959; Weingast et al., 1981). Furthermore, according to what

[4] Besley and Coate (1997) develop a theoretical model suggesting that regular elections do not hinder representatives to follow their own interests once they are in office.

[5] Vaubel, Dreher and Soylu (2005) show that the same holds true for international organizations. In a panel of 27 organizations over the period 1950-2001 they find that staff growth is considerably higher as would be expected for a given increase in membership and tasks. Figlio and O'Sullivan (2001) report similar evidence regarding publicly provided goods like schooling, fire protection and policing at the municipal level in the US.

is known as the theory of fiscal illusion, government activities favored by politicians are those which are 'visible' to the public at the expense of potentially more welfare increasing, but 'invisible' government projects (Puviani, 1903).[6] Similarly, Becker's (1983) model of lobbying activities of interest groups – relying on insights gained by Olson (1965) – indicates that unnecessary government expenses are often the result of such lobbying activities,[7] and that a lot of government spending occurs in the form of public goods.[8] Political stability fosters an increase in the number of interest groups, which again causes rising government outlays (Olson, 1982), i.e. government activity not in line with the preferences of the voters.[9]

In summary, public choice theory predicts a misallocation of resources, a blown-up government budget and thus an exploitation of voters' incomes as a fiscal commons (e.g. Brennan and Buchanan, 1980) through government involvement, which consequently will decrease people's satisfaction. These considerations lead to hypothesis 1b:

> **Hypothesis 1b**: Governments maximize their own well-being at the cost of society at large, implying that average life satisfaction decreases with the size of the state sector (the 'public choice' view).

[6] For empirical support on the link between the visibility of expenses and tax burden for a cross-section of Swiss municipalities in 1970 see Pommerehne and Schneider (1978).

[7] Grossman and Helpman (1996) construct a model that shows how policy outcomes can easily be influenced by such interest groups. For empirical evidence see Tosini and Tower (1987), among others.

[8] The same model explains the positive correlation between economic development and the absolute size of the government sector.

[9] Borcherding (1985) found for the US that only 50% of the growth in government expenses over the period 1902 to 1978 can be explained by the median voter model. Results for other European countries are similar (Blankart, 2003, chapter 9; Pommerehne, 1987, chapter 6).

Clearly, government activities imply trade-offs between the impact of these resources on factors of well-being and the loss in well-being generated by the associated taxes and the loss of control over personal income. The more efficiently the money is spent, then, the more beneficial is the trade-off between taxes and public spending from the tax payers' perspective. We thus hypothesize:

> **Hypothesis 2**: The impact of government activity on well-being depends positively on the effectiveness of the government sector.

Political competition might also be important for the impact of the quality of government's economic involvement and how it affects well-being. Alt and Lassen (2002) and Adserá et al. (2003), for example, suggest that political competition reduces rent-seeking behavior by providing a check on corrupt politicians. In addition, competition between many candidates might lead to less excessive spending as voters can get rid more easily of those politicians who serve lobbying groups (Besley and Coate, 2001; Myerson, 1993).[10] Furthermore, political competition might imply the necessity to form coalition governments which reflect a broader scope of preferences than a single party government (Lijphart, 1977), that will also lead to corresponding government activities, serving the specific interests of more individuals. Finally, stronger political competition might induce government involvement to be 'better' targeted to voters' preferences, leading to the third hypothesis:

> **Hypothesis 3a**: The impact of government activity on well-being depends positively on the degree of political competition in the country.

[10] Persson (2002) and Persson et al. (2000) found that larger electoral districts, indicating lower barriers to entry and thus more competition between candidates, decrease corruption.

However, according to Payne's (1991) 'legislator insecurity hypothesis' a stronger competition between parties increases the fear of ruling governors of not being re-elected which makes them increase government activities and spending beyond what they personally think is desirable in order to 'buy' votes.[11] A similar argument is that in situations with high political insecurity the ruling parties constrain the intertemporal substitution possibilities and spending policies of their competitors and potential successors through excessive government spending and deficits (Alesina and Tabellini, 1990; Tabellini and Alesina, 1990; Persson and Svenson, 1989).[12] Furthermore, coalitions proxied by party competition might also lead to more spending ministries and an excessively big government budget and thus to a waste of resources in the economy as compared to a single party government when each member of the coalition wants to leave her fingerprint on the chosen policy.[13] Finally, increased party competition can be caused by (and be an indicator of) the activity of lobbying groups attracted by the rents attached to political offices (Besley and Coate, 2001). Therefore we reach the opposite hypothesis:

> **Hypothesis 3b**: The impact of government size on well-being depends negatively on the degree of political competition in the country.

[11] For empirical evidence of the political business cycle in spending, see, e.g., Nordhaus 1975. For the positive link between a negative income shock and government spending as a share of GDP, see Persson (2002). Persson and Tabellini (2000), however, show that the direction of the impact of such shock also depends on the electoral rules and regime types.

[12] Persson (2002) reports a positive link between a cut in income tax and the pre-election period, and a negative link between government spending and post-election periods. Schuknecht (1996, 2000) and Dreher and Vaubel (2004) confirm that fiscal policies are more expansive prior to elections.

[13] For empirical evidence on the effect of the size of coalitions on government size controlling for the ideology of the government see, e.g., Roubini and Sachs (1989).

Finally, government ideology is likely to be another important determinant of the impact of government size on well-being. If voters prefer tighter safety-nets and publicly provided goods and services, they are more likely to accept more redistribution, which implies higher tax rates and a more interfering and active government. Traditionally, left-wing governments are thought to favor higher government spending and to pursue countercyclical Keynesian policy of government spending, which reduces fluctuation of people's personal income.[14] In addition, di Tella and MacCulloch (2005) show that leftwing voters are more inclined to support government spending. Thus:

> **Hypothesis 4a**: The impact of government activities on well-being depends positively on the extent to which the median voter has a 'left-wing' ideology.

However, traditionally it is believed that leftwing ideology would probably recommend a more active role for the government sector by assuming that – in the terminology of public choice theory – market failures appear more frequently than government failures (Lybeck, 1988).[15] Theoretical models based on class-specific voting have suggested that leftwing and rightwing parties equally favour progressive income taxation (Roemer, 1999), although they represent different income classes. On

[14] Roubini and Sachs (1989), among others, have shown that a left-to-the-centre ideology is indeed linked with a larger share of government spending in GNP. To the contrary, Dreher (2005) finds no significant impact of left-wing governments on government total and social spending in OECD countries over the period 1970-2000.

[15] For empirical support on the influence of party ideology on votes about free-trade issues, see Baldwin (1985), Tosini and Tower (1987), among others.

the other hand, vote-maximizing political parties might carry out such a transfer policy either to induce a shift in central votes to their favour or in favour of their own supporters, depending on the specific set-up of the model (Dixit and Londregan, 1996, 1998). Therefore, a leftwing political tradition might inhibit different voters' free choice of consumption in everyday life. In addition, one could argue that the mix of government activities might depend on the political ideology of the government and the political-ideological tradition of the country. Thus:

> **Hypothesis 4b**: The impact of government activities on well-being depends negatively on the extent to which the median voter has a 'left-wing' ideology.

We test this set of conflicting hypotheses in the following, using a data set that we describe in the next section.

Data and Method

The data used here derive from different sources. First of all, the data on life satisfaction are from the third and fourth waves of the World Values Survey (1997 - 2001) (Inglehart et al., 2004). The WVS asks the question "How satisfied are you with your life these days?", which is evaluated on a 1-10 scale. We follow the WVS approach by using the percentage of the population answering in the top three categories (8-10), i.e. the aggregated data measure the share of each (sub-)population that is completely satisfied with their lives. Table 1 provides descriptive statistics. Following the robustness analysis in Bjørnskov, Dreher and Fischer (2005), the full national samples are split in three different ways. First, we split the national samples into three equally-

sized income groups, based on the WVS coding. Second, we split the national samples into men and women; and finally, we split them into two groups consisting of leftwing and rightwing voters, respectively.[16] This enables us to identify the potentially differential effects on groups in society, although it should be stressed that average life satisfaction in the subsamples is obtained from less observations and is therefore less precise than for the whole sample.

INSERT TABLE 1 ABOUT HERE

Again following Bjørnskov, Dreher and Fischer (2005), we estimate the effects of government involvement in the economy on life satisfaction using OLS. The baseline specification consists of social trust, openness to trade, the investment price, the log of GDP per capita, and a dummy for postcommunist countries. Social trust derives from the WVS and is the percentage of the population answering yes to the question "In general, do you think that most people can be trusted?" Openness to trade, measured as the sum of exports and imports as percentage of GDP, the investment price level relative to the US level, and the log of GDP per capita in 2000 are derived from the Penn World Tables, Mark 6.1 (Heston et al., 2002). Openness and the investment price level are averaged over the preceding ten-year period to avoid random fluctuations and

[16] In practice, this is done by splitting the WVS database along the political middle and extracting life satisfaction scores for each country in both halves. We use the WVS question of where on a ten-point left-to-right scale of political ideology people would place themselves; the average score is approximately 5.5. Using this question has the advantage that people obviously answer the question compared to some national average ideology, a fact that can be derived from the observation that virtually all countries have ideological means close to 5.5. As such, the data are insensitive to differences in national ideology. The exception is Vietnam that surprisingly seems very rightwing although the country is a communist dictatorship.

short-run business cycles. In addition, the baseline includes a set of regional dummies covering Sub-Saharan Africa, North Africa and the Middle East, Asia and the Pacific, and Latin America. Finally, the variable of real interest is the governments' involvement in the economy, which we measure by its share of GDP, again derived from the Penn World Tables and averaged as other variables.[17] We use this variable as it arguably provides the most accurate measure of the share of total income that is administrated by the government. This measure includes not only the classical government consumption but also governmental investment and direct government activity on the production side of the economy. Since GDP is measured in market prices, it is the welfare aspect of the national product which is in our focus: it shows how consumers assess the value of the produced consumption goods in an economy. Goods produced by the government are evaluated at their costs and thus might not reflect the consumers' benefit attached to those goods in full.[18] It should be noted that some government activities which are not mirrored by budgetary processes are not reflected in this variable; it can be conjectured that the size of this non-measurable government activity increases in its observable part.

We include three additional variables allowing for transmission channels of the impact of government activities' impact corresponding to hypotheses 2-4. To measure the effectiveness with which governments deliver public goods and services, we include the 2002 measure of 'government effectiveness' from Kaufmann et al. (2003). As a proxy of political competition, we include the Herfindahl index of the legislature from Beck et al. (2001), averaged over 1990-2000. This variable, distributed between zero and one, measures the lack of competition, as a value of 1 implies that the entire

[17] We use average values to smooth out random noise (Heston et al., 2002).
[18] Thus, if civil servants' wages exceed the wage level in the private labour market, publicly provided goods might be overvalued.

legislature during all ten years were from the same party. As the third factor, we include a measure of political ideology of the three largest government parties, averaged over the period 1990-2000.[19]

In order to ensure that these three variables that are to be interacted with the government's share in GDP indeed delineate different characteristics, Table 2 reports the correlations between the variables and the dependent variable. With one exception, the table quite clearly shows that the variables measure different characteristics of society as the correlations are low and insignificant. The exception is government effectiveness, which shows a strong correlation with the government's share in GDP. As such, the interaction term between those variables might simply pick up a non-linear relation between life satisfaction and the government's share.[20] However, it appears that the correlation between government effectiveness and size is caused by both variables being correlated with GDP per capita. Once this has been taken into account, the partial correlation is small, indicating that the variables are likely to measure distinctly different factors.

INSERT TABLES 1 AND 2 ABOUT HERE

Due to data limitations, the sample used in the following consists of between 69 and 74 countries; we exclude China and Iran due to apparent irregularities in their WVS

[19] The ideology measure is a slight modification of the index developed in Bjørnskov (2005a). The difference is that we use the ideology of the three largest parties in government, weighted by their number of seats in parliament.

[20] It should be stressed that we have also performed tests of a non-linear association between the government's share and life satisfaction without finding supporting evidence. This result can be interpreted as all countries lying on the downward sloping part of an inverted u-function.

data (Uslaner, 2002; Bjørnskov, 2005b). Before turning to the empirical results, a few features of the raw data in Table 1 are worth noting. As could be expected, the lower income group appears to be the least satisfied, followed by the middle income group and with the upper income group as the most satisfied. However, the former difference is only significant at $p<.10$ in a two-tailed test while the difference of the lowest to the upper income group is significant at any conventional level. There is no difference in the life satisfaction averages of men and women while rightwing voters are more satisfied than their leftwing counterparts, a difference that is significant at the ten percent level.[21] Keeping the differences in levels in mind, we now proceed to the empirical results of estimating the effects of government involvement in the economy.

Results

Figure 1 provides a first look of the association between the government's share in GDP and the percentage of persons with a high level of life satisfaction. Judging from this simple plot, government activity is negatively correlated with life satisfaction ($\rho = -.54$) which seems to strongly support the public choice view in hypothesis 1b. It equally contradicts the positive view of neoclassical economics. However suggestive this picture is, it can never be taken as evidence in itself. Table 3 therefore presents the basic results of our multivariate model estimated on the full sample.

INSERT FIGURE 1 ABOUT HERE

[21] Although, overall, the shares of completely satisfied persons do not differ between men and women, there seems to be systematic variation in the difference between male and female satisfaction across countries. We plan to explore this difference in future work.

Column 1 reports the result of the baseline specification, showing results well-known from the previous literature. First of all, average income does not matter, which is in line with previous research (e.g. Easterlin, 1995; Oswald, 1997).[22] Second, having a postcommunist past is strongly detrimental to life satisfaction; people in these countries are on average 17 percentage points less likely to be satisfied with their lives. Third, social trust exerts a positive effect with a coefficient indicating that a one standard deviation shock to trust induces an increase of roughly four percentage points, or a fifth of a standard deviation. The results also suggest that globalization in the form of openness to trade and the investment price level, which comes to work as a proxy for the business climate and production quality, both exert significantly positive effects on life satisfaction. One standard deviation shocks to any of these variables are associated with increases in life satisfaction of about a quarter of a standard deviation; hence, the effects of these variables are of both statistical and social significance.

Turning to the main question of this paper, the baseline results quite clearly allow us to reject hypothesis 1a: governments in general do not act as benevolent dictators interested in overall life satisfaction, as the estimate on the government's share of GDP is negative and highly significant. The effect is also socially significant as a one standard deviation shock to government spending induces a decline in life satisfaction of about a fifth of a standard deviation. Hence, our a priori hypothesis 1b receives strong empirical support. An explanatory power of about .75-.8 and an insignificant Ramsey RESET test for misspecification ($p<.23$) show that our model also fits the data quite well; hence, it is unlikely that the results are spurious due to misspecification.

[22] However, DiTella, MacCulloch, and Oswald (2003) report a positive link from income to well-being.

Using an IV approach furthermore allows us to reject that the negative sign of the coefficient is a product of reverse causality. [23]

INSERT TABLE 3 ABOUT HERE

In the following columns we test hypotheses 2-4 for the total population by including three additional variables and their interaction terms with the government's share of GDP. Starting in column 2, we test for hypothesis 2. The interaction term of government effectiveness and activity is individually significant while the interaction term and government effectiveness are jointly significant at the five percent level. However, as the level of joint significance is slightly lower than that of the interaction term in itself, it seems fair to take this as evidence of an alleviating impact of government effectiveness on the detrimental influence of governments' involvement in the economy. There is thus tentative evidence in favour of hypothesis 2. The specification in column 3 includes political competition and its interaction with government activity to test hypotheses 3a and 3b. As can be seen from the table, the results show no conclusive evidence. On the one hand, political competition in itself exerts a positive effect with high scores on the Herfindahl index indicating low levels of competition. On the other hand, the interaction term is jointly significant with the political competition variable only, and only at the ten percent level, potentially showing that the impact of government activities is independent from the level of

[23] By applying a set of instrumental variables, the causality issue can be resolved. The log to GDP per capita, openness, a dummy for civil law countries and the investment price relative to the overall price level are valid as instruments (F=10.95; pseudo R square=.387; Sargan test p<.47). The IV estimate supports that government has a causal effect as the coefficient remains negative and significant at conventional levels (-.645, standard error=.297).

political competition in a country. The sign of the interaction term, however, indicates support for hypothesis 3a. But as it is not individually significant, further analysis is needed.

Turning to hypotheses 4a and 4b (column 4), the results are more conclusive. Both median political ideology and its interaction term with government spending are individually significant at the five percent level and jointly significant at the one percent level. As the sign of the interaction term is positive, the results in column 4 provide support for hypotheses 4b: government involvement in the economy exerts a stronger negative influence in countries with a leftwing median ideology of the governing bodies.

Finally, column 5 includes all additional variables and interaction terms in the baseline model. The coefficient of the share of government in GDP remains strongly negatively associated with life satisfaction. The results also show that the effects of political competition, median ideology and its interaction with government activity remain significant although the latter just fails to meet the five percent level of significance. Hence, only hypothesis 1 and the complementary hypothesis 4b receive real support in Table 3. At first sight, it therefore seems that there is no support for a neoclassical view on government but considerable support for the public choice view, and only political ideology of government appears to matter as transmission channel. However, whether these results are robust and relevant for most countries is not obvious from Table 3.

In Table 4, we perform three robustness checks on these findings for the total population: we exclude observations with a residual larger than ±1.5 standard deviations (in the columns denoted ‘No outliers’), and we exclude the bottom and top ten percent

of the distribution of the government's share of GDP (denoted 'No bottom' and 'No top', respectively), thereby testing whether the results are driven by observations with extremely small or extremely large governments, respectively. The first test is standard, while cutting off the tails of the distribution can be thought of as both a statistical robustness test and a test of the policy relevance to the majority of the countries in the sample. If the statistical associations are driven by observations with either very small or very large government sector, the results might not hold a real policy relevance for the bulk of the world consisting of countries that are in the middle range.

INSERT TABLE 4 ABOUT HERE

Starting in columns 1-3, the table reports the tests of whether the evidence supporting hypothesis 2 is robust. While column 1 shows that although neither effectiveness nor its interaction with government size is individually significant, they remain jointly significant when excluding outliers. However, when excluding the observations at either tail of the government size distribution, the results lose significance at any conventional level; excluding observations with very small government shares in particular reduces the significance level and even makes the coefficient of government effectiveness change sign. Hence, even if we cannot conclusively reject the hypothesis that the negative effects of government involvement in the economy are alleviated by having an effective government sector, this association is probably only relevant for countries that have small governments in the first place.

In columns 4-6, we test the robustness of the beneficial impact of political competition suggested in hypothesis 3a. Excluding outliers, political competition and

the interaction term are jointly significant at the one percent level while competition in itself is only significant at the ten percent level, which might indicate that the interaction effect is relevant. Nevertheless, this effect is evidently driven by observations with very small governments, i.e. by countries that have a relatively small 'problem' with government involvement in the economy anyway. As the exclusion of observations with particularly large government shares reveals that the joint significance is most likely due to the effect of political competition in itself, we conclude that the support for hypothesis 3a is not robust.

The evidence in columns 7-9, to the contrary, supports hypothesis 4b, which states that countries with a leftwing tradition are on average hurt more by excessive government involvement in the economy. The interaction term is individually significant at the five percent level throughout while median ideology only fails to be significant when excluding observations with particularly little government involvement in the economy. Both variables are jointly significant at the five percent level in two cases, but only at the ten percent level when excluding observations with small governments. As the coefficient of the interaction term is larger than in Table 3, is about the same size in columns 7 and 8 and somewhat larger again in column 9, the evidence for hypothesis 4b is robust to these simple tests.

INSERT TABLE 5 ABOUT HERE

As a final test, Table 5 replicates the robustness exercise using the seven subgroups of society, based on income, gender or political ideology, to test whether our estimation results are specific to any of these groups. It is quite obvious that the results

pertaining to government effectiveness fair no better than in Table 4, as this variable and the interaction term are significant in only three groups. Furthermore, they always lose significance when excluding observations with large residuals, or observations in the bottom or top ten percent of the distribution of the government share variable. Moreover, the results pertaining to political competition fare even worse as the interaction term is never individually or jointly significant. In sum, there is thus no robust support for hypotheses 2, 3a or 3b. On the other hand, the effect of the government's share of GDP in itself always remains significant.

Turning to the results pertaining to median political ideology, the interaction term is significant in all subgroups and ideology per se only fails individual significance at the ten percent level in the case of leftwing voters.[24] The results are furthermore robust to excluding outliers in all cases, and robust to excluding the tails of the government share distribution (not shown) in four cases: the full sample, the lower income group, men and the rightwing voters.[25] We must therefore conclude that the evidence for hypothesis 4b seems fairly robust.

INSERT TABLE 6 ABOUT HERE

[24] Combining the insignificance of median ideology in the leftwing sample with the observation that rightwing voters on average seem to be more satisfied than their leftwing counterparts, one can speculate whether the difference between left and right satisfaction pertains to moderately rightwing voters being more satisfied with their lives.

[25] As stressed above, the life satisfaction data for the subsamples are probably measured with considerably more noise as they rely on smaller samples. It should therefore be noted that although the interaction term is not significant in the middle and upper income groups, for leftwing voters and for women, it remains of the same sign and size throughout.

Table 6 displays calculations of the effects of a one standard deviation increase in the government's share in GDP on an average country for life satisfaction. Columns 1 to 3 evaluate the effects of the shock at the minimum government share of GDP, the maximum share, the median, and the average. Beginning at the average or median government share, a one deviation shock induces approximately a four-point decline in the share of completely satisfied persons, corresponding to about a fifth of a standard deviation. Obviously, the inclusion of interaction terms does not influence the size of the effect at the average, as the coefficient throughout all three columns in Table 6 is identical to the one identified in Table 3. Relying on estimates that are overly affected by observations with very small governments as Table 4 suggests, the shock at the minimum effectiveness induces an eight-point loss of life satisfaction while at maximum effectiveness the effect of the shock is virtually zero. As regards political competition, the fragile results for this variable are reflected in column 2 where the effects are mainly due to a decline in political competition per se.

On the other hand, the fairly robust alleviating effects of median political ideology on the government's share of GDP are reflected in column 3. At the far left on a left-to-right scale of political ideology, a one standard deviation shock to the government's share of GDP induces a loss of nine points, corresponding to 45 percent of a standard deviation of life satisfaction. On the other hand, at the far right on the ideology scale, a similar shock is almost entirely ineffectual. Using the interaction term to evaluate the effects of a shock to median ideology instead also leads to interesting insights. Overall, it seems that having a rightwing political ideology leads to a loss of life satisfaction. However, this only occurs at fairly low levels of government shares, and the effect turns positive above a level of government's share in GDP of

approximately 15 percent. Overall, we can therefore conclude that the government's share in GDP exerts a negative effect on life satisfaction, and that this effect is somehow associated with the median political ideology although in a non-trivial manner. The final section discusses these findings and concludes.

Conclusions

We have in this paper analyzed the question whether government involvement in the economy is conducive or detrimental to life satisfaction. Our paper therefore provides what can be thought of as a test of a longstanding dispute between standard neoclassical economic theory, which predicts that governments play an unambiguously positive role for individuals' quality of life, and public choice theory, that was developed to understand why governments often choose excessive involvement and regulation and thus risk harming voters' subjective quality of life. We perform this test by regressing the reported share of completely satisfied people in about 70 countries across the world on a set of baseline variables and the government's share of GDP.

The evidence quite clearly supports the public choice view that excessive government involvement is detrimental to individuals' quality of life. We test whether this negative influence depends on: 1) the effectiveness of the government sector, which could make voters more tolerant of government activities; 2) the degree of political competition, which could both insure voters against special interest bias as well as making government's direct involvement less precisely directed towards the preferences of the median voter; and 3) the median political ideology through the preceding decade, which might both proxy for voters' preferences for public goods and the structure of government spending.

We find an alleviating effect of government effectiveness, which is nonetheless driven by observations with particularly little government involvement. The effect of this factor is thus only relevant to a few countries that already have a relatively 'small' government problem. We can also unambiguously reject the potentially alleviating effects of political competition that are never significant. Contrary to this, we find that the detrimental effects of government involvement increase as the political ideology of the median voter moves to the left. Although one could, based on standard conceptions of ideology, believe that populations voting on the left of the political middle would tend to accept more active government, we do find evidence of the exact opposite.

As the evidence thus goes against popular beliefs, a more reasonable explanation seems to be that governments of different political convictions structure their spending and interventions differently. One could, for example, speculate whether the effects derive from leftwing governments intervening more directly or otherwise structuring spending in a way that limits personal choice more than rightwing governments do. However, a number of alternative explanations are possible. We therefore conclude with a rather simple policy implication: governments interested in maximizing the life satisfaction of their voters should, regardless of their ideology, limit their direct interventions in the economy to allow voters a high degree of personal freedom. Yet, whether specific types of government spending and activity are more detrimental to satisfaction than others and whether types of spending exist that are positively associated with satisfaction are questions we leave to future research.

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Table 1. Descriptive statistics

Variable	Average	Minimum	Maximum	Std. dev.	Obs.
Life satisfaction					
Full sample	42.822	9.545	77.685	20.156	74
Lower income	36.473	3.572	73.196	19.006	70
Middle income	41.972	6.269	80.988	21.198	70
Upper income	51.092	6.013	87.624	20.303	70
Female	43.442	7.716	77.729	19.678	72
Male	42.391	8.646	77.076	20.544	72
Leftwing	41.188	8.919	77.477	20.251	69
Rightwing	47.075	12.256	83.293	19.841	69
Social trust	27.819	4.752	63.865	13.743	74
Openness	78.143	15.428	324.437	52.866	74
Investment price	.855	.261	1.659	.337	74
Log GDP per capita	9.051	6.178	10.692	.985	74
Postcommunist	.270	0	1	.447	74
Government share of GDP	18.454	6.014	49.664	8.987	74
Government effectiveness	.528	-1.140	2.263	1.033	74
Political competition	.72	.25	1	2.23	73
Median ideology	.09	-1	1	.51	73

Table 2. Correlations between interacting variables

	1	2	3	4	5
Life satisfaction	1	.542***	.650***	-.127	.178
Government share of GDP		1	-.475***	-.067	-.098
Government effectiveness			1	-.153	.115
Political competition				1	.042
Median ideology					1

Note: *** denotes significance at p<.01. Life satisfaction is based on the full sample.

Table 3. Basic results

Sample	Full sample				
	1	2	3	4	5
Social trust	.2665**	.2851**	.2649**	.2913**	.3170**
	(.1279)	(.1306)	(.1269)	(.1242)	(.1223)
Openness	.0901***	.0878***	.0930***	.0901***	.0946***
	(.0190)	(.0195)	(.0235)	(.0229)	(.0226)
Investment price	16.0206***	15.5083***	15.1531***	14.6006***	13.7475***
	(4.0518)	(3.8242)	(4.2770)	(3.9092)	(4.1077)
Log GDP per capita	.0541	-.5348	.1819	-.2196	.5798
	(2.1354)	(2.0639)	(2.1427)	(2.2647)	(2.2707)
Postcommunist	-17.4099***	-16.6533***	-18.0009***	-17.9837***	-19.3361***
	(4.9986)	(5.2299)	(4.9396)	(4.9243)	(5.4238)
Government share of	-.4477***	-.5572***	-1.0091**	-.4745***	-1.1316***
GDP	(.1218)	(.1231)	(.4163)	(.1161)	(.3902)
Government		-3.8718			-4.8275
effectiveness		(3.2283)			(3.2461)
Effectiveness * share		.2798**			.2152
		(.1383)			(.1543)
Political competition			-20.3799*		-22.3485**
			(10.8332)		(10.8322)
Competition*share			.7629		.7754
			(.5743)		(.5126)
Median ideology				-8.3618**	-7.1362**
				(4.1751)	(4.9758)
Ideology*share				.5302***	.4522*
				(.1923)	(.2389)
Observations	74	74	73	73	73
Pseudo R square	.806	.809	.800	.804	.808
F statistic	54.64	56.95	45.41	41.66	40.52
RMSE	8.889	8.809	8.878	8.791	8.705
Joint significance, F=		1.551**	1.505*	2.508***	1.511*

Note: all regressions include a constant term and regional dummies; *** (**) [*] denotes significance at p<.01 (p<.05) [p<.10].

Table 4. Robustness results

				Full sample					
	No outliers	No bottom	No top	No outliers	No bottom	No top	No outliers	No bottom	No top
	1	2	3	4	5	6	7	8	9
Social trust	.2716*	.1344	.2416*	.3222***	.2668*	.2906**	.3244***	.2835**	.3344***
	(.1387)	(.1329)	(.1269)	(.0926)	(.1338)	(.1276)	(.1014)	(.1328)	(.1254)
Openness	.0693***	.0838***	.0911***	.0882***	.1045***	.1041***	.0905***	.1041***	.1002***
	(.0241)	(.0270)	(.0204)	(.0171)	(.0385)	(.0230)	(.0180)	(.0335)	(.0237)
Investment price	10.4581***	14.1844***	10.3936***	17.8981***	18.7079***	14.0385***	15.9783***	17.0299***	14.4572***
	(3.5219)	(4.7679)	(4.1741)	(3.2761)	(4.5342)	(4.0268)	(2.7414)	(4.4809)	(3.9451)
Log GDP per capita	-1.4973	1.0129	-1.8509	-1.0998	1.5943	-.9461	-1.5337	.9386	-.7736
	(1.9021)	(2.9417)	(2.2203)	(1.6663)	(3.0038)	(2.1232)	(1.4714)	(3.1583)	(2.3407)
Postcommunist	-19.9225***	-16.6137**	-18.7225***	-17.3117***	-14.8873**	-19.3123***	-20.6114***	-16.0365**	-17.4379***
	(6.9350)	(6.6201)	(5.7469)	(3.5493)	(6.3794)	(5.1610)	(3.1585)	(6.5451)	(5.2479)
Government share of	-.3111	-.5283***	-.5686***	-.9040**	-.6826	-1.0861**	-.4978***	-.5292***	-.3507*
GDP	(.2157)	(.1317)	(.1984)	(.3649)	(.4727)	(.4822)	(.0869)	(.1194)	(.1774)
Government	.2232	.4435	-1.9012						
effectiveness	(3.9856)	(3.5780)	(3.9536)						
Effectiveness * share	.2472	.1042	.2657						
	(.1774)	(.1495)	(.1861)						
Political competition				-17.0864*	-8.6565	-22.0122*			
				(9.4025)	(12.5833)	(11.7484)			
Competition*share				.5539	.2574	.8827			
				(.5128)	(.6446)	(.6468)			
Median ideology							-9.3237**	-8.5273	-9.7529*
							(3.8844)	(5.1548)	(5.2848)
Ideology*share							.5365***	.5076**	.6697**
							(.1710)	(.2308)	(.2831)
Observations	62	67	67	65	66	66	65	66	66
Pseudo R square	.838	.812	.777	.	.809	.781	.916	.818	.784
F statistic	72.49	44.70	38.04	67.67	47.17	37.62	67.48	44.03	37.83
RMSE	8.432	8.943	9.342	6.068	8.856	9.123	5.835	8.659	9.067
Joint significance, F=	2.075***	.538	1.322	2.532***	.322	1.465*	3.977***	1.515*	1.748**

Note: all regressions include a constant term and regional dummies; *** (**) [*] denotes significance at p<.01 (p<.05) [p<.10]. In columns denoted 'No outliers', observations with residuals above ±1.5 standard deviations have been deleted; columns denoted 'No bottom' ('No top') excludes the 10% observations with the smallest (largest) government share of GDP.

Table 5. Robustness with subsamples

Sample:	Income groups			Gender groups		Political groups	
	Lower	Middle	Upper	Male	Female	Left	Right
	1	2	3	4	5	6	7
Government share of GDP	-.4496***	-.5112***	-.5677***	-.6082***	-.5064***	-.5814***	-.4806***
	(.1434)	(.1599)	(.1894)	(.1512)	(.1283)	(.1224)	(.1401)
Government effectiveness	-1.7614	-3.6682	-8.1423*	-5.2396	-3.6704	-3.6552	-1.8877
	(3.2088)	(3.9995)	(4.2411)	(3.4282)	(3.3097)	(3.2297)	(3.7697)
Effectiveness * share	.1432	.2256	.3718**	.2646*	.3117**	.2664*	.1913
	(.1423)	(.1725)	(.1812)	(.1450)	(.1409)	(.1394)	(.1535)
Observations	70	70	70	72	72	69	69
Pseudo R square	.783	.771	.736	.799	.791	.795	.785
F statistic	54.87	41.48	33.40	69.47	46.65	64.79	38.10
RMSE	8.849	10.153	10.433	9.199	8.995	9.174	9.194
Joint significance, F=	.428	.719	1.839***	1.195	1.978***	1.140	.726
Robust	No	No	No	No	No	No	No
Government share of GDP	-.8349*	-1.1201**	-.9302*	-.8949**	-.9734**	-.8643*	-.8947**
	(.4277)	(.4678)	(.5213)	(.4360)	(.4245)	(.4693)	(.4167)
Political competition	-11.8766	-23.3283*	-18.5449	-15.8526	-21.1733*	-15.9848	-18.1638
	(11.3324)	(12.4965)	(14.4067)	(13.1752)	(12.3349)	(13.8286)	(12.7369)
Competition*share	.6321	.9875	.7261	.5820	.8509	.5355	.7009
	(.6186)	(.6547)	(.7608)	(.6386)	(.6145)	(.6888)	(.6131)
Observations	69	69	69	71	71	68	68
Pseudo R square	.770	.765	.716	.788	.776	.784	.778
F statistic	46.20	39.41	28.18	55.55	34.72	42.58	31.89
RMSE	8.923	10.140	10.720	9.343	9.181	9.279	9.245
Joint significance, F=	.426	1.258	.793	.772	1.237	.865	.739
Robust	No	No	No	No	No	No	No
Government share of GDP	-.4174***	-.4513***	-.4336***	-.5172***	-.4127***	-.5254***	-.4462***
	(.1319)	(.1375)	(.1672)	(.1349)	(.1239)	(.1285)	(.1345)
Median ideology	-9.0378**	-10.3306**	-11.5199**	-8.6274**	-8.0398*	-7.6246	-8.3223**
	(4.2361)	(4.6817)	(4.6269)	(4.1865)	(4.1881)	(4.6960)	(4.1599)
Ideology*share	.5158**	.6103***	.6178***	.5047***	.4946**	.4349**	.4798**
	(.2129)	(.2115)	(.2322)	(.1884)	(.2037)	(.2149)	(.1817)
Observations	69	69	69	71	71	68	68
Pseudo R square	.781	.771	.726	.794	.779	.786	.782

F statistic	46.23	35.86	23.61	45.31	34.99	37.58	30.48
RMSE	8.701	10.013	10.523	9.205	9.119	9.222	9.147
Joint significance, F=	1.837**	1.948***	1.822**	1.625**	1.622**	1.201	1.322
Robust	Yes	No	No	Yes	No	No	Yes

Note: all regressions include the baseline variables; all regressions include a constant term and regional dummies; *** (**) [*] denotes significance at p<.01 (p<.05) [p<.10]. Results are reported to be robust if the interaction term is jointly or individually significant when removing outliers and the tails of the distribution of government share of GDP.

Table 6. Effects of a one standard deviation shock to government share

Interaction with:	Effectiveness 1	Competition 2	Ideology 3
Minimum	-7.87	-7.37	-9.03
	(-39.1)	(-36.6)	(-44.8)
Maximum	.68	-2.21	.50
	(3.4)	(-10.9)	(2.5)
Median	-4.42	-4.17	-4.15
	(-21.9)	(-20.7)	(-18.9)
Average	-3.68	-4.16	-3.82
	(-18.3)	(-20.6)	(-20.6)

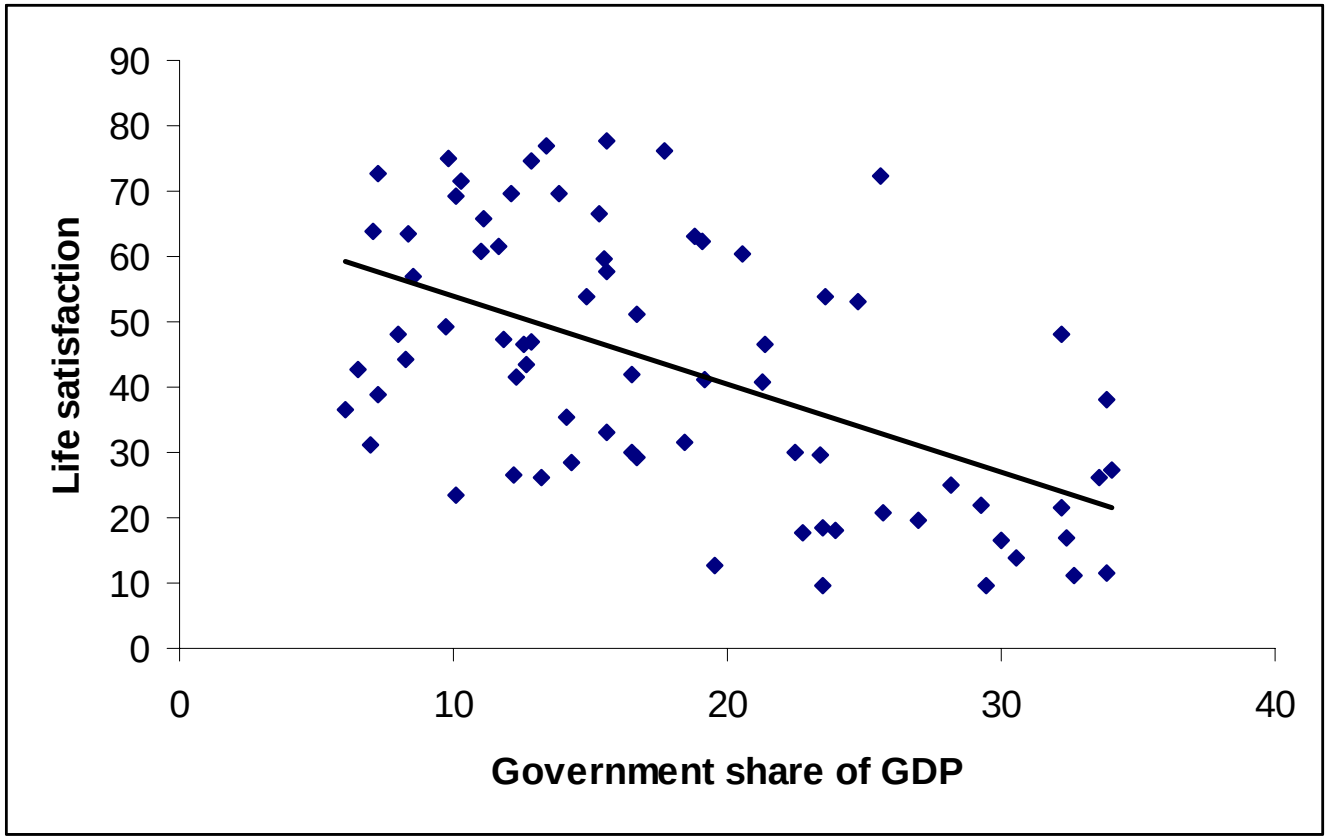
Note: numbers in parenthesis are percent of a standard deviation; calculations are based on the full sample.

Table A1. Countries included

Country	Government share	Life satisfaction	Government effectiveness	Political competition	Median ideology
Albania	23.99	18.24	-0.47	0.82	-0.05
Algeria	22.43	29.94	-0.59	0.54	-0.84
Argentina	14.83	53.92	-0.49	0.90	0.80
Armenia	32.70	11.11	-0.42	0.86	0.00
Australia	10.97	60.84	1.84	0.87	-0.20
Austria	10.14	69.13	1.79	0.51	-0.14
Azerbaijan	32.22	21.55	-0.96	0.98	0.00
Bangladesh	10.10	23.34	-0.53	0.88	-0.17
Belarus	30.54	13.77	-1.03	0.80	-1.00
Belgium	19.11	62.46	1.85	0.25	0.02
Brazil	24.81	53.01	-0.22	0.30	0.22
Bulgaria	33.55	26.04	-0.06	0.85	0.43
Canada	15.36	66.60	1.88	1.00	-0.40
Chile	21.38	46.50	1.19	0.38	-0.06
Colombia	17.72	76.20	-0.39	0.65	0.44
Croatia	33.86	37.98	0.19	0.89	0.77
Czech Republic	11.86	47.42	0.70	0.64	0.39
Denmark	13.38	76.75	1.99	0.59	-0.31
Dominican Republic	16.72	51.22	-0.41	0.96	0.53
Egypt	12.64	43.43	-0.32	1.00	0.00
El Salvador	15.56	57.53	-0.53	1.00	1.00
Estonia	34.04	27.18	0.78	0.70	0.69
Finland	7.24	72.68	2.01	0.35	0.11
France	8.26	44.27	1.67	0.65	-0.19
Georgia	32.37	16.93	-0.77	0.46	0.12
Germany	11.64	61.63	1.76	0.58	0.50
Greece	12.30	41.57	0.79	1.00	-0.40
Hungary	13.21	26.27	0.78	0.59	0.07
Iceland	12.85	74.43	1.98	0.54	0.49
India	29.44	9.55	-0.13	0.64	-0.69
Indonesia	21.29	40.81	-0.56	0.95	0.00
Ireland	12.16	69.74	1.62	0.70	0.60
Israel	32.22	47.98	1.02	0.41	0.03
Italy	9.77	49.24	0.91	0.78	0.08
Japan	6.01	36.47	1.07	0.78	0.75
Jordan	49.66	23.63	0.36	0.76	0.00
Latvia	26.98	19.80	0.67	0.57	0.40
Lithuania	29.30	21.96	0.61	0.74	-0.38
Luxembourg	11.07	65.75	2.13	0.51	-0.44
Macedonia	25.71	20.61	-0.39	0.37	-0.52
Malta	25.61	72.49	1.16	1.00	0.60
Mexico	10.24	71.67	0.15	1.00	-1.00
Moldova	33.82	11.67	-0.63	0.90	-0.58
Morocco	16.72	29.41	0.07	0.28	0.37
Netherlands	13.81	69.48	2.14	0.45	0.33
New Zealand	8.35	63.57	1.97	0.83	0.74
Nigeria	12.56	46.39	-1.12	1.00	0.00
Norway	7.07	63.93	1.84	0.76	-0.35
Pakistan	23.50	9.69	-0.50	0.85	-0.07

Peru	14.17	35.50	-0.47	0.60	0.93
Philippines	16.53	42.01	-0.06	0.73	0.46
Poland	7.29	38.79	0.61	0.52	-0.74
Portugal	19.18	41.04	1.03	1.00	0.00
Romania	12.17	26.63	-0.33	0.62	0.38
Russia	22.71	17.56	-0.40	0.49	0.48
Singapore	7.98	47.96	2.26	1.00	0.00
Slovakia	16.47	30.05	0.40	0.63	-0.84
Slovenia	23.55	53.98	0.82	0.43	-0.06
South Korea	6.94	31.20	0.84	0.93	1.00
Spain	6.48	42.80	1.53	0.90	-0.25
Sweden	18.78	62.96	1.84	0.68	-0.45
Switzerland	9.78	75.12	2.26	0.27	0.06
Taiwan	15.64	33.16	1.00	1.00	1.00
Tanzania	23.45	18.34	-0.51	0.65	-0.77
Turkey	14.32	28.52	-0.20	0.60	0.34
Uganda	28.14	25.03	-0.41	0.69	0.05
Ukraine	29.96	16.71	-0.74	0.48	-0.33
United Kingdom	8.57	57.08	2.03	1.00	0.40
Uruguay	20.56	60.35	0.51	0.42	0.81
USA	12.83	46.92	1.70	1.00	0.20
Venezuela	15.52	59.52	-1.14	0.58	-0.46
Vietnam	18.45	31.41	-0.27	1.00	-1.00
Zimbabwe	19.50	12.72	-0.80	1.00	0.00

Figure 1.


Life satisfaction
90
80
70
60
50
40
30
20
10
0
0
10
20
30
40
Government share of GDP

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